

GRADE 8 BUSINESS & FINANCE

First edition

8 units

32 lessons + bonus business unit

A video for every lesson

FIRST EDITION

COURSE GUIDE

This course follows eight strands of business and finance through the last year before high school: economic thinking, the story of money, markets, great businesses, workers and owners, entrepreneurship and sales, accounting, and finance. Each unit is built around real moments from history: the Pilgrims of Plymouth changing how they farmed in 1623, the bankers of Florence striking the gold florin, Jakob Fugger lending the money that made Charles V emperor, Alfred Sloan of General Motors overtaking Henry Ford, the Bretton Woods conference of 1944 and the closing of the gold window on August 15, 1971, the bank runs of the 1930s and the laws that ended them, the fall of Enron in 2001, and LEGO's near-collapse and recovery.

Every lesson follows the same path. First comes **the story**. Then **how they figured it out**: what problem stood in the way, what they tried, what failed, what they measured and what they changed. Then **the big idea** underneath, explained with real vocabulary and simple formulas: marginal cost and benefit, comparative advantage, the money multiplier, percent change, market share, profit margin, the current ratio, present and future value, bond prices and yields, expected loss and break-even. Then **in business today**: how families, companies and banks use the idea now, and what a wise and honest person does with it. Last, the student works it out with real numbers in a ledger notebook or a free spreadsheet.

Great businesses are weighed by what they meant for **six stakeholders**: the financiers who lent or invested the money, the risk-takers who started them, the builders who designed and made the product, the workers, the customers and the community. A business is great when it creates real value and serves all six over a long time. The year ends with a capstone pitch and a family market day, and an optional bonus unit, **Run a Real Business**, has the student write a full business plan, pitch it to family "investors," run the business for a month with a parent, and close the books with three financial statements and a report to the investors.

Most videos come from the Federal Reserve banks and Federal Reserve History, Khan Academy, Accounting Stuff, museums and company archives, and a few careful teaching channels chosen lesson by lesson. Every video was checked for content and accuracy before it was chosen, and none comes from a channel that takes sides in present-day public debates. Some explainers for older students move quickly; pause them, and replay the parts with numbers. Some channels end with an invitation to subscribe or a short sponsor message; you can stop the video when the teaching ends.

Start with Lesson 1.1 →

WHO IT IS FOR

Written for students in grade 8 (about ages 13–14) who read well, write a clear paragraph, and are comfortable with percents, ratios, simple equations and exponents. A parent or teacher reads along when helpful, plays customer, banker or investor in the projects, and supervises all real selling and money handling. Nothing needs to be bought beyond ordinary household items: a calculator, a free spreadsheet program, store flyers and receipts, index cards and a graph-paper notebook.

HOW TO USE THIS COURSE

1. **The weekly rhythm.** The year has 32 lessons, one a week. Session 1 (about 60 minutes) is the warm-up, the video, the teaching and the picture study. Session 2 (about 60 minutes) is the project and the ledger notebook. In the last week of each unit, add a third session for the unit review and the portfolio project.
2. **Story, then the big idea.** The core ideas are written for the student to read alone or aloud with a parent. *The story* and *How they figured it out* tell what happened; *The big idea* explains the principle, often with a formula and a worked number; *In business today* shows how people use it now. After reading, the student should be able to tell the story back and work the example without looking.
3. **Picture study.** Each lesson has one public-domain painting, print, document or historic photograph. Look at it quietly for two minutes. Then put it away and tell everything you remember. Bring it back and work through the “look for” items and questions, which point to the work, trade or money in the picture.

4. **The ledger notebook.** Use one graph-paper composition book for the whole year, or a notebook together with a spreadsheet file. Every project ends with something counted and written down: a table of marginal costs, a balance sheet, a price survey, a ratio table, a stakeholder scorecard, a bond table, a pitch outline. Date every page, label every column with its units, and write one sentence about what the numbers mean and one about what you would change. “A just weight is his delight” (Proverbs 11:1).
5. **The six stakeholders.** Whenever the course looks at a business, ask what it meant for the financiers, the risk-takers, the builders, the workers, the customers and the community. Unit 4 uses a full stakeholder scorecard for each business; keep using it all year, for businesses in history and in your own town.
6. **Optional books and games.** Some units list free classics such as Leonard Read’s essay “I, Pencil,” Adam Smith’s *The Wealth of Nations* and John Wesley’s sermon “The Use of Money,” free teaching sites from the Federal Reserve and others, and family games. They are extras. Every lesson can be completed without them.
7. **Unit review and portfolio.** Each unit ends with a review worth 100 points, with worked calculations and short written answers, and a portfolio project that pulls the unit together, such as a comparative-advantage trade plan, a stakeholder report, a set of financial statements or a ratio analysis. Keep the portfolio pages in one folder for the year.
8. **Money and selling safety.** A parent supervises all selling and all handling of real money. Never sell door to door or meet strangers alone, never give out personal information, passwords or card numbers, and do not sell or open accounts online without a parent. Check your town’s rules before selling food or setting up a stand. The student never borrows or lends money without a parent, and all investing in this course is practice with pretend money.
9. **The capstone pitch and family market day.** In the last week of Unit 8, the student gives a five-minute pitch for a business idea to the family, sets up a table with the best work from each unit, and explains to guests how the numbers were found.
10. **Run a Real Business (optional bonus unit).** Unit 9 turns the capstone pitch into a real one-month business with a parent: a full written plan, a pitch to family “investors” with a written agreement, four weeks of daily records, a mid-month review, and closing statements with a report and a profit split. Use it after market day, over the summer, or alongside the year.

SCOPE AND SEQUENCE

UNIT 1 • WEEKS 1–4

Economic Thinking

Incentives and the Pilgrims' change at Plymouth; marginal thinking and the water–diamond puzzle; comparative advantage worked with numbers; Leonard Read's pencil and the knowledge carried by prices; and stewardship and vocation in John Wesley's rules for money.

- 1.1 Incentives and Marginal Thinking: Plymouth's Cornfields and the Water–Diamond Puzzle
- 1.2 Comparative Advantage with Numbers
- 1.3 I, Pencil: The Knowledge in Prices
- 1.4 Stewardship and Vocation: Wesley's Three Rules

UNIT 3 • WEEKS 9–12

Markets

The four market structures in depth; antitrust law from the Sherman Act to the breakups of Standard Oil and the Bell System; company towns and the problem of the single employer; and why central planning failed.

- 3.1 Market Structures in Depth: From the Wheat Pit to the Water Company
- 3.2 Antitrust: The Sherman Act, Standard Oil and the Bell System
- 3.3 Company Towns and Monopsony: Pullman, Illinois
- 3.4 The Limits of Central Planning

UNIT 2 • WEEKS 5–8

The Story of Money

The gold florin and the money changers of Florence; how banks create money with fractional reserves; the road from Bretton Woods to the Nixon shock of 1971; and the hyperinflations of Weimar Germany and Zimbabwe.

- 2.1 The Florentine Florin and the Bankers of Florence
- 2.2 How Banks Create Money: Goldsmiths and Fractional Reserves
- 2.3 From Bretton Woods to the Nixon Shock
- 2.4 Hyperinflation: Weimar Germany 1923 and Zimbabwe 2008

UNIT 4 • WEEKS 13–16

Great Businesses and Their Stakeholders

Stakeholder scorecards for Jakob Fugger's bank, Josiah Wedgwood's marketing, the contest between Ford and General Motors, and LEGO's near-collapse and recovery.

- 4.1 The Fuggers of Augsburg: The Banker Who Made an Emperor
- 4.2 Wedgwood's Marketing: Royal Names, Showrooms and Catalogs
- 4.3 Ford versus General Motors: How the Leader Lost Its Lead
- 4.4 LEGO: Near-Collapse and Turnaround

UNIT 5 • WEEKS 17–20

Workers, Owners and Fair Rules

The costs and gains of the factory age and Robert Owen’s New Lanark; the Factory Acts and the Fair Labor Standards Act; the crash of 1929, the FDIC and the SEC; and government failure from Diocletian’s price edict to the gasoline lines of the 1970s.

- 5.1 The Factory Age: Costs, Gains and Robert Owen’s New Lanark
- 5.2 The Factory Acts and the Fair Labor Standards Act
- 5.3 After the Crash: The FDIC, the SEC and Honest Disclosure
- 5.4 When Rules Backfire: Diocletian’s Edict and the Gasoline Lines

UNIT 7 • WEEKS 25–28

Accounting

The three financial statements and how they fit together; ratios and the first credit reports; audits and the collapse of Enron; and nonprofit and church accounting, with George Müller’s published reports.

- 7.1 The Three Financial Statements Together
- 7.2 Ratios and Credit: Lewis Tappan’s Mercantile Agency
- 7.3 Audits and the Enron Collapse
- 7.4 Nonprofit and Church Accounting: George Müller’s Open Books

UNIT 6 • WEEKS 21–24

Entrepreneurship and Sales

The business model and the McDonald brothers’ Speedee System; financing by bootstrapping, loans and equity; consultative selling and John H. Patterson’s cash registers; and the pitch, from Elisha Otis’s falling platform to the student’s own.

- 6.1 The Business Model: The McDonald Brothers’ Speedee System
- 6.2 Financing: Bootstrapping, Loans and Equity
- 6.3 Consultative Selling: John H. Patterson and the Cash Register
- 6.4 The Pitch: Elisha Otis Cuts the Rope

UNIT 8 • WEEKS 29–32

Finance

The time value of money and the Manhattan purchase of 1626; stocks, the stock market and the first index fund; bonds and why their prices fall when interest rates rise; and insurance from Lloyd’s Coffee House to Franklin’s fire company, with the capstone pitch and family market day.

- 8.1 The Time Value of Money: Manhattan for Sixty Guilders
- 8.2 The Stock Market and Index Funds
- 8.3 Bonds and Interest Rates: Consols and Liberty Bonds
- 8.4 Insurance and Risk, the Capstone Pitch and the Family Market Day

UNIT 9 • WEEKS 33–36

Bonus: Run a Real Business

Optional bonus unit: write a full business plan and pitch it to family investors, launch and run the business for a month with daily books, review and adjust at mid-month, and close the books with three statements, a report and a profit split.

9.1 The Full Business Plan and the Investor Pitch

9.2 Launch and Run: The First Two Weeks

9.3 The Mid-Month Review: Measure, Learn, Adjust

9.4 Close the Books: Statements, the Investor Report, the Profit Split and the Gift

WEEKLY PACING CALENDAR

WEEK	PLAN
1	• Session 1: Lesson 1.1 Incentives and Marginal Thinking: Plymouth’s Cornfields and the Water–Diamond Puzzle: warm-up, video, teaching and picture study • Session 2: Lesson 1.1 project and ledger notebook <i>Two sessions a week is the usual rhythm. Younger children can split a long session in two; older students can do both sessions in one sitting.</i>
2	• Session 1: Lesson 1.2 Comparative Advantage with Numbers: warm-up, video, teaching and picture study • Session 2: Lesson 1.2 project and ledger notebook
3	• Session 1: Lesson 1.3 I, Pencil: The Knowledge in Prices: warm-up, video, teaching and picture study • Session 2: Lesson 1.3 project and ledger notebook
4	• Session 1: Lesson 1.4 Stewardship and Vocation: Wesley’s Three Rules: warm-up, video, teaching and picture study • Session 2: Lesson 1.4 project and ledger notebook • Session 3: Unit 1 review and portfolio project

WEEK	PLAN
5	• Session 1: Lesson 2.1 The Florentine Florin and the Bankers of Florence: warm-up, video, teaching and picture study • Session 2: Lesson 2.1 project and ledger notebook
6	• Session 1: Lesson 2.2 How Banks Create Money: Goldsmiths and Fractional Reserves: warm-up, video, teaching and picture study • Session 2: Lesson 2.2 project and ledger notebook
7	• Session 1: Lesson 2.3 From Bretton Woods to the Nixon Shock: warm-up, video, teaching and picture study • Session 2: Lesson 2.3 project and ledger notebook
8	• Session 1: Lesson 2.4 Hyperinflation: Weimar Germany 1923 and Zimbabwe 2008: warm-up, video, teaching and picture study • Session 2: Lesson 2.4 project and ledger notebook • Session 3: Unit 2 review and portfolio project
9	• Session 1: Lesson 3.1 Market Structures in Depth: From the Wheat Pit to the Water Company: warm-up, video, teaching and picture study • Session 2: Lesson 3.1 project and ledger notebook
10	• Session 1: Lesson 3.2 Antitrust: The Sherman Act, Standard Oil and the Bell System: warm-up, video, teaching and picture study • Session 2: Lesson 3.2 project and ledger notebook
11	• Session 1: Lesson 3.3 Company Towns and Monopsony: Pullman, Illinois: warm-up, video, teaching and picture study • Session 2: Lesson 3.3 project and ledger notebook
12	• Session 1: Lesson 3.4 The Limits of Central Planning: warm-up, video, teaching and picture study • Session 2: Lesson 3.4 project and ledger notebook • Session 3: Unit 3 review and portfolio project
13	• Session 1: Lesson 4.1 The Fuggers of Augsburg: The Banker Who Made an Emperor: warm-up, video, teaching and picture study • Session 2: Lesson 4.1 project and ledger notebook

WEEK	PLAN
14	• Session 1: Lesson 4.2 Wedgwood's Marketing: Royal Names, Showrooms and Catalogs: warm-up, video, teaching and picture study • Session 2: Lesson 4.2 project and ledger notebook
15	• Session 1: Lesson 4.3 Ford versus General Motors: How the Leader Lost Its Lead: warm-up, video, teaching and picture study • Session 2: Lesson 4.3 project and ledger notebook
16	• Session 1: Lesson 4.4 LEGO: Near-Collapse and Turnaround: warm-up, video, teaching and picture study • Session 2: Lesson 4.4 project and ledger notebook • Session 3: Unit 4 review and portfolio project
17	• Session 1: Lesson 5.1 The Factory Age: Costs, Gains and Robert Owen's New Lanark: warm-up, video, teaching and picture study • Session 2: Lesson 5.1 project and ledger notebook
18	• Session 1: Lesson 5.2 The Factory Acts and the Fair Labor Standards Act: warm-up, video, teaching and picture study • Session 2: Lesson 5.2 project and ledger notebook
19	• Session 1: Lesson 5.3 After the Crash: The FDIC, the SEC and Honest Disclosure: warm-up, video, teaching and picture study • Session 2: Lesson 5.3 project and ledger notebook
20	• Session 1: Lesson 5.4 When Rules Backfire: Diocletian's Edict and the Gasoline Lines: warm-up, video, teaching and picture study • Session 2: Lesson 5.4 project and ledger notebook • Session 3: Unit 5 review and portfolio project
21	• Session 1: Lesson 6.1 The Business Model: The McDonald Brothers' Speedee System: warm-up, video, teaching and picture study • Session 2: Lesson 6.1 project and ledger notebook
22	• Session 1: Lesson 6.2 Financing: Bootstrapping, Loans and Equity: warm-up, video, teaching and picture study • Session 2: Lesson 6.2 project and ledger notebook

WEEK	PLAN
23	• Session 1: Lesson 6.3 Consultative Selling: John H. Patterson and the Cash Register: warm-up, video, teaching and picture study • Session 2: Lesson 6.3 project and ledger notebook
24	• Session 1: Lesson 6.4 The Pitch: Elisha Otis Cuts the Rope: warm-up, video, teaching and picture study • Session 2: Lesson 6.4 project and ledger notebook • Session 3: Unit 6 review and portfolio project
25	• Session 1: Lesson 7.1 The Three Financial Statements Together: warm-up, video, teaching and picture study • Session 2: Lesson 7.1 project and ledger notebook
26	• Session 1: Lesson 7.2 Ratios and Credit: Lewis Tappan's Mercantile Agency: warm-up, video, teaching and picture study • Session 2: Lesson 7.2 project and ledger notebook
27	• Session 1: Lesson 7.3 Audits and the Enron Collapse: warm-up, video, teaching and picture study • Session 2: Lesson 7.3 project and ledger notebook
28	• Session 1: Lesson 7.4 Nonprofit and Church Accounting: George Müller's Open Books: warm-up, video, teaching and picture study • Session 2: Lesson 7.4 project and ledger notebook • Session 3: Unit 7 review and portfolio project
29	• Session 1: Lesson 8.1 The Time Value of Money: Manhattan for Sixty Guilders: warm-up, video, teaching and picture study • Session 2: Lesson 8.1 project and ledger notebook
30	• Session 1: Lesson 8.2 The Stock Market and Index Funds: warm-up, video, teaching and picture study • Session 2: Lesson 8.2 project and ledger notebook
31	• Session 1: Lesson 8.3 Bonds and Interest Rates: Consols and Liberty Bonds: warm-up, video, teaching and picture study • Session 2: Lesson 8.3 project and ledger notebook

WEEK	PLAN
32	• Session 1: Lesson 8.4 Insurance and Risk, the Capstone Pitch and the Family Market Day: warm-up, video, teaching and picture study • Session 2: Lesson 8.4 project and ledger notebook • Session 3: Unit 8 review and portfolio project <i>Last week. Hold a family market day: the student sets up a table with the best project from each unit and its notebook pages, sells or shows something they made, and explains to guests how they priced it and what they earned.</i>
33	• Session 1: Lesson 9.1 The Full Business Plan and the Investor Pitch: warm-up, video, teaching and picture study • Session 2: Lesson 9.1 project and ledger notebook <i>Optional bonus unit: run a real small business. Do it after market day, over the summer, or alongside the year.</i>
34	• Session 1: Lesson 9.2 Launch and Run: The First Two Weeks: warm-up, video, teaching and picture study • Session 2: Lesson 9.2 project and ledger notebook
35	• Session 1: Lesson 9.3 The Mid-Month Review: Measure, Learn, Adjust: warm-up, video, teaching and picture study • Session 2: Lesson 9.3 project and ledger notebook
36	• Session 1: Lesson 9.4 Close the Books: Statements, the Investor Report, the Profit Split and the Gift: warm-up, video, teaching and picture study • Session 2: Lesson 9.4 project and ledger notebook • Session 3: Unit 9 review and portfolio project

MATERIALS

Ledger notebook (a graph-paper composition book)

One for the whole year: tables, ledgers, statements, ratio tables and stakeholder scorecards.

A calculator with a power key (y^x or $\wedge$)

Needed for compound growth, present value and bond problems in Units 2 and 8.

A free spreadsheet program (Google Sheets or LibreOffice Calc)

Used in Units 2, 7, 8 and 9 for tables, statements and growth calculations. A parent sets up any account.

Play money or slips of paper marked \$1, \$5, \$10, \$20 and \$100

For the banking, auction and market games in Units 2 and 3.

Index cards, sticky notes and markers

For price tags, trading cards, signs, bids and pitch notes.

Store flyers, receipts and a few printed company annual reports or their summary pages

For price surveys and ratio practice. A parent can print the first pages of an annual report from a well-known company's website.

Household supplies for small projects

Paper, scissors, a ruler, a timer, and simple baking or craft supplies for the bonus business.

Optional: one of the books or games listed in a unit

Never required. See the list in each unit.

GRADING

Grades come mostly from the projects and the ledger notebook, because business and money are learned by doing, measuring and recording. A project whose numbers did not turn out well but are honestly recorded and clearly explained earns full credit.

PART	%
Projects (careful work, correct calculations and the improve-it step)	40
Ledger notebook (dated pages, labeled tables with units, honest records)	20
Unit reviews	15
Portfolio projects	25

Scale: A 90–100, B 80–89, C 70–79, D 60–69. Below 60: redo the project or review with help.

- Grade the reasoning, not just the answer. Did the student set up the problem, show the formula, carry units, check the result and explain what it means?

- A ledger page earns full marks when it has a date, a title, labeled columns, correct totals and one sentence about what the numbers mean.
- Unit reviews are worth 100 points. Give partial credit for a correct method with an arithmetic slip.
- Keep each unit's portfolio pages in one folder. They make a fine record of the year, a strong start for high-school business courses and the centerpiece of the family market day.

A NOTE TO PARENTS

You do not need to be an economist or an accountant to teach this course. Read the story with your student, watch the video, and then be the customer, the banker or the investor in the project. Ask “What does the next one cost, and what is it worth?”, “Who gains and who bears the risk?” and “Show me the numbers.” Those three questions are most of what a good business teacher does. When a calculation is new to you, work it side by side; the worked example in the lesson shows each step.

The course tells history honestly. Great businesses are shown with their strengths and their failings, and the lessons on fair rules are taught as settled history: what problem a law or a custom fixed, how it worked and what it cost, along with examples where rules went wrong. Hard chapters such as the Atlantic trade in human beings, the Enron fraud and the bank runs of the 1930s are told plainly and briefly, with the moral lesson in view. Nothing in the course asks you or your child to take a side in present-day public debates.

This is the year a student can run a real business. Stay close: you are the partner who keeps the cash box, checks the change, signs off on any purchase and makes sure no one is cheated. Above all, the course hopes to raise a young person who works heartily, deals honestly, saves wisely and gives cheerfully, as a steward of what belongs to God. *Fabricando fit faber*: by making, one becomes a maker.

UNIT 1

ECONOMIC THINKING

Economics is not first of all about money. It is a way of thinking about choices: people respond to **incentives**; wise choices are made **at the margin**, one more unit at a time; trade makes both sides richer because of **comparative advantage**; and prices carry knowledge that no single person has. In this unit you will meet these ideas in real history: the Pilgrims of Plymouth changing how they farmed in 1623, Adam Smith puzzling over why water is cheap and diamonds dear, a baseball team moving its best pitcher into the outfield, and an ordinary pencil that no one person on earth knows how to make.

The unit ends where all business thinking should begin: with **stewardship** and **vocation**. Everything belongs to God, work is a calling, and money is a tool to be gained honestly, saved wisely and given generously. You will build a stewardship plan of your own and, for the portfolio, a full trade plan worked out with comparative advantage.

PREREQUISITES

- Knows scarcity, opportunity cost and specialization (earlier grades or a quick review)
- Can work with ratios, fractions and percents
- Can make a table with labeled columns

MASTERY CHECKLIST

- ☐ I can explain how incentives shaped what happened at Plymouth in 1623, and give a modern example of an incentive that worked and one that backfired.
- ☐ I can use marginal cost and marginal benefit to decide how much of something to make or do.
- ☐ I can calculate opportunity costs, find comparative advantage, and show with numbers that both sides gain from trade.
- ☐ I can explain, with the pencil as an example, how prices carry knowledge and coordinate millions of people.
- ☐ I can explain stewardship and vocation and John Wesley's three rules for money.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **I, Pencil, by Leonard E. Read (1958)**: Free. A short essay told by a pencil about everything that goes into making it. Read it aloud in Lesson 1.3. Ages 11+.
- **The Wealth of Nations, by Adam Smith (1776), Book I**: Free. Read the first chapter (the pin factory) and the passage on water and diamonds in chapter 4 for Lessons 1.1 and 1.2. Ages 13+, with a parent.
- **"The Use of Money," a sermon by John Wesley (1760)**: Free in Wesley's collected sermons (Sermon 50). Read the three rules aloud in Lesson 1.4. Ages 12+.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

1.1 Incentives and Marginal Thinking: Plymouth's Cornfields and the Water-Diamond Puzzle

2 sessions of 60 minutes

1.2 Comparative Advantage with Numbers

2 sessions of 60 minutes

1.3 I, Pencil: The Knowledge in Prices

2 sessions of 60 minutes

1.4 Stewardship and Vocation: Wesley's Three Rules

2 sessions of 60 minutes

UNIT 1 REVIEW

Answer each question. Show your work for calculations and use complete sentences for explanations. The review is worth 100 points.

1. **8 pts**

What was the rule for the Plymouth colony's harvest before 1623, and what did Governor Bradford change? Explain the change using the word incentive.

2. **8 pts**

Explain the water-diamond puzzle and how marginal thinking solves it.

3. **10 pts**

A bakery's marginal cost is \$9 a batch. Batches sell for \$30, \$20, \$12, \$7 and \$4. How many batches should it bake, and what is its total net gain?

4. **6 pts**

What is a sunk cost? Give an example and explain why it should not change a decision.

5. **10 pts**

In one hour, Maria can make 10 loaves or 5 shirts; Tom can make 6 loaves or 2 shirts. Find each person's opportunity cost of one shirt and say who should specialize in shirts.

6. **8 pts**

Why did the Red Sox and Yankees move Babe Ruth from pitching to the outfield?
Use the words absolute advantage and comparative advantage.

7. **8 pts**

Using the pencil as your example, explain how a price carries knowledge.

8. **8 pts**

The price of cedar slats rises from \$0.020 to \$0.025 per pencil. What is the percent increase? How much more does a maker of 2 million pencils a year pay?

9. **6 pts**

What is spontaneous order? Give an example other than the pencil.

10. **8 pts**

State John Wesley's three rules for money and explain why he said the third is necessary.

11. **10 pts**

A worker earns \$40,000 and lives on \$32,000. Her pay rises to \$50,000. How much can she save and give each year if she keeps living on \$32,000? If instead her spending rises to \$42,000?

12. **10 pts**

Write a short paragraph explaining what stewardship and vocation mean for a young person starting a small business.

ANSWER KEY

1. Before 1623 everything went into a common store shared by ration, so hard workers got the same as idle ones. In 1623 each family was given land to farm and kept what it grew. Because each family now gained from its own effort, the incentive to work rose, and much more corn was planted.
2. Water is more useful than diamonds, yet diamonds cost more. We choose one more unit at a time; because water is plentiful, one more glass adds little value, while diamonds are rare, so one more adds a great deal. Price depends on the value of the next unit, not of the whole supply.
3. Bake 3 (the 4th brings \$7 but costs \$9). Net gain: $(30 - 9) + (20 - 9) + (12 - 9) = 21 + 11 + 3 = \$35$.
4. Money or time already spent that cannot be recovered, such as a nonrefundable ticket or last month's rent. It is lost whichever choice is made, so only the future costs and benefits should decide what to do next.
5. Maria: $10 \div 5 = 2$ loaves per shirt. Tom: $6 \div 2 = 3$ loaves per shirt. Maria has the lower opportunity cost, so she should make shirts, and Tom should make bread, even though Maria is faster at both.
6. Ruth had an absolute advantage at both pitching and hitting over most players. But other good pitchers could be found, while no one could replace his hitting, and an everyday outfielder plays far more games. His comparative advantage was hitting: the team gave up less by losing his pitching than it would have by losing his bat.
7. Thousands of people in many countries make the pencil's parts, and no one knows them all. If graphite grows scarce, its price rises; pencil makers who never hear why still use less, look for substitutes or pay more, and miners look for more. The price passes the news along the chain without anyone giving orders.
8. $(0.025 - 0.020) \div 0.020 \times 100 = 25\%$. Extra cost: $0.005 \times 2,000,000 = \$10,000$.
9. An orderly pattern that comes from many people's free choices without anyone planning the whole, such as a city's food supply arriving at grocery stores each day, a language, or paths worn across a park.
10. Gain all you can (honestly, without harming body, soul or neighbor); save all you can (cut waste); give all you can. Without giving, gaining and saving only make a person richer and prouder; giving turns money to its purpose of serving God and neighbor.

11. Living on \$32,000: $50,000 - 32,000 = \$18,000$. With spending at \$42,000: $50,000 - 42,000 = \$8,000$. Keeping her living costs steady more than doubles what she can save and give.
12. Answers will vary. A strong answer says the business and its money belong to God and must be managed faithfully; the work is a calling to serve customers and neighbors with something good; the owner deals honestly, works heartily (Colossians 3:23), plans, saves and gives; and cites a verse such as Psalm 24:1 or Matthew 25:14-30.

PORTFOLIO PIECE: A COMPARATIVE-ADVANTAGE TRADE PLAN

Choose two people (for example, you and a sibling), two households, or two real countries with data you can find with a parent. Measure or look up how much of two goods or tasks each can produce in the same time. Calculate opportunity costs, decide who should specialize in what, choose terms of trade, and show in a table and a graph how much each side produces and consumes with and without trade. Finish with a one-page report that also names one incentive problem the plan might face (for example, someone not doing his share) and how you would solve it.

LOOK FOR	WHAT IT MEANS
Measurements	Real, clearly recorded measurements or cited data for both sides and both goods, with units.
Calculations	Opportunity costs, comparative advantages and gains from trade are calculated correctly and shown step by step.
Graph and table	A labeled table and graph show production and consumption with and without trade.
Incentives	The report identifies a realistic incentive problem and a sensible, fair solution.
Writing	Clear, organized explanation in the student's own words, with correct terms.

1.1 INCENTIVES AND MARGINAL THINKING: PLYMOUTH'S CORNFIELDS AND THE WATER–DIAMOND PUZZLE

OBJECTIVES

- Tell how the Plymouth colony changed the way it farmed in 1623 and explain the change in terms of incentives.
- Explain the water–diamond puzzle and how thinking at the margin solves it.
- Use a table of marginal costs and marginal benefits to find the best amount to produce.

Warm-up. Think of a rule at home, at church or on a team that changed how hard people worked or how careful they were. Write it down. Did the rule reward the behavior it wanted, or did it accidentally reward something else? Share one example of each kind.

WATCH

What Is Thinking on the Margin, and How Does It Solve the Sunk Cost Fallacy?

Marginal Revolution University • 6:18

<https://www.youtube.com/watch?v=B9MPKlfyRHI>

WHEN TO WATCH

After the water–diamond puzzle, before the marginal table in the project.

Note: From Marginal Revolution University, an economics teaching site from George Mason University.

BACKUP VIDEO

What are Incentives?

Marginal Revolution University • 2:02

<https://www.youtube.com/watch?v=U3z0Rxummxc>

With the warm-up, as a two-minute introduction to incentives.

KEY TERMS

incentive

A reward or a cost that encourages people to act in a certain way.

unintended consequence

A result of a rule or choice that its makers did not plan or expect.

marginal

Additional: the next one. Marginal cost is the extra cost of one more unit; marginal benefit is the extra benefit of one more unit.

diminishing marginal benefit

The pattern that each additional unit of something usually adds less benefit than the one before.

sunk cost

Money or time already spent that cannot be recovered; it should not change a decision about what to do next.

CORE IDEAS

The story. The Pilgrims who landed at Plymouth in 1620 owed a great debt to the London merchants who had paid for their voyage. Their agreement said that for seven years everything they grew or caught would go into one common store, shared out by ration. Two hungry years followed. In the spring of 1623, Governor William Bradford and the other leaders decided that each family would plant corn for itself. Bradford assigned every family a parcel of land, in proportion to the number of its people, and let it keep what it raised that year.

How they figured it out. Bradford later wrote in his history, *Of Plymouth Plantation*, that the change “had very good success.” Much more corn was planted than before, and families who had held back now went willingly into the fields, even bringing their children. He also wrote down why the common store had failed: the strong young men thought it unfair to work for other men’s families without pay, and those who worked hard received the same ration as those who did little. Nobody had planned for laziness; the rule itself had made hard work pay poorly. In 1624 each person was granted an acre of land to keep. Bradford also recorded a drought that summer and the colony’s day of prayer before the rain came, so he did not credit the harvest to the new rule alone.

The big idea: incentives. People respond to **incentives**. A rule that rewards effort gets more effort; a rule that rewards the wrong thing gets the wrong thing, often as an **unintended consequence**. In 1776 Adam Smith posed a puzzle in *The Wealth of Nations*: nothing is more useful than water, yet it buys almost nothing, while a diamond is of little use and buys a great deal. In the 1870s three economists working separately, William Stanley Jevons in England, Carl Menger in Austria and Léon Walras in Switzerland, solved it by thinking **at the margin**. We rarely choose between all water and all diamonds. We choose about one more glass or one more stone. Because water is plentiful, one more glass adds very little; because diamonds are rare, one more adds a great deal. Value depends on the next unit, not the whole supply.

The big idea: marginal thinking. A wise decision compares **marginal benefit** with **marginal cost**: keep going as long as the next unit is worth more than it costs. Example: a bakery's ingredients and oven time cost \$9 for each extra batch of rolls. The first batch sells for \$30, the second for \$20 (fewer hungry customers are left), the third for \$12, the fourth for \$7. Batches 1–3 each bring in more than \$9, so they are worth baking; the fourth brings in \$7 but costs \$9, a \$2 loss. Bake three. Notice that the rent the baker has already paid this month is a **sunk cost**; it should not change the answer.

In business today. Companies, churches and families design incentives every day: commissions for salespeople, bonuses for safety records, allowances tied to chores. Good ones reward what you truly want, such as honest sales, safe work and finished chores, and bad ones are gamed. Scripture puts the plain principle this way: a man who will not work should not expect to eat (2 Thessalonians 3:10). A wise steward also thinks at the margin: “Is the next hour, the next purchase, the next batch worth what it costs?”

PICTURE STUDY



The First Thanksgiving at Plymouth, Jennie Augusta Brownscombe, 1914 · Oil on canvas · Pilgrim Hall Museum, Plymouth, Massachusetts

Image: [Wikimedia Commons](#), public domain

Jennie Brownscombe painted this scene almost three hundred years after the event. She imagined the harvest feast of 1621, when the Pilgrims and their Wampanoag neighbors gave thanks together. The colony's great change in farming came two years later, but the painting reminds us what every harvest meant to them: food for the winter, earned by hard work and received with thanks.

Look closely

- Find the food on the table. Which of these things had to be grown, which hunted or caught, and which gathered?
- Look at the houses behind the table. What do they tell you about how much the colonists owned?
- Find the man who is praying. Why would a people who knew hunger give thanks before they ate?

Talk about it

1. If all of this food came from one common store, how might a hardworking farmer feel? How might a lazy one feel?
2. What incentive changed when each family kept the corn from its own plot?

3. Bradford gave thanks to God for the rain and also changed the rule. Why is it wise to do both?

PROJECT

The Incentive Experiment and the Marginal Table

You will run a small experiment to see how incentives change effort, and then use a marginal table to decide how much of something a business should make.

You will need

- A jar of about 300 mixed coins, dried beans or buttons, and 4 small bowls
- A timer
- At least two helpers (family members)
- A small reward, such as a sticker, a cookie or choosing the dinner dessert
- Ledger notebook and calculator

Steps

1. **Round 1: common store.** Each helper sorts mixed coins or beans into bowls by type for 2 minutes. Everyone's sorted pieces go into one pile, and the reward is shared equally no matter who sorted how many. Count and record how many pieces each person sorted.
2. **Round 2: own plot.** Mix the pieces again. This time each person keeps a reward in proportion to what he or she sorted (for example, one sticker for every 25 pieces). Sort for 2 minutes, count and record.
3. Make a table: Person, Round 1 count, Round 2 count, Change. Find the total and the percent change for the group: $(\text{Round 2} - \text{Round 1}) \div \text{Round 1} \times 100$.
4. Write three sentences: Did the incentive change effort? Did anything else change, such as care or accuracy? Did anyone try to game the rule?
5. **The marginal table.** Imagine you sell homemade cookies by the dozen at a church sale. Each extra dozen costs \$3 in ingredients. You expect the 1st dozen to bring \$10, the 2nd \$8, the 3rd \$6, the 4th \$4, the 5th \$2.
6. Rule a table: Dozen, Marginal benefit, Marginal cost, Net gain. Fill in all five rows and mark the last dozen worth baking.
7. Now suppose butter goes up and each dozen costs \$5. Redo the last column. How many dozen now?

8. Write one sentence explaining why the money you already spent on a new cookie sheet should not change your answer.

Tips

- Run Round 1 first, before anyone knows a Round 2 is coming, or the results will be unfair.
- Marginal benefit falls as you make more because the most eager customers buy first.

Check your work

- ☐ I can explain what changed at Plymouth in 1623 and why.
- ☐ I can solve the water–diamond puzzle by thinking about the next unit.
- ☐ I can find the best quantity by comparing marginal benefit and marginal cost.

LEDGER NOTEBOOK

1. Copy your incentive-experiment table and draw a bar graph of Round 1 and Round 2 for each person.
2. Draw two columns headed “Glass of water” and “Diamond.” Under each, list why the whole supply is valuable and why one more unit is or is not.
3. Write a rule for a family chore chart that would reward the right thing, and one way someone might try to game it. Then fix the rule.

From history. Bradford wrote *Of Plymouth Plantation* by hand between 1630 and 1651. The manuscript disappeared from Boston during the War of Independence and turned up in the library of the Bishop of London. It was returned to Massachusetts in 1897 and is kept today in the State Library in Boston.

COMMON MISTAKES

- Thinking incentives are only about money. Praise, honor, time, freedom and fear of loss are incentives too.
- Comparing totals instead of the next unit. The question is never “Is bread good?” but “Is one more loaf worth its cost?”
- Letting sunk costs drive decisions. Money already spent is gone either way.

Make it a game • Pilgrim Plots Teach-Back. Be the teacher. Spend two minutes explaining to your parent how Plymouth changed its farming in 1623 and why that changed people's incentives. Then your parent quizzes you on the water-diamond puzzle and marginal thinking, sneaking in one wrong fact. Catch it, give the correct fact, and score a point. Finish by sipping a glass of water, rating each sip from 10 downward.

Scripture. “For even when we were with you, this we commanded you, that if any would not work, neither should he eat.” (2 Thessalonians 3:10, KJV)

Paul did not forbid helping the sick, the widow or the orphan; he warned against those who could work and would not. A good rule, like Plymouth’s new one, lets diligent work bear its own fruit.

1.2 COMPARATIVE ADVANTAGE WITH NUMBERS

OBJECTIVES

- Tell how Ricardo explained comparative advantage in 1817 and how the Boston Red Sox used it with Babe Ruth.
- Distinguish absolute advantage from comparative advantage.
- Calculate opportunity costs, find who should specialize in what, and show that both sides gain from trade.

Warm-up. In your family, who is fastest at washing dishes? Who is fastest at folding laundry? Is the fastest person at both jobs the one who should do both? Write down your guess and one reason.

WATCH

Comparative advantage specialization and gains from trade | Microeconomics | Khan Academy

Khan Academy • 8:56

<https://www.youtube.com/watch?v=xx9xNJlPOJo>

WHEN TO WATCH

After the Anna and Ben example; pause when the opportunity costs appear and work them yourself first.

BACKUP VIDEO

Comparative Advantage

Marginal Revolution University • 7:15

<https://www.youtube.com/watch?v=4rUfoU04QJM>

Optional, after the project: what happens to a people cut off from trade.

KEY TERMS

absolute advantage

The ability to produce more of a good than someone else with the same time or resources.

comparative advantage

The ability to produce a good at a lower opportunity cost than someone else.

opportunity cost

The value of the next-best thing you give up when you make a choice.

terms of trade

How much of one good is traded for a unit of another.

gains from trade

The extra goods both sides end up with when each specializes in its comparative advantage and trades.

CORE IDEAS

The story. Ricardo, a London stockbroker who made a fortune and then turned to economics, published a book on the principles of economics in 1817. In it he imagined England and Portugal each making cloth and one other good. Portugal could make both more cheaply in labor than England. Should Portugal make everything itself? Ricardo showed that it should not: if each country made what it gave up least to make, and traded, both would end up with more. A century later, the Boston Red Sox faced the same question with a young left-hander named George Herman “Babe” Ruth. In 1916 he won 23 games and had the lowest earned-run average in the American League. He was one of the best pitchers in baseball.

How they figured it out. Ruth could also hit a ball farther than anyone alive. But a pitcher plays only every fourth or fifth day, and pitching wore out his arm. In 1918 and 1919 the Red Sox began playing him in the outfield on the days he did not pitch, and in 1919 he hit 29 home runs, a new record. Sold to the New York Yankees, he became an everyday outfielder and in 1920 hit 54. The team could find other good pitchers; it could not find another hitter like Ruth. Giving up a great pitcher to get the greatest hitter was a smaller sacrifice than the other way around. That is comparative advantage.

The big idea. You have an **absolute advantage** when you can make more of something than another person. You have a **comparative advantage** when your **opportunity cost** is lower. Worked example: in one hour, Anna can bake 12 muffins or knit 4 scarves; Ben can bake 6 muffins or knit 3 scarves. Anna is faster at both. But Anna’s opportunity cost of 1 scarf is $12 \div 4 = 3$ muffins, while Ben’s is $6 \div 3 = 2$ muffins. Ben gives up less to make a scarf, so Ben has the comparative advantage in scarves; Anna, whose muffin costs only $1/3$ scarf against Ben’s $1/2$ scarf, has it in muffins. If

each spends 2 hours split evenly, they make 18 muffins and 7 scarves together. If Anna bakes for 2 hours (24 muffins) and Ben knits for 2 hours (6 scarves), they could trade at, say, 2.5 muffins per scarf, and both can end up with more of what they want than they could make alone.

Think it through. Comparative advantage explains why a doctor who types fast still hires someone to type, why a family divides chores, and why countries trade. It does not mean trade is painless: when a country starts to import a good, the workers and owners who made it at home must find new work, and wise communities help them learn new skills. But over time, specialization and trade let everyone have more than they could produce alone.

In business today. Businesses buy parts, services and advice from others who can make them at a lower opportunity cost, and focus on what they do best. A wise person asks the same question about his or her own work: not “What am I good at?” but “What can I do that gives up the least and serves others the most?”

PICTURE STUDY



Babe Ruth and Three Red Sox Teammates, 1915, Bain News Service, 1915 · Glass-plate photograph · Library of Congress, Prints and Photographs Division
Image: [Wikimedia Commons](#), public domain

When this photograph was taken in 1915, the 20-year-old Babe Ruth was a pitcher, and a very good one. Beside him sit two other Red Sox pitchers, Ernie Shore and Rube Foster, and the first baseman Del Gainer. Within five years Ruth would be the most famous hitter in the world. This picture shows him at the moment when his team still thought of him as an arm, not a bat.

Look closely

- Find Babe Ruth on the left. How old does he look?
- Look at the uniforms, caps, shoes and the dugout. What equipment can you see?
- Read the names written above the players. Which three were pitchers and which one played first base?

Talk about it

1. Ruth had an absolute advantage over most players at both pitching and hitting. Why did the team move him anyway?
2. What did the Red Sox give up when Ruth stopped pitching? What did they gain?

3. Name a job in your family or church where someone who is good at many things should focus on one.

PROJECT

The Kitchen-Table Trade

You and a partner will measure how fast each of you makes two simple products, find your opportunity costs and comparative advantages, and test whether specializing and trading really produces more.

You will need

- A partner (parent or sibling)
- Paper for folding paper boats (or paper cups to stack into pyramids)
- Index cards for writing simple price tags (for example “\$2.50”)
- A timer, ledger notebook and calculator

Steps

1. Choose two products: *Product A*, folded paper boats; *Product B*, neatly written price tags on index cards.
2. Each person makes only paper boats for 4 minutes. Count the good ones. Then each makes only price tags for 4 minutes. Count the neat, correct ones.
3. Record a table: Person, Boats in 4 min, Tags in 4 min.
4. Calculate each person's opportunity cost of one boat (tags given up ÷ boats made) and of one tag (boats given up ÷ tags made). Circle who has the comparative advantage in each.
5. **No trade:** each person spends 2 minutes on each product. Count the totals.
6. **Specialize:** each person spends all 4 minutes on the product of his or her comparative advantage. Count the totals.
7. Compare the totals in a table. Did specializing produce more? By what percent? $(\text{Specialized total} - \text{no-trade total}) \div \text{no-trade total} \times 100$.
8. Agree on terms of trade between your two opportunity costs, trade, and show that each of you ends up with at least as much of both products as in the no-trade round.

Tips

- Count only good, finished products. Speed without quality is not production.

- If one person is faster at both, that is fine; that is exactly Ricardo's case.

Check your work

- ☐ I can explain the difference between absolute and comparative advantage.
- ☐ My table shows the opportunity costs and who should specialize in what.
- ☐ I can show with numbers that both sides gained from trade.

LEDGER NOTEBOOK

1. Draw a production possibilities line for each person from your project (boats on one axis, tags on the other) and label the slopes as opportunity costs.
2. Copy the Anna and Ben example and finish it: if they trade 10 muffins for 4 scarves, how many of each does each person have? Is each better off than with no trade?
3. Make a timeline of Babe Ruth's change: 1916 (23 wins), 1919 (29 home runs), 1920 (54 home runs).

From history. Ricardo was born in London in 1772, the son of a stockbroker, and went to work on the Stock Exchange at fourteen. He read *The Wealth of Nations* by chance in 1799 while on holiday in Bath and soon began writing on economics. He later served in Parliament and died in 1823.

COMMON MISTAKES

- Thinking the faster person should do everything. Even the faster person has only so many hours.
- Dividing the wrong way. Opportunity cost of one boat = what you give up (tags) ÷ what you get (boats).
- Thinking trade means one side wins and one loses. With terms between the two opportunity costs, both gain.

Make it a game • The Kitchen-Table Trade Duel. Pick two quick jobs, such as writing the alphabet and stacking cups. Each of you works one minute at each job and counts your output. Work out each person's opportunity cost, then decide who should specialize in what and why. Play a second round with each of you doing only your best-trade job. Compare the totals and name the gains from trade.

1.3 I, PENCIL: THE KNOWLEDGE IN PRICES

OBJECTIVES

- Retell Leonard Read’s essay “I, Pencil” and trace the materials and workers behind an ordinary product.
- Explain Friedrich Hayek’s idea that prices carry knowledge no single person has.
- Show how a rise in price tells buyers to use less and sellers to supply more.

Warm-up. Pick up a wooden pencil. In one minute, list every material in it and every job that had to be done to make it, from the forest to the store. How many did you list? Who knows how to do all of them?

WATCH

Hayek on the Use of Knowledge in Society

Marginal Revolution University • 5:09

https://www.youtube.com/watch?v=-gi2_1Vsmf4

WHEN TO WATCH

After the story of the pencil, before the price-signal game.

Note: Explains Hayek’s tin example from his 1945 essay.

KEY TERMS

price signal

A change in price that tells buyers and sellers something has changed in supply or demand.

spontaneous order

An orderly pattern that arises from many people’s free choices without anyone planning the whole.

division of knowledge

The way useful knowledge is spread among millions of people, each knowing a small part.

supply chain

The series of businesses that grow, mine, make, move and sell the parts of a product until it reaches the customer.

CORE IDEAS

The story. In December 1958 Leonard E. Read published a short essay called “I, Pencil,” told in the voice of an ordinary yellow pencil. The pencil traces its family tree: cedar logged in northern California and Oregon and cut into slats; graphite

mined in Ceylon (now Sri Lanka) and mixed with clay; a brass band, called a ferrule; lacquer for its six coats of yellow paint; and an eraser made largely from a rubbery substance produced from rapeseed oil grown in the Dutch East Indies. Thousands of people, from loggers and miners to sailors, chemists and lighthouse keepers who guided the ships, had a hand in it. The pencil's startling claim is that no single person on earth knows how to make it.

How they figured it out. Read was drawing on an older argument. In 1945 the Austrian-born economist Friedrich Hayek wrote an essay called “The Use of Knowledge in Society.” He asked how millions of people, each knowing only a small part, could fit their work together. His answer was prices. Suppose a new use for tin is found, or a tin mine closes. Users of tin do not need to know why. They only see that the price of tin has gone up, and that is enough: they use less, look for substitutes and save it for its most valuable uses, while miners look for more. A single number passes the news along the whole chain.

The big idea. No planner arranges the pencil. Each person in the **supply chain** does a small job for wages or profit, guided by prices, and the result is a **spontaneous order** that no one designed. Prices work like signals: a rise says “this is scarcer, use it carefully, and make more if you can”; a fall says the opposite. Worked example: if the price of cedar slats rises from \$0.020 to \$0.025 per pencil, that is a 25% increase. A pencil maker who sells 1 million pencils a year now pays \$5,000 more for wood, and has a strong reason to waste less, try another wood, or pay a little more for the pencil. Meanwhile lumber mills have a reason to cut more cedar.

Think it through. Read and Hayek were not saying that people are selfish. The loggers and miners may be generous family men and churchgoers; prices simply let them serve millions of strangers they will never meet. Scripture tells us that God gave different gifts to different people so that they would need one another (1 Corinthians 12). The pencil shows the same truth in the world of work.

In business today. Managers watch prices to know when to buy, when to switch suppliers and when to change their own prices. When prices are forced away from their real level, the signals stop working, and shortages or waste follow; you will see examples in Units 3 and 5. A wise buyer treats a price change as information, not only as good or bad news.

PICTURE STUDY



A Guarantee Card from an Eberhard Faber Pencil Tin, Unknown artist, about 1900 · Printed drawing, inserted in a pencil tin · Neumarkt in der Oberpfalz, Bavaria

Image: [Wikimedia Commons](#), public domain

The Faber family made pencils in Bavaria for generations, and one branch, under Eberhard Faber, built pencil factories in New York and later in Germany. Cards like this one were tucked inside a tin of pencils. The German words on the scroll say, in English, “We take on every guarantee that these pencils are of faultless quality,” and the red seal and signature stand behind the promise.

Look closely

- Find the factory. Count the long buildings and the chimney. What might be happening in each part?
- Find the scroll and the red seal. Why would a company print a promise inside its product?
- Look at the land around the factory. How would cedar, graphite and clay arrive, and how would finished pencils leave?

Talk about it

1. Which parts of a pencil were made inside a factory like this, and which had to come from far away?
2. A guarantee is a promise about quality. Why would customers trust it more when it is signed and sealed?
3. If the price of graphite suddenly doubled, what might the managers of this factory do?

PROJECT

The Family Tree of a Product and the Price-Signal Game

You will trace everything that goes into one ordinary product, then play a game that shows how a price change spreads knowledge without anyone giving orders.

You will need

- One ordinary product: a pencil, a jar of peanut butter, a cotton T-shirt or a box of crackers
- A world map or atlas (printed or online with a parent)
- Index cards, markers and play money
- Ledger notebook and calculator

Steps

1. Read “I, Pencil” aloud (it takes about 15 minutes), or read the summary in this lesson.
2. Choose your product. Read the label and, with a parent, look up where its main ingredients or materials come from.
3. Make a “family tree” chart: the product at the top, its 5–8 main materials below, and below each material the jobs needed to grow, mine, make, pack and ship it. Aim for at least 25 different jobs.
4. Mark the countries or states on a map and count them.
5. **The price-signal game.** Make 10 cards labeled “wood” and give them to the “mill” (a parent). Two or three players are pencil makers with \$20 each. The mill sells wood at \$1 a card.
6. After two rounds, the mill secretly loses half its wood (a fire). It does not tell anyone why; it only raises the price to \$2. Record what each pencil maker does: buy less, look for a substitute, or pay more.
7. In round 4, a new mill opens and offers wood at \$1.50. Record what happens to buying and the price.
8. Write a paragraph: Who knew about the fire? How did the pencil makers learn that wood was scarcer? What did the price do that an order from a

planner would have had to do?

Tips

- The point of the game is that the players never need to know about the fire; the price tells them enough.
- If you cannot find where a material comes from, write “unknown” rather than guess.

Check your work

- ☐ I can name at least 25 jobs behind one ordinary product.
- ☐ I can explain how a price carries knowledge from people I will never meet.
- ☐ I can calculate a percent change in a price.

LEDGER NOTEBOOK

1. Draw your product’s family tree as a labeled diagram with arrows from raw materials to the store shelf.
2. Make a table from the price-signal game: Round, Price of wood, Cards bought, What the players did.
3. Write a short paragraph in the voice of your product, beginning “I, ____, am made by...”

From history. Leonard E. Read (1898–1983) grew up on a farm in Michigan, ran a wholesale produce business, and later led the Los Angeles Chamber of Commerce before founding a small educational organization in New York in 1946. “I, Pencil” first appeared in that organization’s magazine and has been reprinted many times since.

COMMON MISTAKES

- Thinking a pencil factory makes the whole pencil. It assembles parts made by thousands of other people.
- Thinking a price rise is only bad news. It is also a message that tells people to save and to supply more.
- Thinking the order in markets means no rules are needed. Prices coordinate honest trade; they still need just weights, contracts and courts.

Make it a game • Pencil Family Tree Sprint. Hold up a pencil. In 90 seconds, draw every material and worker behind it that you can remember from Leonard Read's essay, from the cedar to the eraser's metal band. Count your boxes. Then your parent announces a price change, such as cedar doubling, and you trace who learns of it and how they respond, with no one in charge.

1.4 STEWARDSHIP AND VOCATION: WESLEY'S THREE RULES

OBJECTIVES

- Explain stewardship and vocation from Scripture, including the parable of the talents.
- Tell how John Wesley lived by his rules for money and summarize his sermon “The Use of Money.”
- Write a personal stewardship plan with real numbers for earning, saving and giving.

Warm-up. Write down three things you own or are responsible for: a bike, a pet, a skill, a younger sibling, your time. For each, write what a good steward would do with it this week.

WATCH

Jesus' Perspective on Wealth in 6 Minutes

BibleProject · 6:55

<https://www.youtube.com/watch?v=GpqOdHV3dmU>

WHEN TO WATCH

After the big idea, before the stewardship plan.

Note: From BibleProject, an animated Bible-teaching studio; this episode covers Matthew 6:19-34.

BACKUP VIDEO

God's Calling Is More Than Work

Theology of Work Project · 1:25

<https://www.youtube.com/watch?v=W4RdKn5Ep7I>

With the warm-up, on work as a calling.

KEY TERMS

stewardship

Managing something that belongs to another, faithfully and for the owner's purposes; for Christians, managing all we have for God.

vocation

A calling: the work and roles God gives a person, through which he or she serves God and neighbor.

talent

In the New Testament, a very large weight of silver, worth many years of wages; the word later came to mean a natural gift.

lifestyle creep

The habit of spending more every time income rises, so that nothing more is saved or given.

CORE IDEAS

The story. John Wesley (1703–1791) was an English clergyman who preached to coal miners, factory workers and farmers in open fields, and whose followers became the Methodists. When he was a young teacher at Oxford, he earned about £30 a year. He found he could live on £28, so he gave away £2. The next year his income doubled to £60; he still lived on £28 and gave away £32. As his income rose to £90 and £120, he kept living on about £28 and gave the rest. Later in life, when his books sold widely and brought in large sums, he still lived simply and gave most of it away.

How they figured it out. Wesley watched many poor people become Methodists, work hard, stop wasting money and grow prosperous, and then grow proud and careless of God. He did not tell them to stop working or earning. Instead, in his sermon “The Use of Money,” first printed in 1760, he gave three rules: *gain all you can*, by honest work that does not harm your body, your soul or your neighbor; *save all you can*, by cutting waste and needless luxury; and *give all you can*, first providing for your family and then doing good to others. He warned that a person who kept only the first two rules would grow richer in money and poorer in soul; the third rule is the point of the first two.

The big idea. **Stewardship** means we are managers, not owners: “The earth is the LORD’s, and the fulness thereof” (Psalm 24:1). In the parable of the talents (Matthew 25:14–30), a master gives his servants five, two and one **talents** and expects them to put the money to work; the servant who buries his talent out of fear is rebuked.

Vocation means that ordinary work is a calling. The Reformers of the 1500s taught

that a farmer, a shoemaker or a mother at home serves God as truly as a monk. Worked example of Wesley's plan: if a worker earns \$40,000 a year and keeps his living costs at \$32,000 even when his pay rises to \$50,000, he can save and give \$18,000 instead of \$8,000, more than double. The enemy of that plan is **lifestyle creep**.

In business today. Christian businesspeople in history, such as the Quaker Cadbury family, the department-store owner John Wanamaker and the Danish carpenter Ole Kirk Christiansen who founded LEGO, saw their companies as callings: to make good things, deal honestly, treat workers fairly and give. A business plan that ignores stewardship asks only "How much can I get?" A steward's plan also asks "Whom will this serve?" and "What will I give?"

PICTURE STUDY



John Wesley, Nathaniel Hone the Elder, about 1766 · Oil on canvas · National Portrait Gallery, London

Image: [Wikimedia Commons](#), public domain

Nathaniel Hone painted John Wesley when Wesley was in his sixties and still riding thousands of miles a year to preach. The plain black gown and white bands were the ordinary dress of an English clergyman. Wesley owned little besides his books and his horse.

Look closely

- Look at Wesley's clothes. Do they look rich or plain?
- Look at his hand and his face. What do you think he is doing?
- Look for any signs of wealth in the picture: jewels, rich fabrics, a fine room. What do you find?

Talk about it

1. Wesley earned a great deal from his books. Why might he have chosen to be painted so plainly?
2. Which of Wesley's three rules do you find hardest? Why?
3. How could a business owner today follow all three rules?

PROJECT

My Stewardship Plan and a Vocation Interview

You will interview an adult about his or her work as a calling, then write a one-year stewardship plan for your own money with Wesley's three rules.

You will need

- An adult to interview (a parent, grandparent, pastor or family friend), with a parent present
- Your records of money you received last year, or a parent's best estimate
- Ledger notebook, calculator or spreadsheet

Steps

1. Write five interview questions, such as: What does your work make or do for others? How did you come to this work? What part of it is hardest? How do you serve God in it? What would you tell a 14-year-old about work?
2. Interview your adult and take notes. Write a half-page summary called "A Calling at Work."
3. List every way money came to you last year: allowance, gifts, small jobs, sales. Add the total.
4. Estimate what you expect to receive in the coming year, and list one way you could honestly earn more (Rule 1).
5. List your spending last year by kind (food, gifts, toys, books). Mark any waste you could cut (Rule 2).
6. Write your plan in a table: Income, Give, Save, Spend, with dollar amounts and percents adding to 100%.
7. Do Wesley's test: if your income rose by half next year, what would you do with the extra? Write the new table.
8. Write a paragraph explaining your plan and which person or cause you will give to and why (Rule 3).

Tips

- Keep the interview to about 20 minutes and thank your adult in writing afterward.

- Your percents should add to exactly 100. Check with a calculator.

Check your work

- ☐ I can explain stewardship and vocation in my own words, with a verse for each.
- ☐ My plan has real numbers and percents that add to 100%.
- ☐ I can explain Wesley's three rules and why the third gives purpose to the first two.

LEDGER NOTEBOOK

1. Draw a bar graph of Wesley's income and his living costs for four years (£30, £60, £90, £120 against £28). Shade what he gave.
2. Copy your stewardship table and draw a pie chart of it.
3. Write the three rules in your own words, each with one action you will take this month.

COMMON MISTAKES

- Thinking stewardship means never spending. A steward spends on real needs and good gifts; he simply remembers whose money it is.
- Thinking only pastors and missionaries have a vocation. Every honest work is a calling.
- Thinking Wesley was against earning. His first rule is "gain all you can," honestly.

Make it a game · Earn, Save, Give Beans. Start with ten beans as your monthly pay. Your parent reads scenarios: a bonus, a raise, a tempting purchase, a neighbor in need. Divide your beans using Wesley's three rules and explain each choice, mentioning the parable of the talents when it fits. Each time your spending creeps up with your pay, your parent calls lifestyle creep.

Scripture. "His lord said unto him, Well done, thou good and faithful servant: thou hast been faithful over a few things, I will make thee ruler over many things: enter thou into the joy of thy lord." (Matthew 25:21, KJV)

The master praised the servants who put his money to work, not the one who buried it out of fear. Faithful stewardship is active: it earns, it saves and it gives.

UNIT 1

ECONOMIC THINKING

Economics is not first of all about money. It is a way of thinking about choices: people respond to **incentives**; wise choices are made **at the margin**, one more unit at a time; trade makes both sides richer because of **comparative advantage**; and prices carry knowledge that no single person has. In this unit you will meet these ideas in real history: the Pilgrims of Plymouth changing how they farmed in 1623, Adam Smith puzzling over why water is cheap and diamonds dear, a baseball team moving its best pitcher into the outfield, and an ordinary pencil that no one person on earth knows how to make.

The unit ends where all business thinking should begin: with **stewardship** and **vocation**. Everything belongs to God, work is a calling, and money is a tool to be gained honestly, saved wisely and given generously. You will build a stewardship plan of your own and, for the portfolio, a full trade plan worked out with comparative advantage.

PREREQUISITES

- Knows scarcity, opportunity cost and specialization (earlier grades or a quick review)
- Can work with ratios, fractions and percents
- Can make a table with labeled columns

MASTERY CHECKLIST

- ☐ I can explain how incentives shaped what happened at Plymouth in 1623, and give a modern example of an incentive that worked and one that backfired.
- ☐ I can use marginal cost and marginal benefit to decide how much of something to make or do.
- ☐ I can calculate opportunity costs, find comparative advantage, and show with numbers that both sides gain from trade.
- ☐ I can explain, with the pencil as an example, how prices carry knowledge and coordinate millions of people.
- ☐ I can explain stewardship and vocation and John Wesley's three rules for money.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **I, Pencil, by Leonard E. Read (1958)**: Free. A short essay told by a pencil about everything that goes into making it. Read it aloud in Lesson 1.3. Ages 11+.
- **The Wealth of Nations, by Adam Smith (1776), Book I**: Free. Read the first chapter (the pin factory) and the passage on water and diamonds in chapter 4 for Lessons 1.1 and 1.2. Ages 13+, with a parent.
- **"The Use of Money," a sermon by John Wesley (1760)**: Free in Wesley's collected sermons (Sermon 50). Read the three rules aloud in Lesson 1.4. Ages 12+.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

1.1 Incentives and Marginal Thinking: Plymouth's Cornfields and the Water-Diamond Puzzle

2 sessions of 60 minutes

1.2 Comparative Advantage with Numbers

2 sessions of 60 minutes

1.3 I, Pencil: The Knowledge in Prices

2 sessions of 60 minutes

1.4 Stewardship and Vocation: Wesley's Three Rules

2 sessions of 60 minutes

UNIT 1 REVIEW

Answer each question. Show your work for calculations and use complete sentences for explanations. The review is worth 100 points.

1. **8 pts**

What was the rule for the Plymouth colony's harvest before 1623, and what did Governor Bradford change? Explain the change using the word incentive.

2. **8 pts**

Explain the water-diamond puzzle and how marginal thinking solves it.

3. **10 pts**

A bakery's marginal cost is \$9 a batch. Batches sell for \$30, \$20, \$12, \$7 and \$4. How many batches should it bake, and what is its total net gain?

4. **6 pts**

What is a sunk cost? Give an example and explain why it should not change a decision.

5. **10 pts**

In one hour, Maria can make 10 loaves or 5 shirts; Tom can make 6 loaves or 2 shirts. Find each person's opportunity cost of one shirt and say who should specialize in shirts.

6. **8 pts**

Why did the Red Sox and Yankees move Babe Ruth from pitching to the outfield? Use the words absolute advantage and comparative advantage.

7. **8 pts**

Using the pencil as your example, explain how a price carries knowledge.

8. **8 pts**

The price of cedar slats rises from \$0.020 to \$0.025 per pencil. What is the percent increase? How much more does a maker of 2 million pencils a year pay?

9. **6 pts**

What is spontaneous order? Give an example other than the pencil.

10. **8 pts**

State John Wesley's three rules for money and explain why he said the third is necessary.

11. **10 pts**

A worker earns \$40,000 and lives on \$32,000. Her pay rises to \$50,000. How much can she save and give each year if she keeps living on \$32,000? If instead her spending rises to \$42,000?

12. **10 pts**

Write a short paragraph explaining what stewardship and vocation mean for a young person starting a small business.

ANSWER KEY

1. Before 1623 everything went into a common store shared by ration, so hard workers got the same as idle ones. In 1623 each family was given land to farm and kept what it grew. Because each family now gained from its own effort, the incentive to work rose, and much more corn was planted.
2. Water is more useful than diamonds, yet diamonds cost more. We choose one more unit at a time; because water is plentiful, one more glass adds little value, while diamonds are rare, so one more adds a great deal. Price depends on the value of the next unit, not of the whole supply.
3. Bake 3 (the 4th brings \$7 but costs \$9). Net gain: $(30 - 9) + (20 - 9) + (12 - 9) = 21 + 11 + 3 = \$35$.
4. Money or time already spent that cannot be recovered, such as a nonrefundable ticket or last month's rent. It is lost whichever choice is made, so only the future costs and benefits should decide what to do next.
5. Maria: $10 \div 5 = 2$ loaves per shirt. Tom: $6 \div 2 = 3$ loaves per shirt. Maria has the lower opportunity cost, so she should make shirts, and Tom should make bread, even though Maria is faster at both.
6. Ruth had an absolute advantage at both pitching and hitting over most players. But other good pitchers could be found, while no one could replace his hitting, and an everyday outfielder plays far more games. His comparative advantage was hitting: the team gave up less by losing his pitching than it would have by losing his bat.
7. Thousands of people in many countries make the pencil's parts, and no one knows them all. If graphite grows scarce, its price rises; pencil makers who never hear why still use less, look for substitutes or pay more, and miners look for more. The price passes the news along the chain without anyone giving orders.
8. $(0.025 - 0.020) \div 0.020 \times 100 = 25\%$. Extra cost: $0.005 \times 2,000,000 = \$10,000$.
9. An orderly pattern that comes from many people's free choices without anyone planning the whole, such as a city's food supply arriving at grocery stores each day, a language, or paths worn across a park.
10. Gain all you can (honestly, without harming body, soul or neighbor); save all you can (cut waste); give all you can. Without giving, gaining and saving only make a person richer and prouder; giving turns money to its purpose of serving God and neighbor.

11. Living on \$32,000: $50,000 - 32,000 = \$18,000$. With spending at \$42,000: $50,000 - 42,000 = \$8,000$. Keeping her living costs steady more than doubles what she can save and give.
12. Answers will vary. A strong answer says the business and its money belong to God and must be managed faithfully; the work is a calling to serve customers and neighbors with something good; the owner deals honestly, works heartily (Colossians 3:23), plans, saves and gives; and cites a verse such as Psalm 24:1 or Matthew 25:14-30.

PORTFOLIO PIECE: A COMPARATIVE-ADVANTAGE TRADE PLAN

Choose two people (for example, you and a sibling), two households, or two real countries with data you can find with a parent. Measure or look up how much of two goods or tasks each can produce in the same time. Calculate opportunity costs, decide who should specialize in what, choose terms of trade, and show in a table and a graph how much each side produces and consumes with and without trade. Finish with a one-page report that also names one incentive problem the plan might face (for example, someone not doing his share) and how you would solve it.

LOOK FOR	WHAT IT MEANS
Measurements	Real, clearly recorded measurements or cited data for both sides and both goods, with units.
Calculations	Opportunity costs, comparative advantages and gains from trade are calculated correctly and shown step by step.
Graph and table	A labeled table and graph show production and consumption with and without trade.
Incentives	The report identifies a realistic incentive problem and a sensible, fair solution.
Writing	Clear, organized explanation in the student's own words, with correct terms.

UNIT 2

THE STORY OF MONEY

Money works only when people trust it. In this unit you will follow that trust through four turning points. First, the gold florin of Florence, struck in 1252, which kept its weight and purity for centuries and became the trusted coin of European trade, while bankers like the Medici built their business on it. Second, the goldsmiths of London, who discovered that they could lend out much of the gold left with them, and so began the system by which banks today create most of the money we use.

Third, the agreement made at Bretton Woods, New Hampshire, in 1944, which tied the world's currencies to the dollar and the dollar to gold, and its end on August 15, 1971, when President Nixon closed the “gold window.” Last, the hard lessons of hyperinflation in Germany in 1923 and Zimbabwe in 2008, when governments printed money to pay their bills. You will weigh coins, run a bank, and calculate inflation with real formulas, and for the portfolio you will write a research report on the history of one currency.

PREREQUISITES

- Knows money's three jobs: medium of exchange, unit of account and store of value
- Can calculate percent change and use exponents on a calculator
- Knows what a bank does (earlier grades)

MASTERY CHECKLIST

- ☐ I can explain what made the florin trusted and state Gresham's law with an example.
- ☐ I can show with numbers how fractional-reserve banking creates money and why it is vulnerable to a bank run.
- ☐ I can explain how the Bretton Woods system worked and why it ended in 1971.
- ☐ I can explain what gives today's dollar its value and why printing money to pay bills leads to inflation.
- ☐ I can calculate inflation over several periods with compound growth.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **Federal Reserve History**: Free. Short, reliable essays on Bretton Woods, the closing of the gold window, the Federal Reserve's founding and more. Good for Lessons 2.3 and 2.4 and the portfolio. Ages 12+.
- **Econ Lowdown, Federal Reserve Bank of St. Louis**: Free lessons, videos and online courses on money, banking and inflation. A parent can set up a free student account. Ages 11+.
- **Bank of England Museum**: Free. Online exhibits on the goldsmith bankers, the first banknotes and how the Bank of England began in 1694. Good for Lesson 2.2.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

2.1 The Florentine Florin and the Bankers of Florence

2 sessions of 60 minutes

2.2 How Banks Create Money: Goldsmiths and Fractional Reserves

2 sessions of 60 minutes

2.3 From Bretton Woods to the Nixon Shock

2 sessions of 60 minutes

2.4 Hyperinflation: Weimar Germany 1923 and Zimbabwe 2008

2 sessions of 60 minutes

UNIT 2 REVIEW

Answer each question. Show your work for calculations and use complete sentences for explanations. The review is worth 100 points.

1. **8 pts**

Why did merchants all over Europe trust the Florentine florin?

2. **8 pts**

State Gresham's law and explain it with the U.S. penny or a debased coin.

3. (6 pts)

A florin had 3.5 grams of gold. If a ruler cut it to 3.15 grams, by what percent was it debased?

4. (8 pts)

How did London goldsmiths become bankers in the 1600s?

5. (10 pts)

The reserve ratio is 20%. A customer deposits \$2,000. How much can the first bank lend? What is the money multiplier, and what is the largest total of deposits the banking system can create?

6. (8 pts)

Why can even a well-run fractional-reserve bank suffer a bank run? Name two things that protect depositors today.

7. (8 pts)

Describe how the Bretton Woods system worked.

8. (8 pts)

Why did President Nixon close the gold window on August 15, 1971?

9. (8 pts)

What gives today's fiat dollar its value?

10. (10 pts)

Prices rise 40% a month for 6 months. By how many times have prices multiplied? (Use 1.4 to the 6th power.)

11. (8 pts)

How did Germany end its hyperinflation in 1923?

12. (10 pts)

Explain in a paragraph why printing more money does not make a country richer.

ANSWER KEY

1. Florence kept its weight (about 3.5 grams) and its gold purity almost unchanged for centuries, under the eye of the merchant guilds, so everyone knew what a florin was worth.
2. Bad money drives out good: when two kinds of money have the same legal value but different metal value, people spend the cheaper one and keep the better. Copper pennies from before 1982 were kept and collected while zinc pennies were spent, so the older coins became rare in circulation.
3. $(3.5 - 3.15) \div 3.5 \times 100 = 10\%$.
4. Merchants left gold with goldsmiths for safekeeping and received receipts, which began to circulate as money. The goldsmiths noticed only a small share of the gold was collected on any day, so they lent out part of it at interest and issued more receipts than they had gold.
5. First loan: $2,000 \times 0.80 = \$1,600$. Multiplier: $1 \div 0.20 = 5$. Total deposits: $2,000 \times 5 = \$10,000$.
6. The bank has lent out most deposits, so it cannot pay everyone at once; fear that others will withdraw makes people rush. Protections: deposit insurance (FDIC), a central bank that lends to sound banks in a panic, required capital and careful lending.
7. Member countries fixed their currencies to the U.S. dollar, and the United States let foreign central banks exchange dollars for gold at \$35 an ounce. The IMF and World Bank were created to support the system.
8. Dollars held abroad had grown far larger than U.S. gold, and the gold stock had fallen by more than half; if foreign banks all asked for gold, it would run out. Closing the window stopped the drain.
9. It is legal tender for debts, taxes are paid in it, and people trust that it will keep most of its buying power; its value depends on how much is issued compared with the goods people want to buy.
10. $1.4^6 \approx 7.53$, so prices are about 7.5 times higher.
11. It introduced the Rentenmark in November 1923, worth one trillion old marks, strictly limited how many were issued, and cut government spending, so people trusted the new money and prices stopped rising.
12. A strong answer explains that wealth is real goods and services, not pieces of paper; printing money does not make more bread, houses or tools; more money chasing the same goods raises prices, cutting each unit's purchasing power;

savers, workers on fixed pay and lenders lose; examples such as Weimar Germany or Zimbabwe.

PORTFOLIO PIECE: THE LIFE STORY OF A CURRENCY

Choose one currency: the florin, the British pound, the U.S. dollar, the German mark, the Swiss franc, or another a parent approves. Write a three-page illustrated report on its history: when and why it began, what backed it (gold, silver or trust), one time it was debased or inflated and what happened, and how it stands today. Include a timeline, a table of at least one price over time with the percent change calculated, and a drawing or printout of the coin or note. End with a paragraph on what made the currency trustworthy or untrustworthy.

LOOK FOR	WHAT IT MEANS
Research	Facts and dates come from reliable sources (museums, central banks, Federal Reserve History, encyclopedias), which are listed.
Timeline	A clear timeline with at least six dated events.
Calculation	A price table with a correctly calculated percent change or inflation rate.
Explanation	The report explains what backed the currency and why people trusted it or stopped trusting it.
Presentation	Neat, illustrated and well organized, in the student's own words.

2.1 THE FLORENTINE FLORIN AND THE BANKERS OF FLORENCE

OBJECTIVES

- Tell how Florence struck the gold florin in 1252 and why merchants all over Europe trusted it.
- Explain how the money changers' guild and the Medici bank used the florin.
- State Gresham's law and test it with real coins.

Warm-up. Look at a quarter and a penny under a bright light. List everything on each coin that tells you who made it and what it is worth. What would make you refuse a coin someone handed you?

WATCH

The Gold Florin of Florence

Paolo Penko · 3:50

<https://www.youtube.com/watch?v=tC78sn0U89s>

WHEN TO WATCH

After the story of the florin, before the penny test.

Note: A short film from a Florentine goldsmith's workshop about the history of the florin. Small channel, chosen because it shows the coin itself.

BACKUP VIDEO

Gresham's Law

The Reflective Prof · 4:03

https://www.youtube.com/watch?v=vFY_kCzeiBk

Before the penny test, as a short explanation of Gresham's law.

KEY TERMS

florin

The gold coin of Florence, first struck in 1252, containing about 3.5 grams of nearly pure gold.

debasement

Reducing the gold or silver in a coin while keeping its face value the same.

Gresham's law

The observation that when two kinds of money have the same legal value but different real value, people spend the worse money and keep the better: “bad money drives out good.”

money changer

A trader who exchanged one city's coins for another's, weighing and testing them, for a small fee.

seigniorage

The profit a mint or government makes from issuing money worth more than it costs to produce.

CORE IDEAS

The story. In the 1200s every Italian city struck its own silver coins, and many rulers quietly mixed in cheaper metal. In 1252 the Republic of Florence, a city of wool and cloth merchants, began to mint a coin of nearly pure gold: the **florin**, with the lily of Florence on one side and the city's patron saint, John the Baptist, on the other. It weighed about 3.5 grams. For the next two centuries Florence kept its weight and purity almost unchanged. Merchants from London to Constantinople accepted it, and its name was borrowed for coins in many lands; the Dutch guilder was long abbreviated *fl.* for florin. Venice began its own gold ducat in 1284 on the same plan.

How they figured it out. A coin is a promise about weight and purity. Florence's mint was run under the eye of the great merchant guilds, whose members needed a coin their customers abroad would trust. Florence's *Arte del Cambio*, the guild of money changers, set rules for its members, who sat at benches (*banchi*, the root of our word *bank*) in the market, weighing coins, testing them and changing one city's money for another's. The Medici family, who founded their bank in 1397, were members of this guild. Their letters of credit and their account books were written in florins, because everyone knew what a florin was worth. Trust in the coin became trust in the bank.

The big idea. Good money keeps its value. When rulers **debase** coins, a pattern appears that was later named for Sir Thomas Gresham, an English merchant of the 1500s: **Gresham's law**, “bad money drives out good.” If a full-weight coin and a light coin are both legally worth one shilling, people spend the light one and keep or melt the full one. Worked example: a florin held about 3.5 grams of gold. A troy ounce is 31.1 grams, so a florin held about $3.5 \div 31.1 \approx 0.11$ ounce. If a ruler cut the gold to

3.15 grams, the coin would lose 10% of its metal while its legal value stayed the same, and wise merchants would soon pass the light coins along and hoard the old ones. Governments that issue money earn **seigniorage**, the gap between what money costs to make and what it buys; debasement is a way of grabbing more of it at the people's expense.

In business today. Today's coins are tokens, not full-value metal. The U.S. penny made since 1982 is mostly zinc with a thin copper coat, because copper became worth more than one cent. Gresham's law still shows up: older copper pennies and pre-1965 silver dimes and quarters have largely vanished from circulation into collections. A business, like a mint, lives on trust: keep your weights honest and your promises steady for a long time, and your name becomes as good as gold. "Divers weights, and divers measures" are an abomination to the Lord (Proverbs 20:10).

PICTURE STUDY



A Gold Florin of Florence, 1462, Mint of Florence, 1462 · Gold coin (modern photograph) · Private collection

Image: [Wikimedia Commons](#), public domain

This florin was struck in 1462, more than two hundred years after the first, when Cosimo de' Medici was the leading banker of Florence. It weighs almost exactly what the coins of 1252 weighed. Each florin also carried a small mark showing which official was in charge of the mint at the time, so that any fault could be traced to a person.

Look closely

- Find the lily of Florence or the figure of John the Baptist. Why would a city put its own symbol on its money?
- Look at the ring of letters around the edge. What might they say?
- Look at the wear on the coin. How many hands do you think it passed through?

Talk about it

1. Why would merchants in London or Bruges accept a coin from a city hundreds of miles away?
2. What would happen to Florence's trade if its mint began mixing silver into the florin?
3. Why would the mint want every coin to be traceable to the official in charge?

PROJECT

The Penny Test: Gresham's Law on the Kitchen Scale

In 1982 the U.S. Mint changed the penny from a copper coin weighing 3.11 grams to a copper-plated zinc coin weighing 2.5 grams. You will sort pennies by weight, see how much metal changed, and see Gresham's law in your own coin jar.

You will need

- 50 or more pennies of mixed dates
- A kitchen scale that reads in grams
- Small cups and a pencil
- Ledger notebook and calculator

Steps

1. Sort the pennies into three cups by date: 1981 and earlier, 1982 (either kind), 1983 and later.
2. Weigh 10 pennies from the earlier cup together, then 10 from the later cup. Record the weights. Divide by 10 for the weight of one.
3. Compare with the Mint's figures (3.11 g and 2.5 g). Calculate the percent change: $(2.5 - 3.11) \div 3.11 \times 100$.
4. Weigh the 1982 pennies one by one and sort them into "heavy" and "light." How many of each?
5. Count what fraction of your whole jar is pre-1982. If the older coins had stayed in circulation at the same rate as new ones were made, would you expect more or fewer of them? Write your reasoning.
6. With a parent, look up the U.S. Mint's explanation of why the penny changed, and record it in one sentence.
7. Write a paragraph explaining Gresham's law with your pennies, and then with the florin: why did the florin stay in use for centuries while debased coins were spent quickly?

Tips

- Weighing 10 coins at once makes a 1-gram kitchen scale accurate enough.

- It is illegal to melt U.S. pennies and nickels for their metal. You are only weighing them.

Check your work

- ☐ I can explain what made the florin trustworthy.
- ☐ My table shows the weights and a correct percent change.
- ☐ I can state Gresham's law and give an example.

LEDGER NOTEBOOK

1. Draw both sides of a florin (from the picture or a museum website) and label the lily, the saint, the lettering and the mint mark.
2. Copy your penny table and add a bar graph of weight before and after 1982.
3. Make a timeline: 1252 first florin, 1284 Venetian ducat, 1397 Medici bank founded, 1500s Gresham, 1982 zinc penny.

From history. The florin's name outlived Florence's coin. Britain struck a silver "florin" worth two shillings from 1849, the Netherlands wrote its guilder as *fl.* until the euro arrived in 2002, and Hungary's money today is still called the forint.

COMMON MISTAKES

- Thinking a coin is valuable just because of what is printed on it. Trust comes from steady weight, purity and a reliable issuer.
- Getting Gresham's law backward. People spend the bad money and keep the good.
- Thinking modern coins are worth their metal. They are tokens backed by the government's promise and by trust.

Make it a game • Florin Memory Match. Make ten cards: five terms (florin, debasement, Gresham's law, money changer, seigniorage) and five matching explanations from the lesson. Lay them face down. Turn over two cards. Before you may keep a pair, say aloud, from memory, how that idea shows up in the story of Florence. A wrong match goes back down. Finish all pairs in fewer turns than last time.

2.2 HOW BANKS CREATE MONEY: GOLDSMITHS AND FRACTIONAL RESERVES

OBJECTIVES

- Tell how the goldsmiths of London became bankers in the 1600s.
- Calculate how a deposit becomes loans and new deposits under fractional-reserve banking, using the money multiplier.
- Explain why fractional-reserve banks can suffer a bank run, and what protects depositors today.

Warm-up. If you lend a friend \$10 and he gives you a signed IOU, how much money do the two of you have now? Write your answer. Then ask: could you use the IOU to pay someone else?

WATCH

[Overview of fractional reserve banking | The monetary system | Macroeconomics | Khan Academy](#)

[Khan Academy](#) • 8:28

<https://www.youtube.com/watch?v=3mUi9IZb4T4>

WHEN TO WATCH

After the goldsmith story; pause after the first loan and predict what happens next.

BACKUP VIDEO

[Fractional Reserve Banking and the Money Multiplier Made Simple](#)

[Marginal Revolution University](#) • 6:55

https://www.youtube.com/watch?v=93_Va7l7Lgg

After the worked example, to check the money multiplier.

KEY TERMS

reserves

The cash and deposits at the central bank that a bank keeps on hand to meet withdrawals.

reserve ratio

The fraction of deposits a bank keeps as reserves.

fractional-reserve banking

A system in which banks keep only part of their deposits as reserves and lend out the rest.

money multiplier

The largest amount of total deposits a system of banks can create from each dollar of reserves: $1 \div \text{reserve ratio}$.

bank run

A rush of depositors trying to withdraw their money at once because they fear the bank will fail.

liquidity

How quickly and easily an asset can be turned into cash without losing value.

CORE IDEAS

The story. In London in the 1600s, merchants who had gold and silver left it for safekeeping with goldsmiths, who had strong vaults. The goldsmith gave a written receipt. Soon merchants found it easier to pay each other with the receipts than to fetch the metal, and the receipts began to pass from hand to hand like money. The goldsmiths noticed something else: on any given day, only a small share of the gold was ever collected. So they began lending out part of it, at interest, and issuing more receipts than they had gold. Firms like the one founded about 1664 by Francis Child at the sign of the Marigold, near Temple Bar, grew from goldsmiths into banks.

How they figured it out. The system worked as long as depositors trusted the goldsmith. But it had a weak point. In January 1672 King Charles II, who had borrowed heavily from the goldsmith bankers, stopped repaying them, an event called the Stop of the Exchequer. Several goldsmith bankers could not pay their own depositors and were ruined. The lesson was learned slowly over the next three centuries: a bank that lends out most of its deposits must lend wisely, keep enough reserves, and have somewhere to turn in a panic. The Bank of England, founded in 1694, gradually became that place, the “lender of last resort.”

The big idea. In **fractional-reserve banking**, a bank keeps a fraction of deposits as **reserves** and lends the rest, and the loan is spent and deposited in another bank, which lends again. Worked example with a reserve ratio of 10%: you deposit \$1,000. Bank A keeps \$100 and lends \$900. The borrower pays a builder, who deposits \$900 in Bank B, which keeps \$90 and lends \$810. Then \$729, then \$656.10, and so on. The deposits form a series: $1,000 + 900 + 810 + \dots = 1,000 \div 0.10 = \$10,000$. The **money multiplier** is $1 \div \text{reserve ratio} = 10$. Your original \$1,000 of cash supports up to

\$10,000 of deposits, which people use as money. In real life the multiplier is smaller, because people keep some cash and banks keep extra reserves.

Think it through. Because banks lend out most of their deposits, no bank can pay all its depositors at once. If people fear a bank is failing, they rush to withdraw, and the fear itself can make it fail: a **bank run**. A sound bank keeps enough **liquidity**, lends carefully to many different borrowers, and holds enough of its owners' money (capital) to absorb losses. In Unit 5 you will see how the bank runs of the early 1930s led to deposit insurance.

In business today. Most of the money Americans use is not paper bills but bank deposits, created when banks make loans. Since 2020 the Federal Reserve has set no required reserve ratio; banks keep reserves for safety and to meet withdrawals, and the Fed influences how much they lend mainly through interest rates. Deposits in insured banks are protected by the FDIC up to a legal limit. A wise saver chooses an insured bank, and a wise banker remembers the goldsmiths of 1672.

PICTURE STUDY



A Goldsmith in His Shop, Petrus Christus, 1449 · Oil on oak panel · The Metropolitan Museum of Art, New York

Image: [Wikimedia Commons](#), public domain

Petrus Christus worked in Bruges, one of the great trading cities of northern Europe, where the Medici had a branch. A young couple has come to the goldsmith's shop, perhaps to buy a wedding ring. Goldsmiths like this one handled gold and silver every day, weighed it honestly and kept it safe; in time, some of them became the first bankers.

Look closely

- Find the small balance. What is the goldsmith weighing?
- Look along the counter and the shelves. How many kinds of valuable things can you find: coins, rings, pearls, gems?
- Find the round mirror on the counter. What does it show outside the shop?

Talk about it

1. Why would people trust a goldsmith to keep their gold safe?
2. If many customers left gold with this goldsmith, what might tempt him to lend some of it out?
3. What would happen if all his customers came for their gold on the same day?

PROJECT

The Banking Game: Creating Money and Surviving a Run

You will run a chain of three banks, watch one deposit turn into many through loans, check your result against the money-multiplier formula, and then face a bank run.

You will need

- Play money: at least \$1,000 in small bills (paper slips are fine)
- Three “banks” (bowls or envelopes) labeled A, B and C, and index cards for deposit slips and loan notes
- Ledger notebook, calculator or spreadsheet
- A helper to play depositors and borrowers

Steps

1. Set the reserve ratio at 20%. A depositor puts \$500 in Bank A. Bank A writes a deposit slip, keeps \$100 in reserve, and lends \$400 to a borrower (write a loan note).
2. The borrower pays a carpenter, who deposits the \$400 in Bank B. Bank B keeps 20% and lends the rest. Continue to Bank C, then back to A, for at least six rounds.
3. Keep a table: Round, Deposit, Reserve kept, New loan, Total deposits so far.
4. Compare your total with the formula: $\text{total deposits} = \text{first deposit} \div \text{reserve ratio} = 500 \div 0.20$. How close did you get after six rounds?
5. Repeat the calculation (no play money needed) for reserve ratios of 10% and 50%. What happens to the multiplier?
6. **The run.** Announce a rumor that Bank B has made bad loans. Every depositor at Bank B asks for all their money at once. Can Bank B pay? Record how much it is short.
7. Try two rescues: (1) a “central bank” (a parent) lends Bank B reserves for a fee; (2) a rule that every deposit is insured, so depositors do not panic. Write which one stops the run and why.

8. If you have a spreadsheet, build the deposit table with a formula in each row (new deposit = last loan) and graph the total deposits.

Tips

- Keep reserves and loans in separate piles so the ledger stays honest.
- A loan note is an asset of the bank; a deposit slip is a debt the bank owes.

Check your work

- ☐ I can calculate the money multiplier and total deposits for any reserve ratio.
- ☐ My ledger shows each round correctly.
- ☐ I can explain why a fractional-reserve bank can suffer a run and what stops one.

LEDGER NOTEBOOK

1. Draw a chain of banks with arrows: deposit, reserve, loan, new deposit. Label the amounts for the first four steps at 10%.
2. Copy your banking-game table and graph the total deposits round by round.
3. Write a goldsmith's receipt from 1665 as you imagine it, and a modern bank statement line for the same amount. What do they have in common?

From history. The Bank of England was founded in 1694 to lend £1.2 million to the government of King William III. In return its shareholders received interest and the right to issue banknotes. Its early notes were handwritten for the exact amount deposited, and the cashier signed each one.

COMMON MISTAKES

- Thinking banks lend only the money they have in the vault. When a bank lends, it creates a new deposit that the borrower can spend.
- Thinking the money multiplier always reaches its maximum. Cash held outside banks and extra reserves make it smaller.
- Thinking a bank run means the bank was dishonest. Even a sound bank cannot pay everyone at once; that is why trust and insurance matter.

Make it a game • Goldsmith and the Run. You are a London goldsmith; your parent deposits 100 beans. Set a reserve ratio of 20 percent. Lend out the rest, have it redeposited, and repeat, calculating each round aloud for 90 seconds. Announce the money multiplier. Then your parent suddenly demands every bean back. Explain what a bank run is, why it happened, and what could have prevented it.

2.3 FROM BRETTON WOODS TO THE NIXON SHOCK

OBJECTIVES

- Explain how the Bretton Woods system of 1944 linked the world's currencies to the dollar and the dollar to gold.
- Explain why the system came under strain in the 1960s and why President Nixon closed the gold window on August 15, 1971.
- Explain what gives a fiat dollar its value and calculate a gold-coverage ratio.

Warm-up. Your grandparents may remember when a gallon of gasoline cost less than 50 cents. Ask a parent or grandparent to name three prices they remember from childhood. Write them down with the year. Why might prices have changed so much?

WATCH

Out of the Ashes (Rebuilding the International Monetary System)

IMF • 8:08

<https://www.youtube.com/watch?v=s2OeN-im044>

WHEN TO WATCH

After the story of the 1944 conference, before the gold window game.

Note: From the International Monetary Fund, describing its own founding at Bretton Woods.

BACKUP VIDEO

Bretton Woods Agreement#WorldBank#IMF | International Business | From A Business Professor

Business School 101 • 14:39

<https://www.youtube.com/watch?v=7Uj2FtuLBHQ>

Optional, for a fuller lecture on how the system worked and ended.

KEY TERMS

gold standard

A system in which a currency can be exchanged for a fixed amount of gold.

exchange rate

The price of one currency in terms of another.

fiat money

Money that is not backed by a commodity; it has value because the law makes it legal tender for debts and taxes and because people trust it.

Bretton Woods system

The arrangement agreed in 1944 under which other currencies were fixed to the U.S. dollar, and foreign central banks could exchange dollars for gold at \$35 an ounce.

gold window

The U.S. Treasury's promise to sell gold to foreign central banks at \$35 an ounce, closed in 1971.

legal tender

Money that the law says must be accepted for payment of debts.

CORE IDEAS

The story. In July 1944, while the Second World War was still being fought, delegates from 44 Allied nations met at the Mount Washington Hotel in Bretton Woods, New Hampshire. They remembered the 1930s, when countries had raised barriers against each other's goods and lowered the value of their money to win trade, and world trade had shrunk. Led by Harry Dexter White of the U.S. Treasury and the British economist John Maynard Keynes, they designed a new system. Every member would fix its currency to the U.S. dollar, and the United States would let foreign central banks exchange dollars for gold at \$35 an ounce. They also created the International Monetary Fund and the World Bank.

How they figured it out. For twenty years the system helped trade and rebuilding grow. But it had a built-in problem, which the economist Robert Triffin pointed out around 1960. The world needed more and more dollars for trade, and those dollars came from the United States spending and lending abroad. As dollars piled up overseas, they grew far larger than America's gold. Between 1949 and 1971 the U.S. gold stock fell by more than half as foreign banks traded dollars for gold. By 1971

everyone could see that if they all asked at once, the gold would run out. On Sunday evening, August 15, 1971, after a weekend of meetings with his advisers at the presidential retreat in Maryland, President Nixon announced on television that the United States would “suspend temporarily” the dollar’s convertibility into gold. He also froze wages and prices for 90 days. The suspension was never lifted; by 1973 the major currencies were floating, their exchange rates set by markets.

The big idea. Since 1971 the dollar has been **fiat money**. It is not a claim on gold. It has value because the law makes it **legal tender** for debts and taxes, because the government collects taxes in it, and because people trust that it will buy roughly as much tomorrow as today. Its value depends on how much is issued compared with the goods and services people want to buy, and on that trust. Worked example of the strain in 1971 (round, made-up numbers to show the idea): if foreign central banks held \$50 billion and the U.S. had 300 million ounces of gold, the gold at \$35 was worth $300,000,000 \times 35 = \$10.5$ billion. The coverage ratio was $10.5 \div 50 = 0.21$, so only 21 cents of gold stood behind each dollar held abroad.

Think it through. A gold standard limits how much money a government can issue, which guards against inflation, but it ties the money supply to how much gold is mined and makes it hard to respond to a banking panic. Fiat money gives a central bank more freedom to respond, but it also gives a government the temptation to issue too much. Since 1971 U.S. prices have risen many times over. A dollar’s value is only as good as the discipline of those who issue it.

In business today. Exchange rates now change every second. A company that buys parts in Japan or sells tractors in Brazil must plan for currency moves, and many businesses and families watch inflation closely when they set prices, wages and savings goals. A wise steward knows that money’s value can change and plans for it.

PICTURE STUDY



The Opening of the Bretton Woods Conference, Unknown photographer, U.S. government, July 1944 ·

Photograph · Mount Washington Hotel, Bretton Woods, New Hampshire

Image: [Wikimedia Commons](#), public domain

Henry Morgenthau Jr., the U.S. Secretary of the Treasury, opened the conference and served as its president. Behind him hang the flags of the nations taking part. For three weeks, more than seven hundred delegates and staff worked in committees in the grand old hotel, writing the rules that would govern the world's money for the next twenty-seven years.

Look closely

- Count the flags behind the speaker as far as you can. Why would each country want its flag in the room?
- Look at the speaker, his lectern and the microphone stand. How would his words reach delegates who spoke other languages?
- Look at the men seated beside him. What might their jobs at the conference have been?

Talk about it

1. Why would countries in the middle of a war spend three weeks planning the money of the peace?
2. Why did they choose the dollar, and not their own currencies, as the center of the system?

3. What promise did the United States make in this room that it ended in 1971?

PROJECT

The Gold Window Game

You will play out the Bretton Woods system at the kitchen table: one player is the United States, others are foreign central banks. Watch what happens to the gold in the vault as dollars pile up abroad, and record the coverage ratio each round.

You will need

- 40 “gold” tokens (yellow paper squares or buttons), each worth one ounce
- Play-money dollars (many slips marked \$35)
- Two or three players and a parent as referee
- Ledger notebook and calculator

Steps

1. The United States starts with 40 ounces of gold in its vault and promises to trade \$35 for each ounce. Each foreign bank starts with \$70 in dollars.
2. Each round, the United States buys goods from abroad and pays with 4 newly printed \$35 notes, spread among the foreign banks. Record the dollars held abroad.
3. At the end of each round, each foreign bank may trade any \$35 note for one ounce of gold. Record the gold left in the vault.
4. Calculate the coverage ratio each round: $(\text{ounces in vault} \times \$35) \div \text{dollars held abroad}$. Keep a table: Round, Dollars abroad, Ounces in vault, Coverage ratio.
5. Play at least eight rounds. When the coverage ratio falls below 0.3, the foreign banks must decide whether to rush the window. What do they do?
6. The United States may then close the gold window. Write what each player gained and lost.
7. Graph the coverage ratio by round. Write a paragraph comparing your game with what happened between 1949 and 1971.

Tips

- The game shows the idea, not the exact history; the real numbers were in billions of dollars and millions of ounces.

- Notice that the foreign banks rush only when they fear the others will rush first. That is the same fear that drives a bank run.

Check your work

- ☐ I can explain how the Bretton Woods system tied currencies to the dollar and the dollar to gold.
- ☐ My table and graph show the coverage ratio falling.
- ☐ I can explain what gives a fiat dollar its value.

LEDGER NOTEBOOK

1. Draw a diagram of the Bretton Woods system: gold at the center, the dollar around it, and other currencies tied to the dollar.
2. Make a timeline: 1934 gold set at \$35; 1944 Bretton Woods; about 1960 Triffin's warning; August 15, 1971 the gold window closes; 1973 floating rates.
3. Copy your game table and graph.

From history. In 1933 the federal government ordered Americans to turn in most of their gold coins and gold certificates to the Federal Reserve at \$20.67 an ounce, and in 1934 the government raised the official price to \$35. Private ownership of gold became legal again in the United States on December 31, 1974.

COMMON MISTAKES

- Thinking Americans could take their dollars to the Treasury for gold under Bretton Woods. From 1933 to 1974 Americans could not legally hold most gold; only foreign central banks could convert dollars.
- Thinking fiat money has no value. It has value because of law, taxes and trust, and it keeps that value only if it is not over-issued.
- Thinking the 1971 change happened without warning. The strain had been growing for more than ten years.

Make it a game • Closing the Gold Window. Set out one gold chip, such as a button, as the United States in 1944. Your parent plays foreign nations and trades you paper slips for dollars. Keep issuing slips at 35 per chip while your parent asks for gold. When you can no longer keep the promise, stand and announce August 15, 1971, and explain what Nixon did and why.

2.4 HYPERINFLATION: WEIMAR GERMANY 1923 AND ZIMBABWE 2008

OBJECTIVES

- Tell how Germany in 1923 and Zimbabwe in 2008 printed money to pay their bills and what happened to prices.
- Explain the quantity idea of money: more money chasing the same goods raises prices.
- Calculate compound inflation over several months and explain how the hyperinflations ended.

Warm-up. Imagine the price of a loaf of bread doubled every week. Starting at \$3, what would it cost after 4 weeks? After 10 weeks? Work it out, and write what you would do with your allowance the moment you got it.

WATCH

Zimbabwe and Hyperinflation: Who Wants to Be a Trillionaire?

Marginal Revolution University • 4:20

<https://www.youtube.com/watch?v=78-BLZXm7wA>

WHEN TO WATCH

After the story of Zimbabwe, before the inflation calculator.

BACKUP VIDEO

1923: Hyperinflation | GCSE History | Weimar Germany

A long, long time ago... • 3:50

<https://www.youtube.com/watch?v=O2CieNANQMM>

After the story of Germany in 1923.

KEY TERMS

inflation

A general rise in prices over time; the same money buys less.

hyperinflation

Extremely rapid inflation, often defined as prices rising more than 50% in a single month.

inflation rate

The percent change in the general price level over a period: $(\text{new price} - \text{old price}) \div \text{old price} \times 100$.

purchasing power

How much a unit of money can buy.

currency reform

Replacing a ruined currency with a new one, usually with strict limits on how much can be issued.

CORE IDEAS

The story: Germany. After the First World War, Germany owed huge payments to the victors and had large debts of its own. Its government covered its bills by having the Reichsbank print more marks. In January 1923, when Germany fell behind on its payments, French and Belgian troops occupied the Ruhr, Germany's mining and factory district. The government told the Ruhr's workers not to work for the occupiers and paid them with yet more printed money. Prices exploded. A loaf of bread in Berlin that cost about 250 marks in January 1923 cost about 200 billion marks by November. By late November one U.S. dollar bought 4.2 trillion marks. Workers were paid twice a day and ran to spend their wages before prices rose again; savings that families had built over a lifetime were wiped out.

The story: Zimbabwe. In the 2000s Zimbabwe, a country in southern Africa, saw its farm production fall sharply after many large commercial farms were seized and broken up from 2000 on, and its government paid its bills by printing money. Prices doubled faster and faster. The official estimate of the annual inflation rate in July 2008 was about 231 million percent. Early in 2009 the central bank issued a 100-trillion-dollar note, and soon afterward the country stopped using its own currency and turned to U.S. dollars and South African rand.

How they figured it out. Both hyperinflations ended the same way: by stopping the printing. In November 1923 Germany introduced a new currency, the Rentenmark, worth one trillion old marks, and strictly limited how many could be issued. The government also cut spending. Within weeks prices stopped rising. Zimbabwe ended its hyperinflation by abandoning its currency altogether. In both cases the cure was a return to discipline: a limited supply of money that people could trust.

The big idea. Prices depend on how much money is chasing how many goods. If the amount of money doubles while the goods for sale stay the same, prices tend to double. That is why printing money does not make a country richer: it does not make more bread or shoes, it only cuts the **purchasing power** of each unit of money and quietly takes value from everyone who holds it. Worked example of compound inflation: if prices rise 50% a month, each month they multiply by 1.5. After 12 months they are $1.5^{12} \approx 129.7$ times higher, an annual inflation rate of about 12,875%. Ordinary inflation works the same way more slowly: at 3% a year, prices double in about 24 years ($1.03^{24} \approx 2.03$).

In business today. Rulers who debase money have done it since Roman times, when Diocletian's coins lost most of their silver. Today most central banks aim for low, steady inflation. Businesses and families protect themselves from inflation by keeping their savings in things that earn interest or grow with the economy, by not holding more cash than they need, and by watching prices. The deepest lesson is moral: honest money, like honest weights, protects the poor and the saver.

PICTURE STUDY



A 500-Billion-Mark Reichsbank Note, Reichsbank, Berlin, 1923 · Printed banknote · Germany

Image: [Wikimedia Commons](#), public domain

By late 1923 the Reichsbank was printing notes so fast that many were printed on one side only, with simple designs. A note like this one, worth 500 billion marks, would have bought only a little bread or a few eggs in the worst weeks of the hyperinflation. A few years earlier, the same number of marks would have bought a whole city.

Look closely

- Find the number on the note. How many zeros does 500 billion have?
- Look at the design and printing. Does it look carefully engraved, like a note meant to last, or quickly made?
- Find the signatures and stamps. What are they meant to promise?

Talk about it

1. Why would a government print a note with such a huge number on it?
2. If you were paid in these notes, what would you do with them right away?
3. Who was hurt most by the hyperinflation: a family with debts, or a family with savings? Why?

PROJECT

The Inflation Calculator

You will build an inflation table for a family's grocery basket, first at a normal rate and then at hyperinflation rates, and see how quickly money loses its purchasing power.

You will need

- A recent grocery receipt or a store flyer
- Calculator with a power key, or a spreadsheet
- Ledger notebook and graph paper

Steps

1. Choose five items from your receipt and write their prices. Add them to find the cost of your "basket."
2. Make a table for 10 years at 3% inflation: Year, Basket cost. Each year's cost = last year's $\times 1.03$. When does the basket cost double?
3. Make a second table for 12 months at 50% inflation a month. Each month's cost = last month's $\times 1.5$.
4. Make a third table using the German bread prices: 250 marks in January 1923 and 200 billion marks in November. How many times higher is the November price? $(200,000,000,000 \div 250.)$
5. Calculate your family's purchasing power: if your allowance or wage stayed the same, how many baskets could you buy in month 1, month 6 and month 12 of the hyperinflation table?
6. Graph the first two tables. Notice how the hyperinflation line must use a different scale.
7. Write a paragraph: Explain why printing more money does not make a country richer, using numbers from your tables.

Tips

- In a spreadsheet, put the first cost in cell B2 and type $=B2*1.03$ in B3, then fill down.

- Round money to the nearest cent, but keep the unrounded numbers in your calculator as you go.

Check your work

- ☐ I can calculate compound inflation over several periods.
- ☐ My tables and graphs are labeled with units.
- ☐ I can explain why printing money to pay bills causes inflation and how hyperinflations were ended.

LEDGER NOTEBOOK

1. Copy your three tables and graphs.
2. Make a timeline of 1923 in Germany: January, the Ruhr occupied; summer, prices racing; November, the Rentenmark.
3. Write a short diary entry from a German family in October 1923 deciding what to buy with a day's pay.

From history. When Germany introduced the Rentenmark in 1923, it said the new money was backed by a mortgage on the nation's farmland and industry. The backing could never really have been collected, but because the government strictly limited the number of notes, people trusted them, and the inflation stopped.

COMMON MISTAKES

- Thinking inflation means only some prices rising. Inflation is the general level of prices rising; some prices always rise and fall.
- Adding percents instead of multiplying. Three months of 50% inflation is $1.5 \times 1.5 \times 1.5 = 3.375$ times, not 150%.
- Thinking a government can fix inflation by ordering prices to stay put. Price controls without stopping the printing lead to empty shelves, as you will see in Unit 5.

Make it a game • Doubling Price Tag Duel. Write a starting price, such as 10 for an egg. Each round your parent announces that more money was printed and prices doubled. Before using a calculator, guess the price after ten doublings, then check it. Whoever guesses closest scores. Then each of you names one fact about Germany in 1923 or Zimbabwe in 2008 and explains why the money lost purchasing power.

Scripture. “Divers weights, and divers measures, both of them are alike abomination to the LORD.” (Proverbs 20:10, KJV)

Printing money to pay bills is a hidden way of changing the measure: the number on the note stays the same while what it buys shrinks. God cares about honest measures because dishonest ones rob the poor and the saver.

UNIT 2

THE STORY OF MONEY

Money works only when people trust it. In this unit you will follow that trust through four turning points. First, the gold florin of Florence, struck in 1252, which kept its weight and purity for centuries and became the trusted coin of European trade, while bankers like the Medici built their business on it. Second, the goldsmiths of London, who discovered that they could lend out much of the gold left with them, and so began the system by which banks today create most of the money we use.

Third, the agreement made at Bretton Woods, New Hampshire, in 1944, which tied the world's currencies to the dollar and the dollar to gold, and its end on August 15, 1971, when President Nixon closed the “gold window.” Last, the hard lessons of hyperinflation in Germany in 1923 and Zimbabwe in 2008, when governments printed money to pay their bills. You will weigh coins, run a bank, and calculate inflation with real formulas, and for the portfolio you will write a research report on the history of one currency.

PREREQUISITES

- Knows money's three jobs: medium of exchange, unit of account and store of value
- Can calculate percent change and use exponents on a calculator
- Knows what a bank does (earlier grades)

MASTERY CHECKLIST

- ☐ I can explain what made the florin trusted and state Gresham's law with an example.
- ☐ I can show with numbers how fractional-reserve banking creates money and why it is vulnerable to a bank run.
- ☐ I can explain how the Bretton Woods system worked and why it ended in 1971.
- ☐ I can explain what gives today's dollar its value and why printing money to pay bills leads to inflation.
- ☐ I can calculate inflation over several periods with compound growth.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **Federal Reserve History**: Free. Short, reliable essays on Bretton Woods, the closing of the gold window, the Federal Reserve's founding and more. Good for Lessons 2.3 and 2.4 and the portfolio. Ages 12+.
- **Econ Lowdown, Federal Reserve Bank of St. Louis**: Free lessons, videos and online courses on money, banking and inflation. A parent can set up a free student account. Ages 11+.
- **Bank of England Museum**: Free. Online exhibits on the goldsmith bankers, the first banknotes and how the Bank of England began in 1694. Good for Lesson 2.2.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

2.1 The Florentine Florin and the Bankers of Florence

2 sessions of 60 minutes

2.2 How Banks Create Money: Goldsmiths and Fractional Reserves

2 sessions of 60 minutes

2.3 From Bretton Woods to the Nixon Shock

2 sessions of 60 minutes

2.4 Hyperinflation: Weimar Germany 1923 and Zimbabwe 2008

2 sessions of 60 minutes

UNIT 2 REVIEW

Answer each question. Show your work for calculations and use complete sentences for explanations. The review is worth 100 points.

1. **8 pts**

Why did merchants all over Europe trust the Florentine florin?

2. **8 pts**

State Gresham's law and explain it with the U.S. penny or a debased coin.

3. (6 pts)

A florin had 3.5 grams of gold. If a ruler cut it to 3.15 grams, by what percent was it debased?

4. (8 pts)

How did London goldsmiths become bankers in the 1600s?

5. (10 pts)

The reserve ratio is 20%. A customer deposits \$2,000. How much can the first bank lend? What is the money multiplier, and what is the largest total of deposits the banking system can create?

6. (8 pts)

Why can even a well-run fractional-reserve bank suffer a bank run? Name two things that protect depositors today.

7. (8 pts)

Describe how the Bretton Woods system worked.

8. (8 pts)

Why did President Nixon close the gold window on August 15, 1971?

9. (8 pts)

What gives today's fiat dollar its value?

10. (10 pts)

Prices rise 40% a month for 6 months. By how many times have prices multiplied? (Use 1.4 to the 6th power.)

11. (8 pts)

How did Germany end its hyperinflation in 1923?

12. (10 pts)

Explain in a paragraph why printing more money does not make a country richer.

ANSWER KEY

1. Florence kept its weight (about 3.5 grams) and its gold purity almost unchanged for centuries, under the eye of the merchant guilds, so everyone knew what a florin was worth.
2. Bad money drives out good: when two kinds of money have the same legal value but different metal value, people spend the cheaper one and keep the better. Copper pennies from before 1982 were kept and collected while zinc pennies were spent, so the older coins became rare in circulation.
3. $(3.5 - 3.15) \div 3.5 \times 100 = 10\%$.
4. Merchants left gold with goldsmiths for safekeeping and received receipts, which began to circulate as money. The goldsmiths noticed only a small share of the gold was collected on any day, so they lent out part of it at interest and issued more receipts than they had gold.
5. First loan: $2,000 \times 0.80 = \$1,600$. Multiplier: $1 \div 0.20 = 5$. Total deposits: $2,000 \times 5 = \$10,000$.
6. The bank has lent out most deposits, so it cannot pay everyone at once; fear that others will withdraw makes people rush. Protections: deposit insurance (FDIC), a central bank that lends to sound banks in a panic, required capital and careful lending.
7. Member countries fixed their currencies to the U.S. dollar, and the United States let foreign central banks exchange dollars for gold at \$35 an ounce. The IMF and World Bank were created to support the system.
8. Dollars held abroad had grown far larger than U.S. gold, and the gold stock had fallen by more than half; if foreign banks all asked for gold, it would run out. Closing the window stopped the drain.
9. It is legal tender for debts, taxes are paid in it, and people trust that it will keep most of its buying power; its value depends on how much is issued compared with the goods people want to buy.
10. $1.4^6 \approx 7.53$, so prices are about 7.5 times higher.
11. It introduced the Rentenmark in November 1923, worth one trillion old marks, strictly limited how many were issued, and cut government spending, so people trusted the new money and prices stopped rising.
12. A strong answer explains that wealth is real goods and services, not pieces of paper; printing money does not make more bread, houses or tools; more money chasing the same goods raises prices, cutting each unit's purchasing power;

savers, workers on fixed pay and lenders lose; examples such as Weimar Germany or Zimbabwe.

PORTFOLIO PIECE: THE LIFE STORY OF A CURRENCY

Choose one currency: the florin, the British pound, the U.S. dollar, the German mark, the Swiss franc, or another a parent approves. Write a three-page illustrated report on its history: when and why it began, what backed it (gold, silver or trust), one time it was debased or inflated and what happened, and how it stands today. Include a timeline, a table of at least one price over time with the percent change calculated, and a drawing or printout of the coin or note. End with a paragraph on what made the currency trustworthy or untrustworthy.

LOOK FOR	WHAT IT MEANS
Research	Facts and dates come from reliable sources (museums, central banks, Federal Reserve History, encyclopedias), which are listed.
Timeline	A clear timeline with at least six dated events.
Calculation	A price table with a correctly calculated percent change or inflation rate.
Explanation	The report explains what backed the currency and why people trusted it or stopped trusting it.
Presentation	Neat, illustrated and well organized, in the student's own words.

UNIT 3

MARKETS

Not all markets are alike. A wheat farmer sells into a market with thousands of other sellers and must take the going price; a town's water company may be the only seller there is. In this unit you will study the four **market structures**: perfect competition, monopolistic competition, oligopoly and monopoly, and learn to measure how concentrated a market is. Then you will see what happened when one company came to dominate an industry, and how the Sherman Act of 1890 was used to break up Standard Oil in 1911 and the Bell System in 1984.

Markets can also be lopsided on the buying side. In a **company town** such as Pullman, Illinois, one employer owned the jobs, the houses and the stores, and its workers had nowhere else to go. Last, you will look at the boldest attempt to do without markets altogether: the central planning of the Soviet Union, and why it left its people with long lines and empty shelves. Throughout, you will see the strengths of free markets, their limits, and why markets need honest rules. For the portfolio you will write a market-structure study of an industry in your own town.

PREREQUISITES

- Knows supply, demand and prices as signals (Unit 1 and earlier grades)
- Can calculate percents and square numbers
- Knows what a monopoly is in simple terms

MASTERY CHECKLIST

- ☐ I can name and describe the four market structures and give a real example of each.
- ☐ I can calculate a four-firm concentration ratio and a Herfindahl-Hirschman Index.
- ☐ I can explain how the Sherman Act was used against Standard Oil and the Bell System, and what happened afterward.
- ☐ I can explain monopsony and why company towns could harm workers.
- ☐ I can explain why central planning produced shortages, and name things that markets do poorly.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **The Wealth of Nations, by Adam Smith (1776)**: Free. Book I, chapter 10, contains Smith's warning that people of the same trade seldom meet together without some plan to raise prices. Read it with a parent in Lesson 3.2. Ages 13+.
- **Pullman National Historical Park (National Park Service)**: Free online. Photographs, maps and the history of the company town of Pullman, Illinois. Good for Lesson 3.3.
- **Acquire, by Sid Sackson (board game)**: Optional family game first published in 1964, in which players build and merge hotel chains and buy shares. It shows how mergers create large firms. Ages 12+.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

3.1 Market Structures in Depth: From the Wheat Pit to the Water Company

2 sessions of 60 minutes

3.2 Antitrust: The Sherman Act, Standard Oil and the Bell System

2 sessions of 60 minutes

3.3 Company Towns and Monopsony: Pullman, Illinois

2 sessions of 60 minutes

3.4 The Limits of Central Planning

2 sessions of 60 minutes

UNIT 3 REVIEW

Answer each question. Show your work for calculations and use complete sentences for explanations. The review is worth 100 points.

1. **8 pts**

Name the four market structures and give one example of each.

2. **6 pts**

Why is a wheat farmer a price taker?

3. (10 pts)

A market has five firms with shares of 40%, 20%, 20%, 10% and 10%. Calculate the CR4 and the HHI.

4. (8 pts)

How did Standard Oil come to refine about 90% of America's oil? Give one fair method and one unfair one.

5. (8 pts)

What does the Sherman Antitrust Act of 1890 forbid? What did the Supreme Court order in 1911?

6. (8 pts)

How was the Bell System broken up in 1984, and what happened to long-distance calling afterward?

7. (10 pts)

Four buyers will pay at most \$12, \$9, \$6 and \$3. Each item costs \$3 to make. What price gives a single seller the most profit, and what is that profit?

8. (8 pts)

What is monopsony? Use Pullman as an example.

9. (6 pts)

How did Hershey and Bournville differ from Pullman?

10. (10 pts)

At a market price of \$3, 100 loaves are made and bought. The government fixes the price at \$2; buyers now want 130 and bakers make 70. What is the shortage? What will people see?

11. (8 pts)

Explain Hayek's argument against central planning.

12. (10 pts)

Write a paragraph on what markets do well, what they do poorly, and why they need honest rules.

ANSWER KEY

1. Perfect competition (wheat, corn); monopolistic competition (restaurants, hair salons); oligopoly (airlines, cell-phone carriers, cereals); monopoly (local water or power company). Other sound examples accepted.
2. Wheat is graded into identical qualities and sold by thousands of farmers, so if one farmer asked more than the market price, buyers would buy from others.
3. $CR4 = 40 + 20 + 20 + 10 = 90\%$. $HHI = 1,600 + 400 + 400 + 100 + 100 = 2,600$.
4. Fair: cutting waste, making its own barrels, using by-products, lowering costs and prices. Unfair: secret railroad rebates that raised rivals' costs, and squeezing competitors until they sold out.
5. It forbids contracts or combinations in restraint of trade and monopolizing trade. In 1911 the Court ordered Standard Oil broken into 34 separate companies.
6. AT&T kept long distance and equipment, and its local service was split into seven regional companies. Long distance became competitive, with firms such as MCI, and prices fell sharply.
7. \$12: $1 \times 9 = \$9$. \$9: $2 \times 6 = \$12$. \$6: $3 \times 3 = \$9$. \$3: 0. Best price \$9, profit \$12.
8. A market with one main buyer, such as a single employer of labor. In Pullman the company was the employer and the landlord; in 1893–94 it cut wages about a quarter without lowering rents, and workers had few other choices.
9. Workers could own their homes, and the owners cut their own profits rather than squeezing workers in bad years; they dealt with workers as neighbors.
10. Shortage = $130 - 70 = 60$ loaves. People will see long lines, empty shelves, favoritism and perhaps illegal sales at higher prices.
11. The knowledge needed to run an economy is spread among millions of people and changes constantly; it cannot be gathered into one office. Market prices carry that knowledge; planners who set prices by decree lose the signals.
12. A strong answer: markets give choice, better quality, falling prices and new inventions by rewarding service; they do poorly with public goods (defense, courts, roads), externalities (pollution) and fraud; so government acts as a fair referee with courts, contracts and honest weights, while leaving people free to work and trade.

PORTFOLIO PIECE: A MARKET-STRUCTURE STUDY

Choose one industry in your town or state: groceries, gasoline, internet service, hardware, auto repair, or another. With a parent, gather facts: the sellers, their approximate shares, prices for one identical item at three or more sellers, and the barriers to entry. Write a two-page study that classifies the market, calculates its CR4 and HHI, explains how much power sellers have over price and why, and names any rules (licenses, safety codes, rate commissions) that govern it. End with your judgment: does this market serve customers well, and what one change would make it serve them better?

LOOK FOR	WHAT IT MEANS
Data	Real sellers, prices and estimated shares, with sources and how the shares were estimated.
Calculations	CR4 and HHI correctly calculated and shown.
Analysis	The structure is correctly identified and explained using barriers to entry and the kind of product.
Rules	Relevant rules or regulators are named and their purpose explained fairly.
Judgment	A thoughtful, fair conclusion with a specific, realistic suggestion.

3.1 MARKET STRUCTURES IN DEPTH: FROM THE WHEAT PIT TO THE WATER COMPANY

OBJECTIVES

- Describe the four market structures by the number of sellers, the kind of product and the barriers to entry.
- Explain why a wheat farmer is a price taker and a water company is a price maker.
- Calculate a four-firm concentration ratio and a Herfindahl–Hirschman Index for a market.

Warm-up. List five things your family bought this week. For each, count how many different sellers you could have bought it from within ten miles. Which item had the most sellers? Which had only one?

WATCH

What Are the FOUR Market Structures in Economics? | [WITH EXAMPLES] | Think Econ

Think Econ · 6:55

<https://www.youtube.com/watch?v=u1xIZOieOUw>

WHEN TO WATCH

After the big idea, before the market survey.

Note: A clear overview of all four structures; Think Econ is a small teaching channel.

BACKUP VIDEO

Oligopolies and monopolistic competition | Forms of competition | Microeconomics | Khan Academy

Khan Academy · 9:21

<https://www.youtube.com/watch?v=PzDthFTzEa0>

Optional, for more on oligopoly and monopolistic competition.

KEY TERMS

perfect competition

A market with many sellers of an identical product, easy entry and exit, and no seller able to change the price.

oligopoly

A market dominated by a few large sellers, each of which must watch what the others do.

barrier to entry

Anything that makes it hard for a new seller to enter a market: high start-up costs, patents, licenses, or control of a key resource.

monopolistic competition

A market with many sellers of products that are similar but different in style, quality or location, such as restaurants.

monopoly

A market with a single seller of a product that has no close substitutes.

concentration ratio

The combined market share of the largest firms in a market; the four-firm ratio (CR4) adds the shares of the top four.

CORE IDEAS

The story. In 1848 a group of Chicago merchants founded the Chicago Board of Trade. Grain poured into the city by canal and rail from thousands of farms, and buyers and sellers met in one place to trade it. In 1856 the Board began sorting wheat into standard grades by quality, so that a bushel of No. 2 spring wheat from one farm counted the same as No. 2 from any other. Grain could now be bought and sold by grade without anyone looking at the actual sacks, and by the 1860s traders were signing contracts for future delivery. On the trading floor, in a pit crowded with shouting traders, the price of wheat changed by the minute.

How they figured it out. Grading turned wheat into an identical product with thousands of sellers. That made it a nearly **perfect competition**: no single farmer could raise his price, because buyers could get the same wheat from someone else. Each farmer was a **price taker**; his only choices were how much to grow and when to sell. A town's water company is the opposite. The cost of laying pipes under every street is a huge **barrier to entry**, so one company serves the town, and it could set its own price if no one stopped it. That is why such companies are regulated: a public commission must approve their rates.

The big idea. Markets range across four structures. *Perfect competition*: many sellers, identical products, easy entry; wheat, corn. *Monopolistic competition*: many sellers of slightly different products; restaurants, hair salons, bakeries; each has a little power over its price because customers like its style. *Oligopoly*: a few large sellers; airlines, cell-phone carriers, breakfast cereals; each must think about how the others will react. *Monopoly*: one seller with no close substitute; a local water or power company. The fewer the sellers and the higher the barriers, the more power sellers have over price.

Measuring it. Economists measure concentration in two ways. Worked example: a town's grocery market has five stores with shares of 30%, 25%, 20%, 15% and 10%. The **four-firm concentration ratio** is $30 + 25 + 20 + 15 = 90\%$. The **Herfindahl-Hirschman Index** (HHI) squares each share and adds: $900 + 625 + 400 + 225 + 100 = 2,250$. A market with 100 equal tiny firms has an HHI near 100; a pure monopoly has $100^2 = 10,000$. For many years U.S. antitrust officials treated markets above 2,500 as highly concentrated; their guidelines have since lowered that line.

In business today. A new business owner should know which kind of market he is entering. In a nearly perfect competition, success comes from low costs. In monopolistic competition, it comes from being different and better in ways customers value. In an oligopoly, newcomers face giants and must find a niche. Wherever you sell, competition is the customer's best friend: it pushes prices down and quality up.

PICTURE STUDY



The Trading Floor of the Chicago Board of Trade, Stanley Kubrick, for *Look* magazine, 1949 · Photograph
· Look Magazine Photograph Collection, Library of Congress
Image: [Wikimedia Commons](#), public domain

Before he became a famous filmmaker, Stanley Kubrick worked as a young photographer for *Look* magazine, and in 1949 he photographed the Chicago Board of Trade. In the trading pits, buyers and sellers of wheat, corn and other grains shouted and signaled with their hands to agree on prices. Each grain contract was for a standard grade, so no one needed to see the grain itself.

Look closely

- Look at the men's hands. Why would traders use hand signals in a crowded, noisy room?
- Find the papers or cards. What might traders write on them?
- Count the people you can see. How many buyers and sellers do you think were in the room?

Talk about it

1. Why does having so many traders in one room keep any one of them from setting the price?
2. How did grading wheat into standard qualities make this kind of trading possible?
3. Which market structure does this room show? Why?

PROJECT

A Market-Structure Survey of My Town

You will study four real markets in your area, estimate how many sellers each has and how big they are, calculate concentration, and classify each market structure.

You will need

- A map or a parent's help with online business listings
- Store flyers or prices from three or more stores
- Ledger notebook and calculator

Steps

1. Choose four markets near you: for example groceries, gasoline, haircuts and electricity (or internet service).
2. For each, list every seller within about ten miles. Count them.
3. For the grocery or gasoline market, estimate each seller's share. A simple way: count each store's checkout lanes or pumps and divide by the total.
4. Calculate the four-firm concentration ratio (CR4) and the HHI for that market. Show your work.
5. For each of the four markets, fill in a table: Market, Number of sellers, Product identical or different?, Barriers to entry, Structure.
6. Compare the price of one identical item (a gallon of milk or regular gasoline) at three sellers. How far apart are the prices? Does this fit the structure you chose?
7. Write a paragraph: Which market gives customers the most choice? Which gives sellers the most power? What keeps the most powerful seller from charging whatever it likes?

Tips

- Shares do not have to be exact; explain how you estimated them.
- Electricity and water are usually regulated monopolies; check your bill for the name of the company and the state commission that approves rates.

Check your work

- ☐ I can describe the four market structures with real examples.
- ☐ My CR4 and HHI are correctly calculated.
- ☐ I can explain how barriers to entry give sellers power over price.

LEDGER NOTEBOOK

1. Draw a line from “many sellers” to “one seller” and place the four structures on it with two examples each.
2. Copy your survey table and calculations.
3. Draw a simple diagram of the grading idea: many farms’ wheat flowing into one bin labeled No. 2 Spring Wheat.

From history. In the 1860s the Chicago Board of Trade adopted written rules for contracts to deliver grain at a future date. These futures contracts let a farmer agree on a price in spring for wheat he would deliver in autumn, and let a miller lock in the cost of his flour, so both could plan.

COMMON MISTAKES

- Thinking a big company is always a monopoly. A company can be large and still face strong competition.
- Forgetting to square shares for the HHI. Add the squares, not the shares.
- Thinking monopolistic competition means monopoly. It means many sellers with slightly different products.

Make it a game • Name That Market. Your parent describes sellers without naming the structure: a wheat farmer among thousands, the one water company in town, three big companies dominating a product, a bakery with its own recipe. You name the market structure, say who sets the price, and give the barrier to entry. Two points for the structure, one for the reason. Then swap roles and describe sellers from your town.

3.2 ANTITRUST: THE SHERMAN ACT, STANDARD OIL AND THE BELL SYSTEM

OBJECTIVES

- Tell how Standard Oil came to control most of America's oil refining and how the Supreme Court broke it up in 1911.
- Explain what the Sherman Antitrust Act of 1890 forbids and why.
- Tell how the Bell System was broken up in 1984 and compare a monopoly market with a competitive one using numbers.

Warm-up. Imagine there is only one store in your town that sells shoes, and the next store is 100 miles away. Write three things the owner might do that he could not do if there were three shoe stores. Are any of them unfair?

WATCH

The Sherman Anti-Trust Act Explained: US History Review

Hip Hughes (HipHughes) • 6:12

https://www.youtube.com/watch?v=_DSN0uUNLOw

WHEN TO WATCH

After the story of Standard Oil, before the Bell System.

Note: A history teacher's review of the Sherman Act. The video description mentions a merger in the news when it was made; the video itself is a history lesson.

BACKUP VIDEO

AT&T Archives: What is the Bell System?

AT&T Tech Channel • 14:01

https://www.youtube.com/watch?v=iBPTM_irlco

After the Bell System paragraph: AT&T's own archive film explaining what the Bell System was.

KEY TERMS

trust

In the late 1800s, an arrangement in which the owners of many competing companies handed control to one board of trustees, so the companies acted as one.

rebate

Money paid back to a customer after a purchase; Standard Oil received secret rebates from railroads on its shipments.

natural monopoly

An industry in which one firm can serve the whole market more cheaply than several could, because of huge fixed costs such as pipes or wires.

antitrust law

Laws that forbid agreements and actions that destroy competition, such as price-fixing and monopolizing a market.

horizontal integration

Growing by buying or joining with competitors at the same stage of production.

CORE IDEAS

The story. John D. Rockefeller started in the oil-refining business in Cleveland in 1863 and founded the Standard Oil Company in 1870. He was a careful bookkeeper, a devout Baptist and a fierce competitor. Standard cut waste, made its own barrels, sold every by-product of crude oil and drove the price of kerosene for lamps steadily down. But it also won secret **rebates** from railroads, so it paid less to ship oil than its rivals, and it bought out or squeezed competitors one after another. By about 1880 it refined roughly 90 percent of America's oil. In 1882 its owners joined their companies into the Standard Oil **Trust**, run by one board.

How they figured it out. Many Americans worried that a few trusts, in oil, sugar and other goods, could set prices as they liked. In 1890 Congress passed the Sherman Antitrust Act, named for Senator John Sherman of Ohio. It declared illegal every contract or combination "in restraint of trade," and made it a crime to monopolize any part of trade. For years it was little used. Then in 1902–1904 the journalist Ida Tarbell published a careful, documented history of Standard Oil, built from court

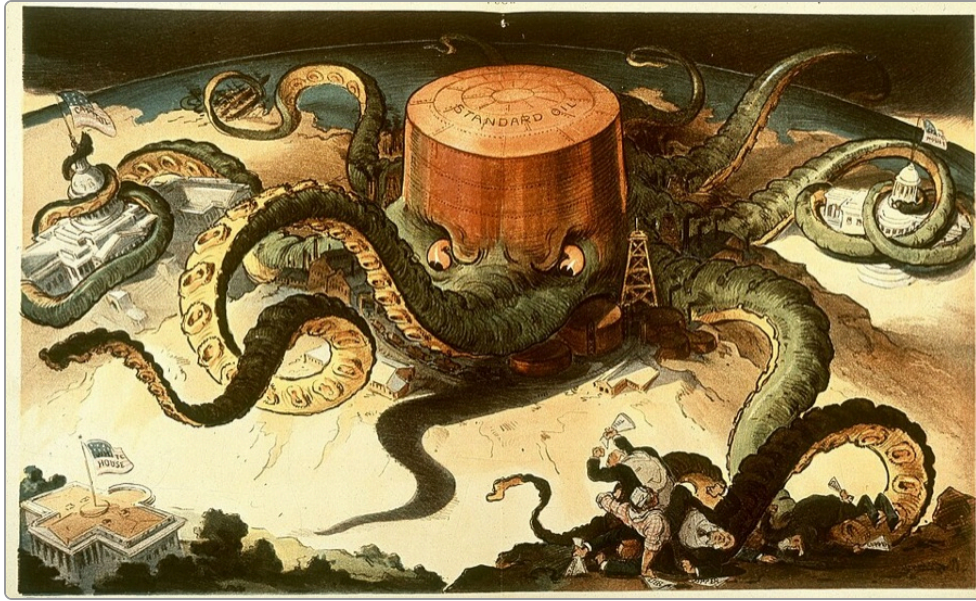
records and interviews, and in 1906 the federal government sued. On May 15, 1911, the Supreme Court ordered Standard Oil broken into 34 separate companies. It said the law forbade “unreasonable” restraints of trade. Rockefeller, who still owned shares in all of them, grew even richer as their values rose.

The Bell System. The telephone company AT&T, with its local Bell companies, was a different case. For most of the 1900s it was treated as a regulated **natural monopoly**: one network of wires, with rates approved by government commissions. By the 1970s, new firms such as MCI wanted to offer long-distance service, and the Justice Department sued AT&T in 1974 under the Sherman Act. In a settlement, on January 1, 1984, AT&T kept long distance and equipment, and its local telephone service was split into seven regional companies. Long-distance calling became a competitive market, and its prices fell sharply in the years that followed.

The big idea. A monopoly can charge more and sell less than a competitive market. Worked example: five customers will each pay at most \$10, \$8, \$6, \$4 and \$2 for a pass, and each pass costs the seller \$2 to provide. A single seller charging \$6 sells 3 passes for a profit of $3 \times (6 - 2) = \$12$; charging \$8 it sells 2 for \$12; charging \$4 it sells 4 for \$8. It chooses \$6 or \$8. With several competitors, the price is pushed down toward cost, about \$2 to \$4, and four or five customers are served. Competition serves more customers at lower prices. The **antitrust law** does not punish a firm for being big because it is better; it forbids winning by conspiracy, secret deals or crushing rivals unfairly.

In business today. Adam Smith warned in 1776 that people of the same trade seldom meet together without some plan to raise prices. Honest businesses compete on price, quality and service, never by agreeing with rivals to fix prices or divide customers. Scripture warns those who “join house to house” and “lay field to field” until no room is left for anyone else (Isaiah 5:8).

PICTURE STUDY



“Next!” The Standard Oil Octopus, Udo J. Keppler, September 7, 1904 · Color lithograph cartoon from *Puck* magazine · Library of Congress, Prints and Photographs Division

Image: [Wikimedia Commons](#), public domain

Puck was a popular American humor magazine with bold color cartoons. In 1904, while Ida Tarbell’s history of Standard Oil was being published, Udo Keppler drew the company as an octopus. A cartoon is not a fair trial; it makes a point by exaggerating. But it shows what many Americans feared about the trusts.

Look closely

- Find the octopus’s body. What is it made from?
- Follow each tentacle. Which industries and which buildings has it grabbed?
- Find the one tentacle that is still reaching. What is it reaching for, and what does the title “Next!” mean?

Talk about it

1. Why did the artist choose an octopus to stand for Standard Oil?
2. Which fear does the cartoon show more: high prices for customers, or too much power over government? Explain.
3. What is the difference between a cartoon like this and the evidence Ida Tarbell gathered?

PROJECT

One Seller or Three? The Monopoly Market Game

You will run a small market twice, once with one seller and once with three, and measure what happens to the price, the number of customers served, the seller's profit and the buyers' gains.

You will need

- Five index cards for buyers, each marked with the most that buyer will pay: \$10, \$8, \$6, \$4, \$2
- Ten "product" cards (any small item: a sticker or a paper ticket)
- Play money, at least three helpers if possible
- Ledger notebook and calculator

Steps

1. Each product costs the seller \$2 to make. Record this as the marginal cost.
2. **Monopoly round.** One seller posts one price for everyone. Buyers buy if the price is at or below their card. Try prices of \$10, \$8, \$6, \$4 and \$2 and fill in a table: Price, Number sold, Revenue, Cost, Profit.
3. Mark the price that gives the seller the most profit.
4. For that price, calculate the buyers' gain (consumer surplus): for each buyer who bought, his card value minus the price. Add them up.
5. **Competition round.** Now three sellers each post a price and may lower it at any time to win buyers. Run the round for 5 minutes. Record the final price, number sold and each seller's profit.
6. Calculate the buyers' total gain in the competition round.
7. Make a comparison table: Monopoly vs Competition, for price, quantity, seller profit and buyer gain.
8. Write a paragraph: Who gained and who lost when the market became competitive? What would the three sellers be tempted to do in secret, and why does the law forbid it?

Tips

- In the monopoly round, more than one price may give the same top profit. Note both.
- In the competition round, sellers will not go below \$2 for long, because they would lose money on each sale.

Check your work

- ☐ I can explain what the Sherman Act forbids.
- ☐ My table shows that competition lowered the price and served more buyers.
- ☐ I can tell the story of Standard Oil and the Bell System and what changed after each breakup.

LEDGER NOTEBOOK

1. Make a timeline: 1870 Standard Oil founded; 1882 the Trust; 1890 Sherman Act; 1904 Tarbell's history; 1911 breakup; 1974 suit against AT&T; 1984 Bell System split.
2. Copy your game's comparison table and draw two bar graphs: price and buyer gain, monopoly versus competition.
3. Write a stakeholder sentence for Standard Oil for customers (cheaper kerosene) and for rival refiners (squeezed out). Can both be true?

From history. Ida Tarbell grew up in the Pennsylvania oil region, where her father was an independent oil producer hurt by the railroad rebates. She nevertheless wrote with careful evidence and gave Rockefeller credit for his ability. Her 19 articles in *McClure's Magazine* were published as a book in 1904.

COMMON MISTAKES

- Thinking Standard Oil was broken up for charging high prices. Its prices had fallen; the case was about the methods it used to destroy competition and control the market.
- Thinking antitrust law punishes success. It forbids conspiracy and unfair methods, not being the best.
- Thinking every monopoly should be broken up. Some natural monopolies, like water pipes, are regulated instead.

Make it a game • Bust the Trust. Line up eight cups as oil refineries. You play Standard Oil and take cups from your parent by offering secret rebates and buying rivals out, narrating how each move worked. When you hold most of the cups, your parent plays the Supreme Court in 1911. Win back one cup for each correct statement you make about what the Sherman Act forbids and why.

Scripture. “Woe unto them that join house to house, that lay field to field, till there be no place, that they may be placed alone in the midst of the earth!” (Isaiah 5:8, KJV)

The prophet warned against the rich who bought up their neighbors’ land until no one else had a place. A business may grow by serving people well, but not by crowding everyone else out by unfair means.

3.3 COMPANY TOWNS AND MONOPSONY: PULLMAN, ILLINOIS

OBJECTIVES

- Tell the story of George Pullman's model town and what happened there in 1894.
- Explain monopsony: a market with one main buyer, such as one employer in a town.
- Use a simple labor-market game to show how competition among employers affects wages.

Warm-up. Suppose your town had only one employer, which also owned every house and store. List three things that would make that good for workers and three things that could make it hard. Which list is longer?

WATCH

[A monopsonistic market for labor | Microeconomics | Khan Academy](#)

[Khan Academy](#) • 9:33

<https://www.youtube.com/watch?v=vAaW15vwKUU>

WHEN TO WATCH

After the big idea; it uses graphs to show why a single employer pays less.

BACKUP VIDEO

[A Short History of America's First Company Town Pullman | Documentary](#)

[The Last Shift](#) • 10:11

<https://www.youtube.com/watch?v=U0E1BLuJny4>

After the story of Pullman, for more of the town's history.

KEY TERMS

company town

A town in which one company owns most of the houses, stores and services and employs most of the people.

monopsony

A market with one main buyer; in labor, a single employer that workers cannot easily leave.

labor mobility

How easily workers can move to another job or another town.

company scrip

Paper or tokens issued by a company instead of money, usable only at the company's own store.

paternalism

An employer acting like a strict father to workers, providing for them but also controlling their lives.

CORE IDEAS

The story. George Pullman made his fortune building luxurious railroad sleeping cars. In 1880 he began building a whole new town south of Chicago for his factory and his workers. Pullman, Illinois, had brick row houses with indoor water and gas, a library, a church, parks, a shopping arcade and a school, at a time when many factory workers lived in crowded, dirty tenements. Visitors came from all over the world to admire it. But the company owned every house, store and street. Workers could not buy their homes, rents were set by the company and were higher than in nearby towns, and the company expected the town itself to earn a steady profit.

How they figured it out. When a business depression struck in 1893, orders for railroad cars collapsed. The Pullman Company cut wages by about a quarter but did not lower the rents, which were taken directly out of workers' pay. Some families were left with only a few dollars after rent for two weeks' work. In May 1894 the workers walked off the job, and the new American Railway Union, led by Eugene Debs, called on railroad men across the country to refuse to handle Pullman cars. Rail traffic across much of the nation stopped. The federal government obtained court orders and sent troops, and the walkout was broken that summer, after deadly clashes in Chicago. A national commission later criticized the company for refusing to negotiate, and in 1898 the Illinois Supreme Court ordered it to sell the houses that were not needed for its factory business.

The big idea. A **monopsony** is the buyer's version of a monopoly. When one employer is the only buyer of labor in a town and workers cannot easily leave, it can pay less than workers would earn where several employers competed for them. Worked example: three workers would each work for at least \$8, \$10 and \$12 a day, and each produces \$15 a day of value. If two factories compete, they bid wages up

toward \$15 to hire. A single employer with no rival can offer just enough to hire the workers it needs. The cure is not usually to forbid large employers but to keep **labor mobility** high, so workers can move, learn new skills and take other jobs, and to forbid unfair practices such as paying in **company scrip**.

Who gained? Pullman's workers gained cleaner, safer homes than most workers had. The company gained steady workers and a fine reputation. But because the company held all the power, it could squeeze workers in hard times, and it did. Compare Milton Hershey's town in Pennsylvania and the Cadbury family's Bournville in England, where workers could own their homes and the companies cut profits instead of rents in bad years. The difference was not the buildings; it was whether the owner dealt with workers as neighbors or only as costs.

In business today. Workers today usually have far more choices than in Pullman's time: cars, many employers, and the freedom to move. But a business that is the main employer in a small town still holds great power, and an honest owner uses it carefully. Scripture warns against one who "useth his neighbour's service without wages" (Jeremiah 22:13).

PICTURE STUDY



The Town of Pullman, Illinois: The Homes and Wages of the Pullman Workers, Unknown photographers, published in an illustrated newspaper, 1894 · Halftone photographic prints · Library of Congress, Prints and Photographs Division

Image: [Wikimedia Commons](#), public domain

During the troubles of 1894, newspapers sent photographers to show the nation what the famous model town looked like. This page shows its streets and buildings and the homes of different kinds of workers. As you look, remember that every building in these pictures belonged to the company.

Look closely

- Look at the three men at the top. The caption says they were appointed to investigate the railway trouble. Why would the government send investigators?
- Find the administration building and the photographs of houses and rooms. How do they compare with a crowded city tenement?
- Read any captions you can. What do they tell you about rents?

Talk about it

1. Why did visitors admire Pullman, and why did workers come to resent it?
2. If you rented one of these houses from your employer, what would happen if you lost your job?
3. How did Hershey and Bournville handle the same problem differently?

PROJECT

One Employer or Two? The Labor-Market Game

You will act out a small labor market twice, first with one employer and then with two, and record what happens to wages, profits and workers' choices. Then you will figure a Pullman family's budget before and after the wage cut.

You will need

- Three helpers as workers, each with a secret card showing the lowest daily wage he will accept: \$8, \$10, \$12
- One or two employers (a parent and you)
- Play money, ledger notebook and calculator

Steps

1. Each worker produces \$15 of value a day for any employer. Record this.
2. **Round 1: one employer.** The employer posts a single daily wage for all workers. Workers accept if it is at least their card. Try wages of \$8, \$10 and \$12 and record: Wage, Workers hired, Value produced, Wages paid, Employer's profit.
3. Mark the wage the single employer would choose for the most profit.
4. **Round 2: two employers.** Two employers compete for workers. Each may offer any wage, and workers go to the higher offer. Play for 5 minutes and record the final wages and each employer's profit.
5. Compare in a table: wages, workers hired, total wages paid and profit in each round.
6. **The Pullman budget.** Use these round example numbers: a worker earns \$36 for two weeks and pays \$14 rent for two weeks. Wages are cut by 25% and rent stays the same. Calculate what is left for food and clothing before and after. By what percent did the money left over fall?
7. Write a paragraph: How does competition among employers protect workers? What should a good employer do with its power in a town where it is the only employer?

Tips

- The Pullman budget uses round example numbers; real wages and rents varied from worker to worker.
- Notice that in Round 2 the employers bid wages up without anyone passing a law.

Check your work

- ☐ I can explain monopsony and how it can hold down wages.
- ☐ My tables compare one employer with two.
- ☐ I can tell what happened at Pullman in 1894 and how Hershey and Bournville differed.

LEDGER NOTEBOOK

1. Draw a map of an imaginary company town and label what the company owns. Then shade what the workers own.
2. Copy your Pullman budget and draw two bar graphs: rent and money left over, before and after the cut.
3. Write a stakeholder scorecard (1–5 with a reason) for the Pullman Company in 1894 for workers, customers and the community.

From history. Many of Pullman's brick row houses still stand. Families now own them, and the old factory, hotel and streets are protected by the National Park Service as Pullman National Historical Park, where visitors can see what a company town looked like.

COMMON MISTAKES

- Thinking every company town was cruel. Some, like Hershey and Bournville, served workers well; the difference was how the owners used their power.
- Thinking monopsony is about selling. It is about one buyer, such as one employer buying labor.
- Thinking the answer is always a new law. Competition among employers and the freedom to move are the strongest protections.

Make it a game • Pullman Truths, Tall Tale. Take turns telling three statements about George Pullman's town: two true and one made up. Cover the model town, company scrip, rents, what happened in 1894 and what monopsony means. The other person guesses the tall tale and explains the true ones in their own words. Keep score over four rounds. The first to reach five correct explanations wins.

Scripture. “Woe unto him that buildeth his house by unrighteousness, and his chambers by wrong; that useth his neighbour’s service without wages, and giveth him not for his work;” (Jeremiah 22:13, KJV)

Jeremiah spoke to a king who built a fine palace with unpaid labor. A fine building does not make a business just; fair dealing with those who do the work does.

3.4 THE LIMITS OF CENTRAL PLANNING

OBJECTIVES

- Describe how Soviet planners set production targets and prices, and why shortages and long lines followed.
- Explain Ludwig von Mises's and Friedrich Hayek's arguments about why central planners cannot set prices well.
- Name the things markets do poorly and explain why a sound economy needs both free markets and honest rules.

Warm-up. Imagine you must plan every family meal for a year, buying all the food in January. What would you need to know? What could go wrong? List five things.

WATCH

The Economy of the Soviet Union

Economics Explained · 15:32

<https://www.youtube.com/watch?v=S3Jkqqlpibo>

WHEN TO WATCH

After the story, before the kitchen-table economy.

Note: Economics Explained; about fifteen minutes, with archive pictures of Soviet leaders. Watch together.

KEY TERMS

central planning

An economic system in which government planners, not markets, decide what is produced, how much, by whom and at what price.

quota

A required amount of output that a factory or farm must produce under a plan.

shortage

A situation in which people want to buy more of a good at its price than is available.

surplus

A situation in which more of a good is produced than people want to buy at its price.

public good

A good that everyone can use and no one can easily be kept from using, such as national defense or a lighthouse, which markets tend to underprovide.

externality

A cost or benefit that falls on people outside a trade, such as smoke from a factory falling on its neighbors.

CORE IDEAS

The story. In the Soviet Union, which lasted from 1922 until 1991, the government owned nearly all farms, factories and stores. A planning agency called Gosplan, founded in 1921, drew up Five-Year Plans, beginning in 1928, that set targets, called **quotas**, for steel, tractors, shoes and countless other goods, and officials set their prices. The plans built huge steel mills, dams and factories quickly. But ordinary families spent hours in long lines for bread, meat, shoes and soap, and often waited years to buy a car or an apartment. Shelves were empty of goods people wanted while warehouses filled with goods no one wanted.

How they figured it out. In 1920 the Austrian economist Ludwig von Mises argued that planners could not calculate the costs of anything without market prices: without prices for steel, labor and machines, how could they tell whether a tractor was worth what it took to build? In 1945 Friedrich Hayek added that the knowledge needed to run an economy is scattered among millions of people, the farmer who knows his soil and the shopkeeper who knows his customers, and cannot be gathered into one office. Because planners set prices by decree, those prices could not signal what was scarce. Because factory managers were rewarded for meeting quotas rather than for pleasing customers, they made what was easy to count, not what people needed. The planners worked hard; the system gave them an impossible job.

The big idea. When a price is held below the level where supply meets demand, people want more than is produced: a **shortage**, with lines and favoritism. When it is held above, goods pile up unsold: a **surplus**. Worked example: at a market price of \$3, bakers make 100 loaves and families buy 100. If the price is fixed at \$2, families want 130 but bakers make only 70: a shortage of 60 loaves, and someone waits in line or goes without. Free markets tend to be good at choice, quality, falling prices and new inventions, because they reward people for serving others.

Think it through. Markets have limits too. They do poorly with **public goods** such as national defense, courts and most roads, which everyone uses but no one can be made to pay for one trip at a time. They do poorly with **externalities** such as smoke or polluted water that falls on neighbors who never agreed to the trade, and with fraud, which honest buyers cannot always detect. That is why every successful economy is a mixed one: free markets for most goods, with government providing courts, defense, roads and fair rules, as a referee rather than a player in every game.

In business today. Even inside a company, managers face Hayek's problem: the people closest to the customer often know things the head office does not. Wise companies let local managers decide and watch prices and customer choices closely. In your own business, listen to your customers and let their choices tell you what to make.

PICTURE STUDY



Les Halles, the Central Market of Paris, Léon Augustin Lhermitte, 1895 · Oil on canvas · Petit Palais, Paris

Image: [Wikimedia Commons](#), public domain

Les Halles was the great food market of Paris. Every night, farmers, porters and merchants brought in vegetables, fruit, fish, meat and flowers, and by morning the food was on its way to shops and kitchens across a city of two and a half million people. No single planner organized it. Lhermitte filled his enormous canvas with hundreds of people, each doing one small part.

Look closely

- Count as many different jobs as you can find: sellers, porters, buyers, cart drivers, cooks.
- Find the different kinds of food. Where might each have come from?
- Look at the iron and glass halls behind the crowd. Why would a city build a roof over its market?

Talk about it

1. Who decided how much cabbage or fish should come to Paris tonight? How did they know?
2. What would happen if a planner in an office set the price of every item here for a whole year?
3. The city of Paris built and ran the market halls, but private sellers did the trading. Which parts of a market should a city provide, and which should it

leave to buyers and sellers?

PROJECT

The Planner and the Price: A Kitchen-Table Economy

You will run a small economy two ways: first with a planner who sets quotas and prices, then with prices that buyers and sellers set themselves. You will record shortages, surpluses and how happy the “customers” are.

You will need

- Index cards marked with three goods: Bread, Shoes, Lamps (about 30 cards)
- Three or more helpers (producers and customers), with a parent as planner in Round 1
- Each customer gets a secret card listing what he wants most (for example 3 bread, 1 lamp, 0 shoes)
- Play money and a ledger notebook

Steps

1. **Round 1: the plan.** The planner, without seeing the customers’ cards, sets quotas (for example 10 bread, 10 shoes, 10 lamps) and fixed prices (\$1 each). Producers make exactly the quota (hand out the cards).
2. Customers line up and buy what they want at the fixed prices. Record what each customer wanted and got, and what was left over or ran out.
3. Calculate for each good: Quantity wanted – Quantity produced. Positive is a shortage, negative a surplus.
4. **Round 2: prices.** Producers may now set and change their own prices and make more of what sells. Run three short “days.” Each day, producers who sold out may raise prices or make more; producers with leftovers may cut prices or make less.
5. Record each day’s prices, quantities, shortages and surpluses.
6. Ask each customer to rate each round from 1 to 5. Record the average.
7. Make a comparison table for the two rounds. Write a paragraph explaining what the planner did not know, and how prices carried that knowledge in Round 2.

8. Add two sentences naming one thing in your town that the market alone would not provide well, and who provides it instead.

Tips

- The planner should try honestly to guess well. The point is not that planners are foolish, but that they cannot know what is on the customers' secret cards.
- Keep the money and goods honest in both rounds.

Check your work

- ☐ I can explain why fixed prices and quotas led to shortages and surpluses.
- ☐ My table compares the planned round with the price round.
- ☐ I can name things markets do poorly and explain why honest rules are needed.

LEDGER NOTEBOOK

1. Draw a supply-and-demand graph for bread. Mark the market price (\$3), then draw a fixed price line at \$2 and label the shortage.
2. Copy your comparison table from the project.
3. Make two columns, "Markets do well" and "Markets do poorly," with at least four examples in each.

From history. In January 1990, before the Soviet Union dissolved, the first McDonald's restaurant in Moscow opened on Pushkin Square. Thousands of people waited for hours in a line that stretched for blocks, and the restaurant served about 30,000 customers on its first day. For many Muscovites it was the first time they had seen a store where the goods did not run out.

COMMON MISTAKES

- Thinking planners failed because they were lazy. Many worked very hard; they lacked the knowledge that prices carry.
- Thinking free markets need no rules. They need courts, contracts, honest weights and protection from fraud and pollution.
- Thinking a mixed economy means half planned. It means mostly free markets, with government doing the jobs markets do poorly.

Make it a game • The Planner's Shopping List. You are the central planner. Without asking anyone, write a quota and a fixed price for six snack items in the kitchen. Your parent then enters as customers with real wants and a few beans each. Count shortages and leftover surpluses. Name which of Mises's or Hayek's arguments each problem proves, one point per argument, then try to improve the list.

UNIT 3

MARKETS

Not all markets are alike. A wheat farmer sells into a market with thousands of other sellers and must take the going price; a town's water company may be the only seller there is. In this unit you will study the four **market structures**: perfect competition, monopolistic competition, oligopoly and monopoly, and learn to measure how concentrated a market is. Then you will see what happened when one company came to dominate an industry, and how the Sherman Act of 1890 was used to break up Standard Oil in 1911 and the Bell System in 1984.

Markets can also be lopsided on the buying side. In a **company town** such as Pullman, Illinois, one employer owned the jobs, the houses and the stores, and its workers had nowhere else to go. Last, you will look at the boldest attempt to do without markets altogether: the central planning of the Soviet Union, and why it left its people with long lines and empty shelves. Throughout, you will see the strengths of free markets, their limits, and why markets need honest rules. For the portfolio you will write a market-structure study of an industry in your own town.

PREREQUISITES

- Knows supply, demand and prices as signals (Unit 1 and earlier grades)
- Can calculate percents and square numbers
- Knows what a monopoly is in simple terms

MASTERY CHECKLIST

- ☐ I can name and describe the four market structures and give a real example of each.
- ☐ I can calculate a four-firm concentration ratio and a Herfindahl–Hirschman Index.
- ☐ I can explain how the Sherman Act was used against Standard Oil and the Bell System, and what happened afterward.
- ☐ I can explain monopsony and why company towns could harm workers.
- ☐ I can explain why central planning produced shortages, and name things that markets do poorly.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **The Wealth of Nations, by Adam Smith (1776)**: Free. Book I, chapter 10, contains Smith's warning that people of the same trade seldom meet together without some plan to raise prices. Read it with a parent in Lesson 3.2. Ages 13+.
- **Pullman National Historical Park (National Park Service)**: Free online. Photographs, maps and the history of the company town of Pullman, Illinois. Good for Lesson 3.3.
- **Acquire, by Sid Sackson (board game)**: Optional family game first published in 1964, in which players build and merge hotel chains and buy shares. It shows how mergers create large firms. Ages 12+.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

3.1 Market Structures in Depth: From the Wheat Pit to the Water Company

2 sessions of 60 minutes

3.2 Antitrust: The Sherman Act, Standard Oil and the Bell System

2 sessions of 60 minutes

3.3 Company Towns and Monopsony: Pullman, Illinois

2 sessions of 60 minutes

3.4 The Limits of Central Planning

2 sessions of 60 minutes

UNIT 3 REVIEW

Answer each question. Show your work for calculations and use complete sentences for explanations. The review is worth 100 points.

1. **8 pts**

Name the four market structures and give one example of each.

2. **6 pts**

Why is a wheat farmer a price taker?

3. 10 pts

A market has five firms with shares of 40%, 20%, 20%, 10% and 10%. Calculate the CR4 and the HHI.

4. 8 pts

How did Standard Oil come to refine about 90% of America's oil? Give one fair method and one unfair one.

5. 8 pts

What does the Sherman Antitrust Act of 1890 forbid? What did the Supreme Court order in 1911?

6. 8 pts

How was the Bell System broken up in 1984, and what happened to long-distance calling afterward?

7. 10 pts

Four buyers will pay at most \$12, \$9, \$6 and \$3. Each item costs \$3 to make. What price gives a single seller the most profit, and what is that profit?

8. 8 pts

What is monopsony? Use Pullman as an example.

9. 6 pts

How did Hershey and Bournville differ from Pullman?

10. 10 pts

At a market price of \$3, 100 loaves are made and bought. The government fixes the price at \$2; buyers now want 130 and bakers make 70. What is the shortage? What will people see?

11. 8 pts

Explain Hayek's argument against central planning.

12. 10 pts

Write a paragraph on what markets do well, what they do poorly, and why they need honest rules.

ANSWER KEY

1. Perfect competition (wheat, corn); monopolistic competition (restaurants, hair salons); oligopoly (airlines, cell-phone carriers, cereals); monopoly (local water or power company). Other sound examples accepted.
2. Wheat is graded into identical qualities and sold by thousands of farmers, so if one farmer asked more than the market price, buyers would buy from others.
3. $CR4 = 40 + 20 + 20 + 10 = 90\%$. $HHI = 1,600 + 400 + 400 + 100 + 100 = 2,600$.
4. Fair: cutting waste, making its own barrels, using by-products, lowering costs and prices. Unfair: secret railroad rebates that raised rivals' costs, and squeezing competitors until they sold out.
5. It forbids contracts or combinations in restraint of trade and monopolizing trade. In 1911 the Court ordered Standard Oil broken into 34 separate companies.
6. AT&T kept long distance and equipment, and its local service was split into seven regional companies. Long distance became competitive, with firms such as MCI, and prices fell sharply.
7. \$12: $1 \times 9 = \$9$. \$9: $2 \times 6 = \$12$. \$6: $3 \times 3 = \$9$. \$3: 0. Best price \$9, profit \$12.
8. A market with one main buyer, such as a single employer of labor. In Pullman the company was the employer and the landlord; in 1893–94 it cut wages about a quarter without lowering rents, and workers had few other choices.
9. Workers could own their homes, and the owners cut their own profits rather than squeezing workers in bad years; they dealt with workers as neighbors.
10. Shortage = $130 - 70 = 60$ loaves. People will see long lines, empty shelves, favoritism and perhaps illegal sales at higher prices.
11. The knowledge needed to run an economy is spread among millions of people and changes constantly; it cannot be gathered into one office. Market prices carry that knowledge; planners who set prices by decree lose the signals.
12. A strong answer: markets give choice, better quality, falling prices and new inventions by rewarding service; they do poorly with public goods (defense, courts, roads), externalities (pollution) and fraud; so government acts as a fair referee with courts, contracts and honest weights, while leaving people free to work and trade.

PORTFOLIO PIECE: A MARKET-STRUCTURE STUDY

Choose one industry in your town or state: groceries, gasoline, internet service, hardware, auto repair, or another. With a parent, gather facts: the sellers, their approximate shares, prices for one identical item at three or more sellers, and the barriers to entry. Write a two-page study that classifies the market, calculates its CR4 and HHI, explains how much power sellers have over price and why, and names any rules (licenses, safety codes, rate commissions) that govern it. End with your judgment: does this market serve customers well, and what one change would make it serve them better?

LOOK FOR	WHAT IT MEANS
Data	Real sellers, prices and estimated shares, with sources and how the shares were estimated.
Calculations	CR4 and HHI correctly calculated and shown.
Analysis	The structure is correctly identified and explained using barriers to entry and the kind of product.
Rules	Relevant rules or regulators are named and their purpose explained fairly.
Judgment	A thoughtful, fair conclusion with a specific, realistic suggestion.

UNIT 4

GREAT BUSINESSES AND THEIR STAKEHOLDERS

A business is **great** when it creates real value and serves all six of its stakeholders over a long time: the **financiers** who lend or invest, the **risk-takers** who found and own it, the **builders** who design and make its products, the **workers**, the **customers** and the **community**. A business can be very big without being great. This year you will weigh four businesses with a full stakeholder scorecard, a rating from 1 to 5 with a reason for each stakeholder, and you will notice that the hardest scores to earn are often for workers and the community.

The four are Jakob Fugger's bank and mining empire in Augsburg, which made an emperor and built the world's oldest working charity housing; Josiah Wedgwood's pottery, which invented much of modern marketing; the contest between Henry Ford and Alfred Sloan of General Motors in the 1920s, when the world's most successful car lost its lead; and LEGO, which nearly collapsed in 2003–2004 and became one of the strongest toy companies in the world. For the portfolio you will write a full stakeholder report on a business of your choice.

PREREQUISITES

- Knows the six stakeholders (earlier grades) or reads the overview carefully
- Knows the market structures and the idea of antitrust (Unit 3)
- Can calculate percents, averages and market shares

MASTERY CHECKLIST

- ☐ I can name the six stakeholders and give a rating with a specific reason for each, for any business.
- ☐ I can tell how Jakob Fugger built his business and weigh its power over rulers.
- ☐ I can explain Wedgwood's marketing methods and judge which were honest.
- ☐ I can explain why General Motors overtook Ford in the 1920s, with market-share numbers.
- ☐ I can explain why LEGO nearly failed and how it recovered.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **The Henry Ford museum: digital collections**: Free. Photographs and documents from Ford’s factories, the Model T and the Model A. Search “Model A 1927” for Lesson 4.3.
- **The LEGO Group: history**: Free. The company’s own short history, from Ole Kirk Christiansen’s carpenter’s shop in 1932 to today. Good for Lesson 4.4.
- **Wedgwood Museum (V&A Wedgwood Collection)**: Free online. The Victoria and Albert Museum’s pages on the Wedgwood collection at Barlaston, with objects, letters and stories. Good for Lesson 4.2.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

4.1 The Fuggers of Augsburg: The Banker Who Made an Emperor

2 sessions of 60 minutes

4.2 Wedgwood’s Marketing: Royal Names, Showrooms and Catalogs

2 sessions of 60 minutes

4.3 Ford versus General Motors: How the Leader Lost Its Lead

2 sessions of 60 minutes

4.4 LEGO: Near-Collapse and Turnaround

2 sessions of 60 minutes

UNIT 4 REVIEW

Answer each question. Show your work for calculations and use complete sentences for explanations. The review is worth 100 points.

1. **6 pts**

Name the six stakeholders and explain the difference between a big business and a great business.

2. 8 pts

How did Jakob Fugger use collateral when lending to the Habsburgs? Why was lending to rulers risky?

3. 8 pts

Describe the Fuggerei. Which stakeholder did it serve, and does it make the Fugger firm great? Explain.

4. 8 pts

Name four of Wedgwood's marketing methods.

5. 8 pts

Which of Wedgwood's methods was the most questionable, and why?

6. 8 pts

Give three reasons General Motors overtook Ford in the 1920s.

7. 10 pts

Total car sales are 3,500,000. Ford sells 1,400,000 and GM 1,050,000. Find each share. The next year total sales are 4,000,000, Ford sells 1,200,000 and GM 1,600,000. Find the new shares.

8. 8 pts

Why did LEGO lose so much money in 2003–2004?

9. 8 pts

Name three things LEGO's new leaders did to turn the company around.

10. 10 pts

A business has revenue of \$250,000 and costs of \$280,000. What is its profit margin? The next year revenue is \$220,000 and costs \$198,000. What is the new margin?

11. 6 pts

A business is rated Financiers 4, Risk-takers 5, Builders 4, Workers 2, Customers 4, Community 3. What is its average? Which stakeholder needs the most attention?

12. **12 pts**

Choose one of this unit's four businesses. In a paragraph, argue whether it was great, using at least four stakeholders and specific facts.

ANSWER KEY

1. Financiers, risk-takers, builders, workers, customers, community. A big business sells or earns a lot; a great business creates real value and serves all six well over a long time.
2. He took the output of silver and copper mines and other revenues as security for his loans. Rulers could refuse to pay and no court could force them; the more a lender lent, the more dependent he became on the ruler.
3. A walled neighborhood founded in 1516 for poor working families of Augsburg, supported by a foundation, with a rent still of one Rhenish guilder a year. It served the community. It was a real good, but it does not erase low scores for miners or the use of money to buy power over rulers and profit from indulgences.
4. Any four: royal endorsements (“Queen’s Ware,” “Potter to Her Majesty”); showrooms in London; exhibiting the Frog Service; printed catalogs with numbered patterns in several languages; traveling salesmen with samples; replacing broken goods and taking back unsatisfactory ones; sending goods on approval.
5. Sending unordered goods to German nobles and asking them to pay or return them, because it pressures people to pay for something they did not choose; such selling is restricted by law in many places today.
6. Any three: a ladder of models for every budget; yearly new models, styles and colors; installment credit through GMAC; decentralized management; cheap used cars made the Model T less attractive while Ford kept one model.
7. Year 1: Ford 40%, GM 30%. Year 2: Ford 30%, GM 40%.
8. Its patents had expired and rivals sold compatible bricks; video games competed for children’s time; and it diversified into parks, clothing, games and many new sets with many special pieces, adding complexity costs and losing focus on its core brick.
9. Any three: cut the number of pieces and products; sold a controlling share of the Legoland parks; closed or sold units that lost money; refocused on the core brick; listened to devoted customers, including adult builders; the owner invested his own money.
10. Year 1: $(250,000 - 280,000) \div 250,000 \times 100 = -12\%$. Year 2: $(220,000 - 198,000) \div 220,000 \times 100 = +10\%$.
11. $22 \div 6 \approx 3.7$. The workers (2) need the most attention.

12. Answers will vary. A strong answer names the business, gives specific facts for at least four stakeholders (for example LEGO: the family's risk, the brick's quality, customers' trust, jobs cut and later restored), weighs strengths against failings and reaches a clear, fair conclusion.

PORTFOLIO PIECE: A FULL STAKEHOLDER REPORT

Choose one business: a family business, a local company, a church-run ministry with sales, or a historical business you have read about. Gather facts by interviewing the owner or a manager (with a parent present), visiting, and reading reliable sources. Write a three-page report that tells the business's story and its main problems and decisions, gives a full stakeholder scorecard with a 1–5 rating and a specific reason for each of the six, calculates the average, compares it with one of this unit's four businesses, and ends with advice: the business's greatest strength and the one change that would most improve its weakest score.

LOOK FOR	WHAT IT MEANS
Research	Real facts from an interview, visit or reliable sources, with sources listed.
Story and decisions	The business's beginning, key problems and decisions are clearly told.
Scorecard	All six stakeholders are rated with honest, specific reasons; the average is correct.
Comparison	A thoughtful comparison with Fugger, Wedgwood, Ford, GM or LEGO.
Advice and fairness	Strengths and weaknesses are shown fairly, and the advice is specific, kind and realistic.

4.1 THE FUGGERS OF AUGSBURG: THE BANKER WHO MADE AN EMPEROR

OBJECTIVES

- Tell how Jakob Fugger built a business in cloth, silver, copper and banking, and how he financed the choice of Charles V as emperor in 1519.
- Explain how lending to rulers created both great profit and great risk.
- Make a full stakeholder scorecard for the Fugger business, including the Fuggerei.

Warm-up. If a friend owed you a great deal of money and could not pay it back, what power would you have over him? What power would he have over you? Write two sentences for each side.

WATCH

The Fuggerei: Why You Can Live In One Of These Idyllic Medieval Houses – For Just 88 Cents

DW Euromaxx • 4:50

https://www.youtube.com/watch?v=hmVaNVp_rE

WHEN TO WATCH

After the paragraph on the Fuggerei, to see the housing Jakob Fugger founded in 1516 and still lived in today.

Note: From DW Euromaxx, the lifestyle programme of Germany's public broadcaster; residents and the foundation's director show the Fuggerei and Fugger's founding deed.

BACKUP VIDEO

Fugger - Banker Who Brought the Habsburgs to Power

Kings and Generals • 21:10

<https://www.youtube.com/watch?v=95Nmtm7XnvU>

Optional, for older students who want the full story of Fugger and the Habsburgs: about twenty minutes, with a sponsor message near the start and some painted battle scenes. Watch together.

KEY TERMS

collateral

Property a borrower promises to give the lender if the loan is not repaid.

sovereign lending

Lending to a king, emperor or national government.

vertical integration

Owning several stages of production of a product, such as the mines, the smelters and the trading houses.

foundation

A fund of money or property set aside permanently, whose income is used for a charitable purpose.

stakeholder scorecard

A report that rates how well a business served each of its six stakeholders, from 1 (poor) to 5 (excellent), with a reason for each rating.

CORE IDEAS

The story. Jakob Fugger was born in 1459 in Augsburg, in southern Germany, the youngest son of a family that had grown rich in the cloth trade. As a teenager he was sent to Venice, the great trading city, where he learned bookkeeping and the trade in metals. Back in Augsburg he began lending to the Habsburg rulers of Austria. His first big borrower, Archduke Sigismund of Tyrol, was always short of money; Fugger lent to him with the output of the Tyrol silver mines as **collateral**. With a partner, Johann Thurzó, he built a copper business in Hungary, owning mines, smelters and trading houses from the Baltic to Venice and Lisbon. By the early 1500s the Fugger firm had a near-monopoly on Central European copper.

How they figured it out. Fugger understood that kings needed money more than anything, and that their mines and taxes could be pledged to repay it. When Emperor Maximilian died in 1519, his grandson Charles of Spain wanted to be chosen Holy Roman Emperor by the seven prince-electors of Germany, but the king of France was bidding for the same crown. Payments to the electors were the custom of the time. Fugger raised more than 500,000 florins of the roughly 850,000 that Charles spent, and Charles was chosen. Four years later, when the emperor was slow to repay and the imperial assembly was debating limits on large trading companies, Fugger wrote to remind him that without his help Charles could not have won the

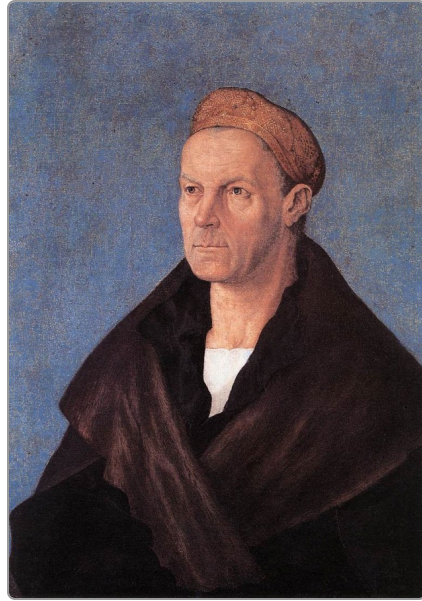
crown. The debts were honored and the limits were dropped. Fugger also handled the money from the sale of indulgences in Germany that repaid a loan to the archbishop of Mainz; that sale was the spark for Martin Luther's 95 Theses in 1517.

The big idea. Sovereign lending can be very profitable and very dangerous: a king can refuse to pay, and courts cannot force him. Fugger protected himself with collateral in mines and taxes, but his firm became so tied to the Habsburgs that it could not walk away. After his death the family kept lending to Spanish kings, who stopped payments several times, and the Fugger fortune slowly drained away. Fugger also left a lasting good: in 1516 he founded the **Fuggerei**, a walled neighborhood of houses for poor working families of Augsburg, supported by a **foundation**. Its rent is still one Rhenish guilder a year, about 88 euro cents, and it is still lived in today.

Stakeholder scorecard: the Fugger firm, about 1525. *Financiers:* 4. Partners and depositors earned high returns, though some, like a cardinal who secretly deposited with the firm, put money in to dodge church rules on interest. *Risk-takers:* 5. Fugger built a fortune of about two million guilders at his death. *Builders:* 4. His mines, smelters and roads were among the most advanced in Europe, and his chief bookkeeper Matthäus Schwarz kept excellent double-entry books. *Workers:* 2. Miners did hard, dangerous work for low pay, and the firm's power left them little choice. *Customers:* 3. Reliable copper and silver, but near-monopoly prices. *Community:* 3. The Fuggerei, churches and a hospital, but also money used to buy power over rulers and to profit from the indulgence trade. Average: $21 \div 6 = 3.5$. A brilliant business, but its power over rulers made it less than great.

In business today. Governments still borrow from banks and investors by selling bonds, and several countries have failed to repay. Wise lenders spread their loans among many borrowers rather than tying their fate to one powerful customer. "The borrower is servant to the lender" (Proverbs 22:7), but Fugger's story shows that a lender who lends too much to one borrower can end up the servant too.

PICTURE STUDY



Portrait of Jakob Fugger the Rich, Albrecht Dürer, about 1518–1520 · Oil on canvas (transferred from panel) · Staatsgalerie Altdeutsche Meister, Augsburg

Image: [Wikimedia Commons](#), public domain

Albrecht Dürer of Nuremberg was the most famous German painter of his day. He drew Jakob Fugger at the imperial assembly in Augsburg in 1518 and painted this portrait from the drawing. The plain gold cap was a style Fugger had picked up as a young man in Venice, and he wore it all his life.

Look closely

- Look at Fugger's face and mouth. What kind of man does Dürer show?
- Look at his clothes. Do they show off his wealth or hide it?
- Find the gold cap. Why might a merchant keep wearing a style from the city where he learned his trade?

Talk about it

1. Fugger was one of the richest men in history. What does this portrait tell you, and what does it leave out?
2. If you were the emperor, how would you feel about a banker who looked at you like this?
3. Which of the six stakeholders would Fugger have thought about most? Which least?

PROJECT

The Emperor's Loan: A Lender's Decision and a Stakeholder Scorecard

You will play Jakob Fugger deciding how much to lend to a ruler, with collateral and risk, and then build a full stakeholder scorecard for his firm and for a modern bank you know.

You will need

- Play money (\$1,000 to start), index cards for loan contracts
- Two dice
- Ledger notebook and calculator

Steps

1. You have \$1,000 to lend over four rounds. Each round, a “ruler” (a parent) asks to borrow and offers 20% interest. You choose how much to lend and what collateral to demand: “mine” collateral (you keep \$1 of every \$2 you lose) or none.
2. Roll two dice for each loan: on 2–4 the ruler refuses to pay. Without collateral you lose the loan. With mine collateral you get half back but earn only 10% interest when he does pay.
3. Play two games: in Game A lend everything to one ruler each round; in Game B split your money among three rulers (roll separately for each).
4. Keep a ledger: Round, Borrower, Amount lent, Collateral, Roll, Result, Balance.
5. Compare the final balances of Game A and Game B. Which was more likely to end in ruin? Which earned more on average?
6. Build a stakeholder scorecard for the Fugger firm. Use the one in the lesson as a starting point, but give your own ratings and reasons, and calculate the average.
7. With a parent, choose a bank or credit union your family knows. Make a second scorecard for it, asking a parent about fees, service and its role in your town.

8. Write a paragraph: Was Jakob Fugger's business great? Use at least three stakeholders in your answer.

Tips

- Keep the dice honest and record every roll; a ledger is only useful if it is true.
- On a scorecard, "not sure" is better than a guess.

Check your work

- ☐ I can explain collateral and why lending to rulers was risky.
- ☐ My ledger shows the results of both games.
- ☐ My scorecards have a 1–5 rating and a specific reason for each of the six stakeholders.

LEDGER NOTEBOOK

1. Draw a map of Fugger's business: Augsburg at the center, lines to the Tyrol silver mines, the Hungarian copper mines, Venice, Antwerp, Lisbon and Rome.
2. Draw a plan of the Fuggerei: walls, gates, rows of houses and the church. Write its rent in 1516 and today.
3. Copy your stakeholder scorecard as a six-bar graph.

From history. Matthäus Schwarz joined the Fugger firm as a young man and became Jakob Fugger's chief bookkeeper. A small painting from 1517 shows the two men in the firm's "golden counting room," with a cabinet of drawers labeled for the branches in Rome, Venice, Antwerp, Lisbon, Kraków and other cities.

COMMON MISTAKES

- Thinking a lender always holds the power. When a borrower owes too much, the lender becomes dependent on him too.
- Thinking the payments to the electors were secret bribes in a modern sense. They were the open custom of the time, though still a way of buying power.
- Thinking a generous gift erases every other score. The Fuggerei was a real good; it does not change the scores for miners or for buying influence.

Make it a game • The Emperor's Loan Interview. Race the clock: in 60 seconds, list everything Jakob Fugger's businesses did, from cloth to banking, and how the 1519 loan worked. Then your parent plays a ruler begging for a loan. You decide your demands: collateral, interest and a repayment date. Explain the risk to your stakeholders. The ruler may walk away if your terms feel unreasonable or if your risk case is weak.

Scripture. “The rich ruleth over the poor, and the borrower is servant to the lender.” (Proverbs 22:7, KJV)

Fugger understood this proverb better than the emperor did: debt gave the banker power over a ruler. Scripture warns borrowers to be careful, and Fugger’s later history warns lenders too.

4.2 WEDGWOOD'S MARKETING: ROYAL NAMES, SHOWROOMS AND CATALOGS

OBJECTIVES

- Explain how Josiah Wedgwood used royal customers, showrooms, catalogs, samples and guarantees to sell his pottery.
- Judge which marketing methods are honest and which could mislead.
- Make a stakeholder scorecard for Wedgwood's business that includes his customers and his public causes.

Warm-up. Find three advertisements (in a magazine, a flyer or on a cereal box). For each, write what it promises and whether you think the promise is true. Which one would make you want to buy? Why?

WATCH

Staffordshire's Historic Heroes: Josiah Wedgwood

Visit Staffordshire • 1:51

https://www.youtube.com/watch?v=2Y-E5_S7KTE

WHEN TO WATCH

Before the story, to meet Wedgwood in his own museum.

Note: A very short film from Wedgwood's home county, with an actor playing Wedgwood. Also used in Grade 5; no better short Wedgwood film was found.

KEY TERMS

marketing

Everything a business does to find customers, understand what they want, and persuade them to buy: product, price, place and promotion.

endorsement

Public approval of a product by a well-known person.

showroom

A shop where goods are displayed so customers can see them, often without being sold from stock on the spot.

catalog

A printed list of products with descriptions, numbers and sometimes pictures, so customers can order by mail.

guarantee

A promise that a product will be repaired, replaced or refunded if it is faulty or does not satisfy.

CORE IDEAS

The story. In Grade 5 you met Josiah Wedgwood (1730–1795) as a potter and experimenter. He was also one of the first great marketers. In 1765 Queen Charlotte ordered a tea set of his cream-colored earthenware. Wedgwood asked permission to call himself “Potter to Her Majesty” and named the ware “Queen’s Ware.” In 1773 Empress Catherine the Great of Russia ordered a dinner and dessert service of nearly a thousand pieces, each painted with a different British scene and marked with a small green frog, the emblem of the palace where it would be used. Before shipping it, Wedgwood displayed the whole service in his new London showroom in 1774, and crowds of fashionable people came to see it.

How they figured it out. Wedgwood and his partner Thomas Bentley worked out methods that marketers still use. They used royal and noble **endorsements**, reasoning that the middle classes would want what the great families had. They opened elegant **showrooms** in London and arranged the pieces as if on a dinner table. They printed **catalogs** with numbered patterns, in English and later in French, German and Dutch, so customers anywhere could order by number. They sent traveling salesmen with samples, offered to replace goods broken in shipping, and took back goods that did not satisfy. Once they even sent parcels of ware, unordered, to about a thousand German noble families with a letter asking them to pay or return it; most paid.

The big idea. **Marketing** is not tricking people; at its best it is understanding customers and telling them truly what you offer. Wedgwood’s methods worked because his ware really was good. A “Queen’s Ware” label would have failed quickly if the plates had cracked. But some methods sit on the edge: sending goods no one

ordered puts pressure on people to pay for something they did not choose, and today it is restricted by law in many countries. Wedgwood also used his marketing skill for a cause. In 1787 he made a small medallion for a London society founded that year to end the British trade in African captives, showing a kneeling man in chains and the words “Am I Not a Man and a Brother?” Thousands were given away and worn, helping to turn public opinion against the trade in human beings, who are made in God’s image and can never rightly be owned.

Stakeholder scorecard: Wedgwood, about 1790. *Financiers:* 4. Partners such as Bentley shared in the profits. *Risk-takers:* 5. A fortune built on new methods. *Builders:* 5. Careful experiments and fine design. *Workers:* 3. Steady wages and houses, but long hours, strict fines and lead glazes that harmed health. *Customers:* 5. Good ware, honest catalogs, guarantees and replacements. *Community:* 4. Canals and roads that helped the region, and the “Am I Not a Man and a Brother?” medallion; but he also pressed hard for laws that suited his own trade. Average: $26 \div 6 \approx 4.3$.

In business today. Endorsements, showrooms, catalogs, free samples and money-back guarantees are everywhere. Honest marketing makes true claims, keeps its promises and lets customers say no. “A good name is rather to be chosen than great riches” (Proverbs 22:1).

PICTURE STUDY



A Plate from the Frog Service for Catherine the Great, Wedgwood and Bentley, 1774 · Creamware (Queen's Ware), painted in enamel · Brooklyn Museum, New York (on loan); most of the service is in the Hermitage, St. Petersburg

Image: [Wikimedia Commons](#), public domain

Catherine the Great ordered this service for a palace near St. Petersburg built on a marsh known in French as “La Grenouillère,” the frog marsh, so every piece carries a small green frog. Wedgwood’s painters copied more than a thousand real British views onto the plates, dishes and bowls. It was a royal order, but it was also a huge advertisement for English pottery.

Look closely

- Find the frog. Where is it on the plate?
- Look at the landscape in the center. What kind of place is shown?
- Look at the border of vine leaves. Why would a potter use the same border on every piece of a set?

Talk about it

1. Why would Wedgwood display a service already sold to an empress in his London showroom?
2. Who saw the exhibition, and what did Wedgwood hope they would do afterward?

3. Is using a famous customer's name to sell to others honest? When would it become dishonest?

PROJECT

A Wedgwood Campaign for a Product You Know

You will design an honest marketing campaign for a real product your family makes or uses, using Wedgwood's tools, and then test whether each claim is true.

You will need

- One product: homemade bread, a craft, a garden vegetable, or a product your family buys
- Paper, markers, index cards; a computer is optional
- Ledger notebook

Steps

1. Choose your product. Write who your target customers are and what they need.
2. Make a one-page catalog page: the product's name, a numbered description, a drawing, a price and how to order.
3. Design a "showroom" display on a table: arrange the product as customers would use it. Take a photo or make a sketch.
4. Write a guarantee of no more than two sentences that you could truly keep.
5. Write down every claim your campaign makes. Beside each, write the evidence that it is true. Cross out any claim you cannot prove.
6. Show your campaign to two people (family members). Ask: What would make you buy? Did anything seem untrue or pushy? Record their answers.
7. Write a paragraph: Which of Wedgwood's methods did you use? Which one would you never use, and why?

Tips

- A guarantee is a promise. Only offer one you can afford to keep.
- The strongest advertisement is a good product honestly described.

Check your work

- ☐ I can explain Wedgwood's marketing methods.

- ☐ Every claim in my campaign has evidence beside it.
- ☐ I can explain the difference between persuasion and deception.

LEDGER NOTEBOOK

1. Draw the frog emblem and a Queen's Ware plate, and label how each was used to sell.
2. Make a table: Wedgwood's method, A modern example, Honest or risky?, Why.
3. Copy the Wedgwood scorecard and add your own rating for each stakeholder beside it.

From history. Wedgwood spent about four years copying the ancient Roman glass vase known as the Portland Vase in his jasper ware. When he finished his first good copies in 1790, he showed them privately to invited guests before offering copies for sale, building interest the way he had with the Frog Service.

COMMON MISTAKES

- Thinking marketing is only advertising. It also includes what you make, how you price it and where you sell it.
- Thinking a famous name makes a product good. Endorsements work only if the product lives up to them.
- Thinking a business has no part in moral questions. Wedgwood used his skill and his name for a just cause.

Make it a game • Honest or Misleading Pitch. Pick a household object. Using Wedgwood's methods, give your parent a 45-second sales presentation featuring a royal name or endorsement, a showroom display, a catalog description, a sample and a guarantee. Your parent judges each claim as honest or misleading, and you must fix any misleading one. Score a point for each method used honestly and each fix you make.

4.3 FORD VERSUS GENERAL MOTORS: HOW THE LEADER LOST ITS LEAD

OBJECTIVES

- Tell how Alfred Sloan's General Motors overtook the Ford Motor Company in the 1920s.
- Compare Ford's one-model strategy with GM's "car for every purse and purpose," with installment credit and yearly models.
- Calculate market shares and make stakeholder scorecards for both companies.

Warm-up. Your family's favorite store or brand has been the same for years. What would a new competitor have to do to win you away? List three things.

WATCH

A1; The First Model A Ford (1927).

A Model A • 5:12

https://www.youtube.com/watch?v=c_3u7QxXDSs

WHEN TO WATCH

After the story; it shows Ford's answer to GM, the Model A of 1927.

Note: A small channel devoted to the Model A's history.

KEY TERMS

market share

A company's sales as a percent of all sales in its market.

product line

A group of related products a company sells at different prices or for different uses.

market segmentation

Dividing customers into groups with different needs or budgets and offering each group a product suited to it.

installment credit

A loan for a purchase that is repaid in regular payments over time.

decentralized management

Giving divisions or local managers authority to run their own operations, while the head office sets goals and checks results.

CORE IDEAS

The story. By the early 1920s Henry Ford's Model T was the most successful car in history, and Ford made more than half the cars sold in America. Ford kept making one model, steadily improved and cheaper every year, and for years offered it in black only. Meanwhile General Motors, put together from many smaller companies by William Durant starting in 1908, was nearly bankrupt after a slump in 1920. Its new leader, Alfred P. Sloan Jr., a quiet engineer who became president in 1923, set out to rebuild it.

How they figured it out. Sloan could not beat Ford at making the cheapest car. So he offered something different: "a car for every purse and purpose." GM arranged its divisions as a ladder of **product lines**: Chevrolet for the first-time buyer, then Pontiac, Oldsmobile, Buick, and Cadillac at the top, so a family could move up as it prospered. Each year GM brought out new models with new styling and colors. Its finance company, GMAC, founded in 1919, let customers buy on **installment credit**. And Sloan used **decentralized management**: each division ran itself, while the head office watched the numbers. As used cars became cheap and plentiful, a new Model T no longer looked like a bargain next to a used Chevrolet with more comfort. In 1927 Chevrolet outsold Ford. Ford stopped making the Model T that May, after more than 15 million, and closed his plants for months to retool for the new Model A, which appeared that December. GM had become America's largest carmaker, and it stayed ahead for most of the century.

The big idea. A business that wins by doing one thing extremely well can lose if customers' wants change and it refuses to change with them. Ford was a builder of genius but distrusted managers, credit and annual models. Sloan's GM practiced **market segmentation**: different products for different customers. Worked example with round illustrative numbers: if 4,000,000 new cars are sold in a year and Ford sells 2,000,000, its **market share** is $2,000,000 \div 4,000,000 = 50\%$. If total sales stay the same and Ford's sales fall to 1,000,000 while GM's rise from 800,000 to 1,600,000, Ford's share falls to 25% and GM's rises from 20% to 40%.

Stakeholder scorecards, about 1927. *Ford.* Financiers 3 (Ford had bought out all outside shareholders by 1920 and ran the company alone); risk-takers 4; builders 5 (the moving assembly line); workers 3 (high pay, but harsh discipline, a fast line and inspections of home life); customers 4 (cheap, tough cars, but little choice); community 4 (jobs and wages for whole cities). *General Motors.* Financiers 5 (steady dividends after 1923); risk-takers 4; builders 4 (good engineering and styling); workers 3 (ordinary pay for the era and hard work on the line); customers 5 (choice, comfort and credit); community 4. Ford's average ≈ 3.8 ; GM's ≈ 4.2 .

In business today. Companies still offer product ladders, yearly models and financing. Wise leaders listen when customers start choosing something different. Credit helps families buy useful things sooner, but it must be used carefully; a payment plan is still a debt.

PICTURE STUDY



Alfred P. Sloan Jr. on the Cover of Time, Time magazine, December 27, 1926 · Printed magazine cover · Time magazine

Image: [Wikimedia Commons](#), public domain

By the end of 1926, Alfred Sloan had been president of General Motors for three years, and its Chevrolet was gaining on Ford's Model T month by month. *Time* magazine put him on its cover. Within a year, Chevrolet would outsell Ford.

Look closely

- Look at Sloan's face and clothing. Does he look like a showman, an inventor or a manager?
- Read anything printed on the cover. What does it tell readers about him?
- Compare this cover with what you know of Henry Ford. How were the two men different?

Talk about it

1. Why would a magazine choose a car executive for its cover in 1926?
2. Sloan was trained as an engineer but became famous as a manager. What does a manager build?
3. Which of Sloan's ideas do you see in car sales today?

PROJECT

The Product Ladder and the Market-Share Contest

You will design a product ladder for a small business, the way Sloan did for GM, and then calculate market shares year by year in a simple contest between a one-product company and a ladder company.

You will need

- Ledger notebook, calculator or spreadsheet, graph paper
- Store flyers or a catalog showing one product at several price levels (for example bicycles or kitchen mixers)

Steps

1. Look at the flyer or catalog. List one product line at three to five price levels and what extra each level offers. This is a modern product ladder.
2. Design your own ladder for a small business, such as homemade bread, cards or yard work: a basic, a better and a best version, each with a price and its cost.
3. **The contest.** Use this table of total sales in a market (illustrative numbers):
Year 1: 100 units, Year 2: 110, Year 3: 120, Year 4: 130, Year 5: 140. Company A (one product) sells 60, 60, 55, 50, 40. Company B (ladder) sells 20, 30, 45, 60, 80.
4. Calculate each company's market share each year. Record a table: Year, Total, A sales, A share, B sales, B share.
5. Graph both companies' shares on one graph.
6. In which year did B pass A? What might Company A have done in Year 2 to keep its lead?
7. Make your own stakeholder scorecards for Ford and GM in 1927 with ratings and reasons. Do you agree with the lesson's scores?
8. Write a paragraph: What lesson does Ford's loss of leadership teach a young business owner?

Tips

- $\text{Market share} = \text{company sales} \div \text{total sales} \times 100.$

- A falling share does not always mean falling sales; check both.

Check your work

- ☐ I can explain why GM overtook Ford.
- ☐ My market-share table and graph are correct.
- ☐ My scorecards give a rating and reason for each stakeholder.

LEDGER NOTEBOOK

1. Draw GM's ladder: Chevrolet at the bottom, then Pontiac, Oldsmobile, Buick and Cadillac, with the kind of family each was for.
2. Make a timeline: 1908 Model T and GM founded; 1919 GMAC; 1923 Sloan president; 1927 Chevrolet outsells Ford, Model T ends, Model A.
3. Copy your market-share table and graph.

From history. When the Model A was unveiled in December 1927, an estimated ten million Americans went to see it in the first few days, and hundreds of thousands of customers placed orders before it was even in the showrooms. It came in several body styles and colors.

COMMON MISTAKES

- Thinking Ford failed. Ford remained a huge, profitable company; it lost its lead because it was slow to change.
- Thinking GM won only by advertising. It won by offering real choice, credit and steady improvement.
- Confusing sales and share. A company can sell more cars than last year and still lose share if the market grows faster.

Make it a game • The Product Ladder Race. Each of you has 60 seconds to design a product ladder for one item, such as bicycles, with four price rungs. Your parent then reads ten customer budgets and wants. Count how many each ladder serves. One of you must play Ford, with only one model, and the other plays Sloan's GM. Swap roles and see if market share follows the ladder.

4.4 LEGO: NEAR-COLLAPSE AND TURNAROUND

OBJECTIVES

- Tell how Ole Kirk Christiansen founded LEGO and how it became a world-famous brand.
- Explain why LEGO lost so much money in 2003–2004 and how it recovered.
- Calculate a company's profit margin and make a stakeholder scorecard for LEGO.

Warm-up. Think of a company you like that sells many different things. If it had to cut half of its products tomorrow, which would you keep? Why those?

WATCH

The LEGO® Story.

LEGOClubTV · 17:09

https://www.youtube.com/watch?v=NdDU_BBJW9Y

WHEN TO WATCH

Before the story, to meet Ole Kirk Christiansen and his motto.

Note: LEGO's own history film; it tells the founding story and does not cover the losses of 2003–2004.

KEY TERMS

core business

The main product or activity that a company does best and that earns most of its profit.

complexity cost

The extra cost of making, storing and managing many different parts and products.

diversification (business)

Moving into new kinds of products or markets; useful in moderation, dangerous when it pulls a company away from what it does well.

turnaround

The rescue of a failing business by cutting losses, refocusing and returning to profit.

profit margin

Profit as a percent of revenue: $\text{profit} \div \text{revenue} \times 100$.

CORE IDEAS

The story. Ole Kirk Christiansen was a carpenter in the small Danish village of Billund. When the Depression took away his customers in the early 1930s, he began making wooden toys. In 1934 he named his company LEGO, from the Danish words *leg godt*, “play well,” and he carved a motto on a wooden plaque in his workshop: “Only the best is good enough.” He was a man of deep Christian faith who once made his son go back and re-varnish a batch of toy ducks that had been finished with only two coats instead of three. The company began making plastic bricks in 1949, and in 1958 it patented the brick with studs on top and tubes inside that still fits every LEGO brick made since.

How they figured it out. By the late 1990s LEGO was in trouble. Its brick patents had expired, rivals sold cheaper compatible bricks, and children were turning to video games. LEGO responded by trying everything: theme parks, clothing, watches, video games, TV shows and many new sets, each with many specially shaped pieces. The number of different pieces it made roughly doubled, and many sets lost money. In 2003 the company lost about 1.4 billion Danish kroner, and in 2004 nearly 2 billion. The owner, Kjeld Kirk Kristiansen, grandson of the founder, put 800 million kroner of his own money into the firm and in 2004 named a 35-year-old manager, Jørgen Vig Knudstorp, as chief executive. The new team cut the number of pieces and products, sold a controlling share of the Legoland parks, shut or sold units that lost money, and returned to the **core business**: the brick and the joy of building. They also began listening carefully to their most devoted customers, including adult builders. In 2005 LEGO earned a profit again, and within about ten years it was among the largest and most profitable toy companies in the world.

The big idea. Growth into new areas, **diversification**, can help a company, but it can also destroy one when it pulls money and attention away from what the company does best and adds hidden **complexity costs**. A **turnaround** usually means telling the truth about the numbers, cutting what loses money, and focusing on the customers you serve best. Worked example: in 2004 LEGO had revenue of about 7.9 billion kroner and lost about 1.9 billion, a **profit margin** of $-1.9 \div 7.9 \times 100 \approx -24\%$. In 2005 it

earned about 0.7 billion on about 7.0 billion of revenue, a margin of about +10%, on less revenue than the year before.

Stakeholder scorecard: LEGO. *Financiers (the family's holding company):* 4. Heavy losses in 2003–2004, then strong returns. *Risk-takers:* 5. The family risked its own fortune to save the company and kept it family-owned. *Builders:* 5. One of the best-engineered toys ever made, with exact tolerances. *Workers:* 3. About a thousand jobs were cut and some production moved away from Denmark during the rescue, though the company later grew and hired again. *Customers:* 5. Bricks from 1958 still fit bricks made today. *Community:* 4. Billund grew from a village into a town with an airport, and the family's foundation gives to children's causes. Average: $26 \div 6 \approx 4.3$.

In business today. Many companies, large and small, are tempted to chase every new idea. A wise owner asks: What do we do better than anyone? What do our best customers love? What is losing money, and why are we still doing it? The founder's motto still applies: only the best is good enough.

PICTURE STUDY



Ole Kirk Christiansen, Unknown photographer, 1957 · Photograph · Billund, Denmark

Image: [Wikimedia Commons](#), public domain

Ole Kirk Christiansen was photographed in 1957, the year before LEGO patented its famous brick and a year before his death. He had started as a village carpenter making ladders, ironing boards and stools, and turned to toys when his customers could no longer pay for furniture.

Look closely

- Look at his face and what he is doing. What kind of man do you think he was?
- Find the telephone, the typewriter and the paper he is signing. What do they tell you about how his work had changed since his carpenter's bench?
- If you could add one object to this photograph to tell his story, what would it be?

Talk about it

1. How did a carpenter's habit of care become a company's brand?
2. What would Ole Kirk have thought of LEGO making clothing and watches in the early 2000s?
3. Which of the six stakeholders did his motto "Only the best is good enough" serve?

PROJECT

The Turnaround Plan: Cutting Complexity

You will act as the new manager of a small business that is losing money because it sells too many products. Using its numbers, you will find which products lose money and make a turnaround plan.

You will need

- The product table below (copy it into your ledger or a spreadsheet)
- Ledger notebook and calculator

Steps

1. A family bakery sells eight products. For each, here are monthly revenue and direct costs: Bread \$900 / \$500; Rolls \$400 / \$220; Cookies \$600 / \$300; Cakes \$500 / \$450; Pies \$300 / \$330; Muffins \$250 / \$200; Scones \$120 / \$150; Fancy pastries \$200 / \$290.
2. In addition, every product adds \$40 a month of complexity costs (extra ingredients stored, extra cleaning, extra time). Add this to each product's costs.
3. Make a table: Product, Revenue, Direct cost, Complexity cost, Profit, Profit margin.
4. Add the totals. What is the bakery's total profit and overall margin?
5. Decide which products to cut. Recalculate the totals without them. Assume the customers of cut products buy nothing else (to be careful).
6. Write a turnaround plan of five sentences: what you cut, what you keep, what you would improve, which customers you will listen to, and how you will treat the workers whose jobs change.
7. Make a stakeholder scorecard for LEGO with your own ratings and reasons, and compare it with the lesson's.

Tips

- A product with a small loss may still be worth keeping if it brings customers who buy other things. Explain if you keep one for that reason.
- Profit margin = $\text{profit} \div \text{revenue} \times 100$.

Check your work

- ☐ I can explain why LEGO nearly failed and how it recovered.
- ☐ My table correctly finds the products that lose money and the new total profit.
- ☐ My turnaround plan considers workers and customers, not only numbers.

LEDGER NOTEBOOK

1. Make a timeline of LEGO: 1932 workshop, 1934 name, 1949 plastic bricks, 1958 patent, 2003–2004 losses, 2004 new chief executive, 2005 profit again.
2. Draw a LEGO brick in cross-section and label the studs and tubes. Why does a 1958 brick still fit?
3. Copy your turnaround table and draw a bar graph of profit by product.

From history. In 1942 a fire destroyed Ole Kirk Christiansen's workshop, along with all his toy designs and patterns. He was past fifty, but he rebuilt the factory and started again. Seven years later, LEGO made its first plastic bricks there.

COMMON MISTAKES

- Thinking more products always means more profit. Each product adds costs, some of them hidden.
- Thinking a turnaround is only about cutting. LEGO also listened to customers and improved its core product.
- Forgetting the minus sign in a loss. A margin of -24% means the company lost 24 cents on every krone of sales.

Make it a game • LEGO Story Chain. Take turns adding one sentence at a time to the LEGO story, beginning with Ole Kirk Christiansen's workshop. Each sentence must use a term: core business, diversification, complexity cost, turnaround or profit margin. Include the losses of 2003 and 2004 and the recovery. If someone gets stuck for ten seconds, or states a wrong fact, the other player scores.

GREAT BUSINESSES AND THEIR STAKEHOLDERS

A business is **great** when it creates real value and serves all six of its stakeholders over a long time: the **financiers** who lend or invest, the **risk-takers** who found and own it, the **builders** who design and make its products, the **workers**, the **customers** and the **community**. A business can be very big without being great. This year you will weigh four businesses with a full stakeholder scorecard, a rating from 1 to 5 with a reason for each stakeholder, and you will notice that the hardest scores to earn are often for workers and the community.

The four are Jakob Fugger's bank and mining empire in Augsburg, which made an emperor and built the world's oldest working charity housing; Josiah Wedgwood's pottery, which invented much of modern marketing; the contest between Henry Ford and Alfred Sloan of General Motors in the 1920s, when the world's most successful car lost its lead; and LEGO, which nearly collapsed in 2003–2004 and became one of the strongest toy companies in the world. For the portfolio you will write a full stakeholder report on a business of your choice.

PREREQUISITES

- Knows the six stakeholders (earlier grades) or reads the overview carefully
- Knows the market structures and the idea of antitrust (Unit 3)
- Can calculate percents, averages and market shares

MASTERY CHECKLIST

- ☐ I can name the six stakeholders and give a rating with a specific reason for each, for any business.
- ☐ I can tell how Jakob Fugger built his business and weigh its power over rulers.
- ☐ I can explain Wedgwood's marketing methods and judge which were honest.
- ☐ I can explain why General Motors overtook Ford in the 1920s, with market-share numbers.
- ☐ I can explain why LEGO nearly failed and how it recovered.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **The Henry Ford museum: digital collections**: Free. Photographs and documents from Ford’s factories, the Model T and the Model A. Search “Model A 1927” for Lesson 4.3.
- **The LEGO Group: history**: Free. The company’s own short history, from Ole Kirk Christiansen’s carpenter’s shop in 1932 to today. Good for Lesson 4.4.
- **Wedgwood Museum (V&A Wedgwood Collection)**: Free online. The Victoria and Albert Museum’s pages on the Wedgwood collection at Barlaston, with objects, letters and stories. Good for Lesson 4.2.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

4.1 The Fuggers of Augsburg: The Banker Who Made an Emperor

2 sessions of 60 minutes

4.2 Wedgwood’s Marketing: Royal Names, Showrooms and Catalogs

2 sessions of 60 minutes

4.3 Ford versus General Motors: How the Leader Lost Its Lead

2 sessions of 60 minutes

4.4 LEGO: Near-Collapse and Turnaround

2 sessions of 60 minutes

UNIT 4 REVIEW

Answer each question. Show your work for calculations and use complete sentences for explanations. The review is worth 100 points.

1. **6 pts**

Name the six stakeholders and explain the difference between a big business and a great business.

2. (8 pts)

How did Jakob Fugger use collateral when lending to the Habsburgs? Why was lending to rulers risky?

3. (8 pts)

Describe the Fuggerei. Which stakeholder did it serve, and does it make the Fugger firm great? Explain.

4. (8 pts)

Name four of Wedgwood's marketing methods.

5. (8 pts)

Which of Wedgwood's methods was the most questionable, and why?

6. (8 pts)

Give three reasons General Motors overtook Ford in the 1920s.

7. (10 pts)

Total car sales are 3,500,000. Ford sells 1,400,000 and GM 1,050,000. Find each share. The next year total sales are 4,000,000, Ford sells 1,200,000 and GM 1,600,000. Find the new shares.

8. (8 pts)

Why did LEGO lose so much money in 2003–2004?

9. (8 pts)

Name three things LEGO's new leaders did to turn the company around.

10. (10 pts)

A business has revenue of \$250,000 and costs of \$280,000. What is its profit margin? The next year revenue is \$220,000 and costs \$198,000. What is the new margin?

11. (6 pts)

A business is rated Financiers 4, Risk-takers 5, Builders 4, Workers 2, Customers 4, Community 3. What is its average? Which stakeholder needs the most attention?

12. **12 pts**

Choose one of this unit's four businesses. In a paragraph, argue whether it was great, using at least four stakeholders and specific facts.

ANSWER KEY

1. Financiers, risk-takers, builders, workers, customers, community. A big business sells or earns a lot; a great business creates real value and serves all six well over a long time.
2. He took the output of silver and copper mines and other revenues as security for his loans. Rulers could refuse to pay and no court could force them; the more a lender lent, the more dependent he became on the ruler.
3. A walled neighborhood founded in 1516 for poor working families of Augsburg, supported by a foundation, with a rent still of one Rhenish guilder a year. It served the community. It was a real good, but it does not erase low scores for miners or the use of money to buy power over rulers and profit from indulgences.
4. Any four: royal endorsements (“Queen’s Ware,” “Potter to Her Majesty”); showrooms in London; exhibiting the Frog Service; printed catalogs with numbered patterns in several languages; traveling salesmen with samples; replacing broken goods and taking back unsatisfactory ones; sending goods on approval.
5. Sending unordered goods to German nobles and asking them to pay or return them, because it pressures people to pay for something they did not choose; such selling is restricted by law in many places today.
6. Any three: a ladder of models for every budget; yearly new models, styles and colors; installment credit through GMAC; decentralized management; cheap used cars made the Model T less attractive while Ford kept one model.
7. Year 1: Ford 40%, GM 30%. Year 2: Ford 30%, GM 40%.
8. Its patents had expired and rivals sold compatible bricks; video games competed for children’s time; and it diversified into parks, clothing, games and many new sets with many special pieces, adding complexity costs and losing focus on its core brick.
9. Any three: cut the number of pieces and products; sold a controlling share of the Legoland parks; closed or sold units that lost money; refocused on the core brick; listened to devoted customers, including adult builders; the owner invested his own money.
10. Year 1: $(250,000 - 280,000) \div 250,000 \times 100 = -12\%$. Year 2: $(220,000 - 198,000) \div 220,000 \times 100 = +10\%$.
11. $22 \div 6 \approx 3.7$. The workers (2) need the most attention.

12. Answers will vary. A strong answer names the business, gives specific facts for at least four stakeholders (for example LEGO: the family's risk, the brick's quality, customers' trust, jobs cut and later restored), weighs strengths against failings and reaches a clear, fair conclusion.

PORTFOLIO PIECE: A FULL STAKEHOLDER REPORT

Choose one business: a family business, a local company, a church-run ministry with sales, or a historical business you have read about. Gather facts by interviewing the owner or a manager (with a parent present), visiting, and reading reliable sources. Write a three-page report that tells the business's story and its main problems and decisions, gives a full stakeholder scorecard with a 1–5 rating and a specific reason for each of the six, calculates the average, compares it with one of this unit's four businesses, and ends with advice: the business's greatest strength and the one change that would most improve its weakest score.

LOOK FOR	WHAT IT MEANS
Research	Real facts from an interview, visit or reliable sources, with sources listed.
Story and decisions	The business's beginning, key problems and decisions are clearly told.
Scorecard	All six stakeholders are rated with honest, specific reasons; the average is correct.
Comparison	A thoughtful comparison with Fugger, Wedgwood, Ford, GM or LEGO.
Advice and fairness	Strengths and weaknesses are shown fairly, and the advice is specific, kind and realistic.

UNIT 5

WORKERS, OWNERS AND FAIR RULES

Owners and workers need each other. Owners bring capital and bear the risk; workers bring labor, skill and time; both deserve honest dealing. Scripture is plain that wages must be paid fairly and on time (Deuteronomy 24:14-15; James 5:4) and that work should be done heartily (Colossians 3:23). In this unit you will study what happened when the factory age brought great gains and real hardships, and how people answered: some owners, like Robert Owen at New Lanark, by running their mills differently; Christian reformers like Lord Shaftesbury, by changing the law; and later the Fair Labor Standards Act of 1938.

You will also see how the bank failures and stock frauds around the crash of 1929 led to deposit insurance and honest-disclosure laws that still protect savers, and how some government rules backfired, from the Roman emperor Diocletian's price edict of AD 301 to the gasoline lines of the 1970s. The lesson running through the unit is that good rules act like a fair referee: they protect honest dealing, safety and children, and keep any one side from abusing power, while leaving people free to work, trade, build and give. For the portfolio you will write a history of one rule that worked or backfired.

PREREQUISITES

- Knows how prices work as signals and why fixed prices cause shortages (Units 1 and 3)
- Knows what a bank run is (Unit 2)
- Can calculate percents, overtime pay and percent change

MASTERY CHECKLIST

- ☐ I can describe the costs and gains of the factory age and how Robert Owen ran New Lanark.
- ☐ I can explain what the Factory Acts and the Fair Labor Standards Act did, and calculate overtime pay.
- ☐ I can explain how the FDIC and the securities laws of 1933–34 answered the failures around 1929.
- ☐ I can explain why Diocletian's price edict and the 1970s gasoline controls backfired.
- ☐ I can explain what makes a rule a fair referee and what makes it a heavy hand.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **The FDIC: Learning Center and history**: Free. The Federal Deposit Insurance Corporation's own account of why it was created in 1933 and how deposit insurance works. Good for Lesson 5.3.
- **The Fair Labor Standards Act of 1938: a history, from the U.S. Department of Labor**: Free. The Department of Labor's own history of how the 1938 law was written and passed, with photographs. Good background for Lesson 5.2. Ages 13+, with a parent.
- **New Lanark World Heritage Site**: Free online. The restored mill village in Scotland where Robert Owen ran his cotton mills, with its school and village store. Good for Lesson 5.1.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

5.1 The Factory Age: Costs, Gains and Robert Owen's New Lanark

2 sessions of 60 minutes

5.2 The Factory Acts and the Fair Labor Standards Act

2 sessions of 60 minutes

5.3 After the Crash: The FDIC, the SEC and Honest Disclosure

2 sessions of 60 minutes

5.4 When Rules Backfire: Diocletian's Edict and the Gasoline Lines

2 sessions of 60 minutes

UNIT 5 REVIEW

Answer each question. Show your work for calculations and use complete sentences for explanations. The review is worth 100 points.

1. **8 pts**

Name two costs and two gains of the factory age for workers.

2. 8 pts

Name three things Robert Owen did at New Lanark, and explain what he proved.

3. 8 pts

A weaver's wage rises from 12 to 18 shillings while prices rise 25%. What is the new real wage in old prices, and by what percent did it rise?

4. 8 pts

What did the Factory Act of 1833 require, and why did it work better than earlier laws?

5. 8 pts

Name the three main requirements of the Fair Labor Standards Act of 1938.

6. 10 pts

A worker earns \$18 an hour and works 47 hours. Calculate her weekly pay with overtime.

7. 8 pts

How did deposit insurance end most bank runs?

8. 8 pts

What did the Securities Act of 1933 and the Securities Exchange Act of 1934 require? Do they guarantee profits?

9. 10 pts

You buy \$2,000 of stock, paying \$400 and borrowing \$1,600. The price falls 25%. How much of your own money is left? What percent did you lose?

10. 8 pts

Why did Diocletian's Edict on Maximum Prices fail?

11. 8 pts

At a market price drivers want and sellers supply 50 million gallons. With a ceiling, drivers want 60 million and sellers supply 42 million. What is the shortage, and what will people see?

12. **8 pts**

Explain what makes a rule a fair referee rather than a heavy hand, with one example of each.

ANSWER KEY

1. Costs (any two): long hours; child labor; crowded, dirty towns; dangerous machines. Gains (any two): steady wages; far cheaper cloth and goods; over the 1800s, substantially higher real wages and standard of living.
2. Any three: stopped hiring children under ten and schooled them; a fair-price village store whose profits paid for the school; clean streets; a sick fund; the Institute and infant school. He proved a mill could treat workers decently and still make a profit.
3. $18 \div 1.25 = 14.4$ shillings. $(14.4 - 12) \div 12 \times 100 = 20\%$.
4. No children under nine in textile mills; ages 9–13 limited to nine hours a day with two hours of school; teenagers to twelve hours; and paid factory inspectors. It worked because the inspectors enforced it.
5. A wage floor (25 cents an hour at first); a standard workweek (44 hours, falling to 40 by 1940) with overtime at 1.5 times the regular rate; and limits on child labor (most work under 16 and hazardous work under 18 barred in interstate commerce).
6. Regular: $40 \times 18 = \$720$. Overtime: $7 \times 27 = \$189$. Total: \$909.
7. Depositors knew they would be repaid up to the limit even if the bank failed, so they had no reason to rush to withdraw; without the rush, sound banks did not fail from panic. In 1934 only nine insured banks failed.
8. Companies selling new stock must register and give a prospectus with true facts and risks; the SEC oversees exchanges and requires regular, honest reports. They do not guarantee profits; they require honest information.
9. Stock is worth $2,000 \times 0.75 = \$1,500$. Repay \$1,600: you owe \$100 more, so you lost all \$400 and \$100 besides: a 125% loss of your money.
10. Prices were rising because the coins had been debased; the edict forbade the symptom without curing the cause. With prices fixed below market levels, sellers withheld goods, markets emptied and black markets grew, despite the death penalty. It was dropped within a few years.
11. $60 - 42 = 18$ million gallons. Long lines, stations running dry, rationing by odd and even days, and black markets.
12. A fair referee protects honest dealing, safety and children and applies equally to all without telling people what to make or charge (examples: just weights, the Factory Act, the FDIC, honest disclosure). A heavy hand overrides prices or

blocks honest work (examples: Diocletian's Edict, 1970s gasoline controls, Soviet price-setting).

PORTFOLIO PIECE: THE LIFE OF A RULE

Choose one rule, law or custom from history or from your own town that either worked well or backfired: for example the Mint Act of 1792, the Factory Act of 1833, the Pure Food and Drug Act of 1906, the FDIC, a building code, Diocletian's Edict, or rent or price controls in a past era. Write a three-page history: the problem it was meant to fix, who argued for it and why, how it worked, what it cost and who paid, what happened afterward, with at least one table of numbers. End with your verdict: was it a fair referee or a heavy hand, and what would you keep or change?

LOOK FOR	WHAT IT MEANS
Research	Accurate facts and dates from reliable sources, listed at the end.
Problem and design	Clearly explains the problem and how the rule tried to fix it.
Costs and consequences	Honestly weighs costs, who paid them and any unintended consequences, with a table of numbers.
Fairness	Presents the arguments on more than one side fairly and stays with settled history.
Verdict	A clear, well-reasoned conclusion using the fair-referee test.

5.1 THE FACTORY AGE: COSTS, GAINS AND ROBERT OWEN'S NEW LANARK

OBJECTIVES

- Describe both the gains and the hardships the first factories brought to workers.
- Tell how Robert Owen ran the New Lanark mills from 1800 and what he proved.
- Use a real-wage calculation to compare pay and prices over time.

Warm-up. Think of something your family owns that would have taken weeks to make by hand 250 years ago: a shirt, a set of dishes, a pair of shoes. Guess how many hours of work it costs now and how many it would have cost then.

WATCH

Factories and Machines - Timelines.tv History of Britain A11

[timelinesTV](#) • 7:08

<https://www.youtube.com/watch?v=BUnCmpD78Dg>

WHEN TO WATCH

After the warm-up, before the story of New Lanark.

BACKUP VIDEO

New Lanark (UNESCO/NHK)

[UNESCO](#) • 3:06

https://www.youtube.com/watch?v=F1nIAjJge_w

After the story of Owen, to see New Lanark today.

KEY TERMS

Industrial Revolution

The change, beginning in Britain about 1760, from making goods by hand at home to making them with machines and power in factories.

productivity

How much is produced per worker per hour.

real wage

A wage measured by what it can buy:
money wage adjusted for prices.

standard of living

The level of goods, health, safety and
comfort that people can afford.

enlightened self-interest

Doing what is good for others because,
in the long run, it is also good for
oneself; Owen argued that well-treated
workers made a mill more profitable.

CORE IDEAS

The story. In the late 1700s, water-powered spinning machines turned the making of cotton thread from a cottage craft into factory work. At New Lanark, beside the falls of the River Clyde in Scotland, a Glasgow banker and the inventor Richard Arkwright built cotton mills in 1786. Many of the workers were poor children sent from city orphanages, who worked long days and slept in the mill's houses. In 1799 a young Welsh-born manager named Robert Owen and his partners bought the mills, and from 1800 Owen ran them himself.

How they figured it out. Owen believed that people's characters were shaped by their surroundings, and that a well-treated workforce would be honest, steady and productive. He stopped hiring children under ten and sent them to school. He opened a village store that sold good food and goods at fair prices instead of the high prices of other mill shops, and used its profits to pay for the school. He kept the streets clean, set up a sick fund, and in 1816 opened a building he called the Institute for the Formation of Character, with one of the first infant schools in Britain. Visitors came from across Europe, and the mills still made a profit. When some partners objected to the spending, Owen found new partners, including the Quaker businessman William Allen, who agreed to accept a limited return. Owen later tried to build a whole village of shared property at New Harmony, Indiana, in 1825; it broke up within about two years, showing that his ideas worked better inside a business than as a plan for all of society.

The big idea. The **Industrial Revolution** brought hard costs: long hours, often 12 or more a day; children at work; crowded, dirty towns; and dangerous machines. It also brought enormous gains: machines raised **productivity** so much that cloth, tools and later food became far cheaper, and over the 1800s the **real wages** of British workers

rose substantially. Historians still debate how quickly ordinary families gained in the first decades. A real wage is calculated by dividing the money wage by a price index. Worked example with illustrative numbers: if a weaver's weekly wage rose from 10 shillings to 15 while prices rose by 20%, his real wage rose by $15 \div 1.20 = 12.5$ shillings in old prices, a gain of 25%.

Who gained? Customers gained cheap cloth. Owners gained fortunes. Workers gained steady wages and, in time, a higher **standard of living**, but often at a heavy cost to their health and their children's schooling. Owen showed that an owner did not have to choose between profit and decency; his **enlightened self-interest** paid. But most owners did not follow him, which is why reformers turned to the law, as you will see in Lesson 5.2.

In business today. New technology still brings both gains and costs: it makes goods cheaper and creates new jobs, while some old jobs disappear and workers must learn new skills. Good owners plan for their workers, train them, and treat them as people, not only as costs.

PICTURE STUDY



New Lanark, John Winning (attributed), about 1818 · Print after a drawing by John Winning (photographed in its frame) · New Lanark, Scotland

Image: [Wikimedia Commons](#), public domain

This print, made from a drawing by John Winning, shows New Lanark when Robert Owen was running it and visitors were arriving from all over Europe to see it. Winning worked for Owen as a pattern designer and drew several views of the village. The tall mills stood beside the river that powered their machines, and the workers' houses, the school and the village store stood around them.

Look closely

- Find the river valley. How did the river power the mills?
- Count the large mill buildings and find the smaller houses. Where did the workers live compared with where they worked?
- Look at the hills around the village. Why might a mill be built in such a place?

Talk about it

1. Why would a cotton mill be built in a narrow valley far from a city?
2. How did Owen's school and store change life in this village?
3. If you were a visiting mill owner in 1818, what would you want to learn here?

PROJECT

Hours of Work: Then and Now

You will measure how productivity changes the cost of things in hours of work, and calculate real wages from a table.

You will need

- A cotton T-shirt or dish towel and its price (or a store flyer)
- Ledger notebook and calculator

Steps

1. Find the price of a cotton T-shirt. Ask a parent for an example hourly wage for an entry-level job in your area. Calculate how many minutes of work the shirt costs: $\text{price} \div \text{hourly wage} \times 60$.
2. Historians estimate that before spinning machines, hand-spinning the thread for one shirt took many days of work. Use an estimate of 50 hours to spin and 20 hours to weave the cloth for one shirt. How many hours would the shirt have cost in labor alone?
3. Calculate how many times more productive making the shirt is today: $(\text{hours then}) \div (\text{hours of work the shirt costs now})$.
4. **Real wages.** Copy this illustrative table: Year 1: wage 10, price index 100; Year 10: wage 12, price index 110; Year 20: wage 15, price index 105; Year 30: wage 18, price index 100.
5. For each year, calculate the real wage: $\text{wage} \div (\text{price index} \div 100)$. Then calculate the percent change in the real wage from Year 1 to Year 30.
6. Graph the money wage and the real wage on the same axes.
7. Write a paragraph: What did the factory age cost workers, and what did it give them? What did Robert Owen prove?

Tips

- Real wage = money wage $\div$ (price index $\div$ 100). When prices rise, the same money wage buys less.
- Estimates of old work times vary; say that your answer is an estimate.

Check your work

- ☐ I can explain both the costs and the gains of the factory age.
- ☐ My real-wage table and graph are correct.
- ☐ I can tell what Robert Owen did at New Lanark and what it showed.

LEDGER NOTEBOOK

1. Draw a balance scale. On one side list the costs of the factory age; on the other, the gains.
2. Draw a plan of New Lanark with the mills, houses, school, store and river.
3. Make a stakeholder scorecard for Owen's New Lanark (1–5 with reasons) and compare it with an ordinary mill of the time.

From history. Robert Owen was born in 1771 in Newtown, Wales, the son of a saddler, and left school at about ten to work for a draper. By twenty he was managing a large cotton mill in Manchester. He married Caroline Dale, the daughter of New Lanark's founder, in 1799, the same year he and his partners bought the mills.

COMMON MISTAKES

- Thinking factories only made life worse. They brought real hardship and, over time, far greater plenty.
- Comparing money wages across years without adjusting for prices.
- Thinking Owen proved that every business should be run as a shared village. New Harmony failed; New Lanark's lesson was about good management.

Make it a game • Gain or Hardship Hop. Mark one side of the room Gain and the other Hardship. Your parent reads statements about the first factories: cheaper cloth, long hours, rising real wages, children in the mills, better living standards. Hop to the correct side and add one supporting fact. After six rounds, spend a minute explaining what Robert Owen did at New Lanark and what he proved.

5.2 THE FACTORY ACTS AND THE FAIR LABOR STANDARDS ACT

OBJECTIVES

- Tell how Lord Shaftesbury and other reformers won Britain's Factory Act of 1833 and the Ten Hours Act of 1847.
- Explain what the U.S. Fair Labor Standards Act of 1938 required: a wage floor, overtime pay and limits on child labor.
- Calculate weekly pay with overtime and weigh what the laws fixed and what they cost.

Warm-up. How many hours a week do you spend on school, chores and other work? Write the total. Then imagine a 10-year-old working 12 hours a day, 6 days a week. How many hours is that? What would be left for school and rest?

WATCH

History Hook: The Factory Act

The National Archives UK • 9:57

<https://www.youtube.com/watch?v=dDAwRL5x5BE>

WHEN TO WATCH

After the story of the 1833 Act; pause when the document appears and read it yourself.

Note: From The National Archives (UK). Also used in Grade 5; chosen again because it is the clearest primary-source introduction to the Act.

KEY TERMS

Factory Act

One of a series of British laws, beginning in earnest in 1833, limiting the hours of children and young people in factories and requiring inspectors.

factory inspector

A government official who visits workplaces to see that the law is obeyed.

wage floor

The lowest hourly wage an employer may legally pay.

overtime

Hours worked beyond the standard workweek; under U.S. law, paid at one and a half times the regular rate.

child labor

Work by children that keeps them from school or harms their health, as opposed to light chores or a family business.

CORE IDEAS

The story. In 1832 a committee of the British Parliament led by Michael Sadler heard workers describe children starting in the mills at six or seven years old and working twelve or more hours a day. The cause was taken up by Lord Ashley, later the seventh Earl of Shaftesbury, an evangelical Christian who said his faith required him to help the helpless. The Factory Act of 1833 banned children under nine from textile mills, limited children aged nine to thirteen to nine hours a day, required two hours of schooling a day, limited teenagers to twelve hours, and, for the first time, appointed four paid factory inspectors to enforce it. In 1847 the Ten Hours Act limited women and young people in textile mills to ten hours a day.

How they figured it out. Earlier laws had failed because no one enforced them. The inspectors were the key. Reformers also learned that limits on children's hours often shortened everyone's day, since mills ran as a team. In the United States, the photographer Lewis Hine traveled the country from 1908 for the National Child Labor Committee, photographing children in mills, mines and canneries and carefully recording their names and ages. His pictures moved many states to pass laws. A federal law of 1916 was struck down by the Supreme Court, but in June 1938 Congress passed the **Fair Labor Standards Act**. It set a **wage floor** of 25 cents an hour, a standard workweek of 44 hours that fell to 40 by 1940, with **overtime** at one and a half times the regular rate, and it barred most work by children under 16 in businesses that sold goods across state lines, and work in dangerous jobs under 18. In 1941 the Supreme Court upheld it.

The big idea. These laws worked like a fair referee: they protected children, who cannot bargain for themselves, and set clear, enforceable rules that applied to every

employer, so an honest owner was not undercut by one who worked children to exhaustion. They also had costs: some families lost a child's wages, and mills had to reorganize. The 1938 wage floor was set low, and at first it raised the pay of about 300,000 workers, mostly in low-wage industries. Worked example of overtime: a worker earns \$16 an hour and works 46 hours in a week. Regular pay: $40 \times 16 = \$640$. Overtime rate: $16 \times 1.5 = \$24$. Overtime pay: $6 \times 24 = \$144$. Total: \$784.

In business today. Teenagers who work learn about these rules firsthand: the law limits how many hours a 14- or 15-year-old may work on a school day and bars young workers from dangerous machines. Family farms and family businesses have their own rules. A good employer keeps careful time records and pays every hour honestly. "Masters, give unto your servants that which is just and equal" (Colossians 4:1).

PICTURE STUDY



Addie Card, Spinner in a Cotton Mill, Lewis Wickes Hine, 1910 · Gelatin silver photograph · National Gallery of Art, Washington, D.C.; Library of Congress

Image: [Wikimedia Commons](#), public domain

Lewis Hine was a schoolteacher who became a photographer to show Americans what child labor looked like. In 1910 he found Addie Card at a cotton mill in North Pownal, Vermont. The other girls said she was ten; she told him she was twelve. Hine wrote down her name and age so no one could say his pictures were invented. This photograph became one of the most famous images of child labor in America.

Look closely

- Look at Addie's face and how she stands. What do you notice?
- Follow the spinning frame behind her. How long is it? What would her job have been?
- Look at her clothes and hands. What do they tell you about her work?

Talk about it

1. Why did Hine record names, ages and places so carefully?
2. How could a single photograph change a law?
3. What did a child in Addie's place give up by working in the mill instead of going to school?

PROJECT

The Payroll Clerk: Hours, Overtime and the Law

You will act as the payroll clerk for a small business, calculating weekly pay with overtime for several workers, and then compare the hours rules of 1833, 1938 and today.

You will need

- Ledger notebook, calculator or spreadsheet
- With a parent, the U.S. Department of Labor's page on youth employment rules (optional)

Steps

1. Set up a payroll table: Worker, Hourly rate, Hours worked, Regular hours, Overtime hours, Regular pay, Overtime pay, Total pay.
2. Fill it in for four workers: Ana, \$15/hour, 38 hours; Ben, \$18/hour, 45 hours; Carla, \$20/hour, 50 hours; Dev, \$16/hour, 40 hours. Overtime is any hour over 40, at 1.5 times the rate.
3. Add the total payroll for the week.
4. Calculate how much the business would save if it hired a part-time worker at \$15/hour to cover all the overtime hours instead. Is it always cheaper? What else matters?
5. Make a table comparing the rules: Britain 1833 (children 9–13: 9 hours a day), FLSA 1938 (40-hour week by 1940, overtime, most work barred under 16), and the rules today for a 14- or 15-year-old (look up with a parent, or ask).
6. Calculate: a child working 12 hours a day, 6 days a week before 1833 worked how many hours a week? After the 1833 Act, a 10-year-old could work at most how many (9 hours $\times$ 6 days)?
7. Write a paragraph: What problem did these laws fix, who argued for them, and what did they cost?

Tips

- Overtime pay = overtime hours $\times$ rate $\times$ 1.5.
- Always check that regular hours + overtime hours = hours worked.

Check your work

- ☐ I can explain the Factory Act of 1833 and the Fair Labor Standards Act of 1938.
- ☐ My payroll table is correct.
- ☐ I can explain why enforcement by inspectors made the 1833 Act work.

LEDGER NOTEBOOK

1. Make a timeline: 1832 Sadler committee; 1833 Factory Act; 1847 Ten Hours Act; 1908 Hine begins; 1916 federal law struck down; 1938 FLSA; 1941 upheld.
2. Copy your payroll table.
3. Write a short letter from Lord Shaftesbury to a mill owner explaining why the law will help honest owners too.

From history. Lord Shaftesbury worked for more than fifty years for the poor of England: for factory children, for boys sent up chimneys as sweeps, for women and children in coal mines, and for “ragged schools” for poor city children. When he died in 1885, crowds of working people lined the streets for his funeral. His funeral service was held in Westminster Abbey, and a memorial fountain was later raised to him in the heart of London.

COMMON MISTAKES

- Thinking the Factory Acts banned all children’s work. They limited hours and ages in factories and required schooling.
- Forgetting that overtime is paid only on the hours beyond 40, not on all hours.
- Thinking these laws were against owners. Many honest owners welcomed rules that kept rivals from undercutting them with child labor.

Make it a game • Payroll Clerk Speed Round. Your parent calls out a pretend worker's hourly wage and hours for the week, such as 46 hours at 12. You have 30 seconds to compute regular pay and overtime pay under the Fair Labor Standards Act. Then name one reform from the Factory Act of 1833 or the Ten Hours Act of 1847. Play eight rounds and try to beat your own score.

Scripture. “Masters, give unto your servants that which is just and equal; knowing that ye also have a Master in heaven.” (Colossians 4:1, KJV)

Paul reminded employers of his day that they too answer to God. The reformers of the 1800s and 1900s asked owners and lawmakers to treat workers, and especially children, as people made in God’s image.

5.3 AFTER THE CRASH: THE FDIC, THE SEC AND HONEST DISCLOSURE

OBJECTIVES

- Describe the stock-market crash of 1929 and the bank failures of the early 1930s.
- Explain how deposit insurance (the FDIC, 1933) ended most bank runs and how the securities laws of 1933–34 and the SEC required honest reports to investors.
- Calculate the effect of buying stock with borrowed money, and percent losses in a crash.

Warm-up. Would you lend \$100 to a company you knew nothing about? List five things you would want to know first. Who should be required to tell you the truth about them?

WATCH

The Great Depression - 5 Minute History Lesson

The Plain Bagel • 5:41

<https://www.youtube.com/watch?v=62DxELjuRec>

WHEN TO WATCH

After the story of 1929, before the laws of 1933–34.

Note: From The Plain Bagel, a finance teaching channel; it briefly shows world leaders of the 1930s.

BACKUP VIDEO

90 Years of the FDIC

FDICchannel • 2:51

https://www.youtube.com/watch?v=UsHtV_QS_e4

After the big idea: the FDIC's own short history.

KEY TERMS

stock-market crash

A sudden, steep fall in the prices of stocks across the market.

buying on margin

Buying stock with money borrowed from a broker, putting up only part of the price yourself.

deposit insurance

A guarantee that depositors will be repaid up to a set limit if their bank fails.

prospectus

A document a company must give investors when it sells new stock, describing its business, finances and risks.

disclosure

Telling the public the important facts a buyer or investor needs to know.

CORE IDEAS

The story. In the 1920s stock prices climbed for years, and many people bought stocks on **margin**, putting up as little as 10 or 20 percent and borrowing the rest. Some companies sold shares with misleading claims, and insiders sometimes pushed prices up and sold out. In late October 1929 the market broke. The Dow Jones Industrial Average, which had stood at 381 in early September 1929, fell to 41 by July 1932, a loss of about 89 percent. Meanwhile, as the economy sank into the Great Depression, frightened depositors rushed to withdraw their savings. Between 1930 and 1933 about 9,000 American banks failed, and millions of families lost money they had thought was safe.

How they figured it out. In 1932–33 a Senate investigation led by its counsel, Ferdinand Pecora, uncovered how some bankers had sold poor securities to the public. Congress then passed three lasting laws. The Banking Act of 1933 created the **Federal Deposit Insurance Corporation**, which from January 1, 1934, insured each depositor's account up to \$2,500, raised to \$5,000 later that year. The Securities Act of 1933 required companies selling new stock to register it and give investors a **prospectus** with true facts and risks. The Securities Exchange Act of 1934 created the Securities and Exchange Commission (SEC) to oversee the stock exchanges and require companies to publish regular, honest reports. The results were striking: in 1934 only nine insured banks failed, and for the first time in decades the country went years without a wave of bank runs.

The big idea. A bank run happens because each depositor fears that others will withdraw first. **Deposit insurance** removes the fear, so the run never starts. **Disclosure** laws do not promise that investors will make money; they require that investors be told the truth, so they can judge risks for themselves. Worked example

of margin buying: you buy \$1,000 of stock, paying \$100 yourself and borrowing \$900. If the price rises 10% to \$1,100, you repay \$900 and keep \$200: you doubled your money. If it falls 10% to \$900, you repay \$900 and keep nothing: you lost everything you put in. That is why margin buying turned a fall into a catastrophe in 1929.

Think it through. These rules had costs too: insurance premiums paid by banks, paperwork for companies, and the risk that insured banks might take more chances knowing depositors will not run, which is why insured banks are also examined. But they are among the clearest examples of rules that worked as a fair referee: they protected ordinary savers and investors without telling anyone what to buy or sell.

In business today. Today the FDIC insures deposits up to \$250,000 per depositor per insured bank for each type of account, and public companies publish yearly reports audited by outside accountants. A wise saver keeps money in insured accounts and reads a company's reports before investing. A wise business tells investors the truth, especially about its risks.

PICTURE STUDY



A Crowd at the American Union Bank, New York, Unknown photographer, 1931 · Photograph · U.S. Social Security Administration history archives

Image: [Wikimedia Commons](#), public domain

In 1931 depositors crowded the street outside the American Union Bank in New York, hoping to get their savings out before the bank ran out of cash. Scenes like this were repeated across the country. In a world without deposit insurance, the first in line might get paid; the last might get nothing.

Look closely

- Look at the people and how close together they stand. What are they feeling?
- Read the bank's signs. What did it promise its savers?
- Look at how people are dressed. Are these rich investors or ordinary savers?

Talk about it

1. Why does a bank run spread fear, even to people whose banks are sound?
2. How would deposit insurance have changed what these people did that day?
3. The sign promises 4% interest. Why is a promise of interest worth nothing if the bank cannot pay?

PROJECT

The Honest Prospectus and the Margin Calculator

You will calculate what margin buying did to investors in a crash, and then write an honest one-page prospectus for a pretend company, including its risks.

You will need

- Ledger notebook, calculator or spreadsheet
- A real company's annual report summary or "risk factors" page, printed by a parent (optional)

Steps

1. **Margin table.** An investor buys \$10,000 of stock. Make a table for three cases: paying 100% cash, paying 50% and borrowing 50%, and paying 10% and borrowing 90%.
2. For each case, calculate the investor's money left and percent gain or loss if the stock rises 20%, falls 20%, and falls 89% (as the Dow did from 1929 to 1932). Remember the loan must be repaid in full.
3. Mark any case where the investor loses more than everything he put in (he would owe money).
4. Calculate the Dow's fall: $(381 - 41) \div 381 \times 100$.
5. **Prospectus.** Invent a small company (for example, a bakery raising \$5,000 from investors). Write a one-page prospectus with five sections: What the business does; Who runs it; How the money will be used; Financial facts (expected sales and costs); Risks (at least four honest ones).
6. Trade your prospectus with a parent. Ask: What would make you invest? What did I leave out?
7. Write a paragraph: How did the FDIC and the SEC answer the failures of 1929–1933? Why is disclosure better than a promise of profit?

Tips

- With margin, gains and losses are both multiplied. Always subtract the loan before figuring what is yours.

- A good prospectus makes the risks clear even if they make the company sound less exciting.

Check your work

- ☐ I can explain how deposit insurance stops a bank run.
- ☐ My margin table correctly shows gains and losses in each case.
- ☐ My prospectus tells the truth about risks.

LEDGER NOTEBOOK

1. Make a timeline: September 1929 Dow 381; October 1929 crash; 1930–33 about 9,000 banks fail; 1933 Banking Act (FDIC) and Securities Act; 1934 Securities Exchange Act (SEC); July 1932 Dow 41.
2. Copy your margin table.
3. Draw a simple diagram of a bank run, then the same diagram with an FDIC shield, and label what changes.

From history. The first chairman of the SEC, in 1934, was Joseph P. Kennedy, a businessman who had himself made money trading stocks in the 1920s. When people asked why he was chosen, the answer often given was that he knew the tricks the new rules were meant to stop.

COMMON MISTAKES

- Thinking the FDIC protects stocks. It insures bank deposits, not investments.
- Thinking the SEC guarantees that a stock will rise. It requires honest information; investors still bear the risk.
- Forgetting that a margin loan must be repaid even when the stock falls.

Make it a game • Margin Call Math. Your parent plays a 1929 broker. Buy 100 pretend dollars of stock with only 10 down, borrowing the rest. Then your parent announces the price fell 10 percent, and you work out what your stake is worth and what you owe. Replay with a few different prices. Finally, explain how deposit insurance and honest disclosure would have calmed things down.

5.4 WHEN RULES BACKFIRE: DIOCLETIAN'S EDICT AND THE GASOLINE LINES

OBJECTIVES

- Tell how the Roman emperor Diocletian tried to fix prices in AD 301, and what happened.
- Explain how price controls on gasoline in the 1970s contributed to long lines, and what happened when the controls ended.
- Distinguish rules that act as a fair referee from rules that act as a heavy hand.

Warm-up. Suppose a law said no one could sell a concert ticket for more than \$5. Would it be easier or harder to get a ticket? Who would get them? Write your prediction.

WATCH

Price Ceilings: The US Economy Flounders in the 1970s

Marginal Revolution University • 3:50

<https://www.youtube.com/watch?v=sq1zlj8s8R0>

WHEN TO WATCH

After the story of the gasoline lines, before the ceiling experiment.

KEY TERMS

price ceiling

A legal maximum price; if it is set below the market price, it causes shortages.

rationing

Dividing a scarce good by rules, such as coupons, odd and even days, or first come, first served, instead of by price.

black market

Illegal buying and selling, often at prices above a legal ceiling.

government failure

When a government rule makes a problem worse or causes new problems greater than the ones it set out to fix.

unintended consequence

A result of a rule that its makers did not plan or expect.

CORE IDEAS

The story: Rome, AD 301. For decades Roman emperors had paid their armies by mixing less and less silver into their coins, and prices had soared. Emperor Diocletian tried to stop the rise by decree. His Edict on Maximum Prices, carved in stone in towns across the empire, set the highest legal price for more than a thousand goods and services, from wheat, eggs and shoes to a teacher's or a barber's fee, and threatened death for anyone who sold above it. The Christian writer Lactantius, who had good reason to dislike Diocletian because the emperor later persecuted the church, wrote that goods vanished from the markets and that much blood was shed over small matters, until the law was dropped. Historians agree it failed within a few years.

The story: America, the 1970s. In August 1971 President Nixon froze wages and prices to fight inflation. Most controls ended by 1974, but controls on the price of oil and gasoline, along with rules about where gasoline could be shipped, lasted until 1981. When oil supplies from abroad were cut in 1973–74 and again in 1979, prices could not rise enough to match supply and demand. Drivers waited for hours in lines that stretched for blocks, some states rationed gasoline by odd and even license-plate numbers, and some stations ran dry while gasoline sat elsewhere. In January 1981 the last oil price controls were lifted; prices rose for a short time and then fell over the next few years, and the long lines did not return.

How they figured it out. In both cases rulers tried to fix a real problem, rising prices, by forbidding the symptom instead of curing the cause. Diocletian's prices rose because his coins were debased; the 1970s inflation came largely from the growth of the money supply and the oil shocks. A **price ceiling** below the market price tells buyers to buy more and sellers to supply less, so a **shortage** follows, with lines, **black markets** and favoritism. Worked example with illustrative numbers: at a market price of \$1.20 a gallon, drivers want 100 million gallons a day and sellers supply 100 million. With a ceiling at \$0.90, drivers want 115 million and sellers supply 85 million: a shortage of 30 million gallons a day, about 26% of what drivers want. Time spent in line becomes a hidden price.

The big idea. Rules work as a **fair referee** when they protect honest dealing, safety and children and apply the same to everyone: just weights, contracts, deposit insurance, honest disclosure, child-labor limits. They become a **heavy hand** when they try to set prices for whole markets, block honest people from starting work, or replace the knowledge of millions with the guesses of a few. Too few rules invite fraud and abuse; too many or badly designed rules cause shortages and stifle work. Wisdom is in the design.

In business today. A business owner meets both kinds of rules: food-safety and honest-labeling rules that protect customers and honest sellers, and paperwork that is a burden but not a harm. A wise citizen asks of any rule: What problem does it fix? How does it fix it? What does it cost, and who pays? What unintended consequences might follow?

PICTURE STUDY



"Sorry! Temporarily Out of Gas," 1974, U.S. Environmental Protection Agency, Documerica project (National Archives), 1974 · Color photograph · National Archives and Records Administration

Image: [Wikimedia Commons](#), public domain

In the 1970s the U.S. government hired photographers for a project called Documerica to record American life. This photograph was taken during the gasoline shortage of 1974. Its original caption warned that after hours in line, a driver might reach the pumps and learn that the car ahead had bought the station's last gallon. Here the station has simply run out.

Look closely

- Read the red sign on the car. What does it tell drivers?
- Find the price signs for regular and super gasoline. Why were the pumps empty even though there were prices posted?
- Look at the other cars. Where do you think their drivers will go next?

Talk about it

1. If the price of gasoline had been allowed to rise, would this station have run out so quickly? Why or why not?
2. Who gains and who loses when a scarce good is handed out by waiting in line instead of by price?
3. How is this picture like Diocletian's empty markets, 1,700 years earlier?

PROJECT

The Ceiling Experiment and the Rule Report Card

You will run a small market for a scarce good with and without a price ceiling, record what happens, and then grade several real rules on whether they act as a fair referee or a heavy hand.

You will need

- 10 “gallon” cards and play money
- Five or more buyers (family members), each with a card showing the most he will pay: \$9, \$8, \$7, \$6, \$5, \$4, \$3
- Ledger notebook

Steps

1. **Market round.** A seller has 4 gallon cards and auctions them one at a time to the highest bidders. Record the price each sells for and who got one.
2. **Ceiling round.** A law says no gallon may sell for more than \$3. Now everyone wants one. Hand them out first come, first served (buyers line up in random order). Record who got one and how many were left without.
3. Calculate the shortage at the ceiling: number of buyers who want one at \$3 minus the 4 available.
4. Discuss: did the buyers who valued gallons most get them? Did anyone offer to pay the seller extra in secret? Record what happened.
5. **Rule report card.** Make a table: Rule, Problem it fixed, How, Cost, Fair referee or heavy hand?, Grade (A–F). Fill it in for: the Mint Act’s honest coins (1792), the Factory Act (1833), Diocletian’s Edict (301), the FDIC (1933), 1970s gasoline price controls, and one rule in your own town (for example a food-stand permit).
6. Write a paragraph explaining the difference between a rule that protects honest dealing and a rule that tries to override prices.

Tips

- Keep the ceiling round fair; the point is that even a fair line wastes time and sends goods to the lucky rather than to those who value them most.

- Grade the rules on evidence, not on whether you like them.

Check your work

- ☐ I can explain why price ceilings cause shortages, with numbers.
- ☐ My report card weighs each rule's purpose, method and cost.
- ☐ I can tell the stories of Diocletian's Edict and the 1970s gasoline lines.

LEDGER NOTEBOOK

1. Draw a supply-and-demand graph for gasoline. Draw the ceiling at \$0.90 and label the shortage of 30 million gallons.
2. Copy your rule report card.
3. Write two lines from an imaginary Roman shopkeeper in AD 302 explaining why his shelves are empty.

From history. Pieces of Diocletian's Edict have been found carved in stone in many towns, mostly in the Greek-speaking eastern half of the empire. Scholars have pieced together much of its long list of prices, which tells us what Romans ate, wore and paid for work around AD 301.

COMMON MISTAKES

- Thinking a price ceiling makes goods cheaper for everyone. It makes them cheaper for those who get them, and unavailable for many others.
- Thinking all rules are bad because some backfire. The lesson is to judge each rule by what it fixes and what it costs.
- Blaming sellers for shortages caused by the ceiling itself.

Make it a game • The Ceiling Experiment. Be a seller with five crackers; your parent is the buyer with a pile of beans. First trade at any price you can agree on. Then your parent declares a price ceiling below that price. Notice what happens to supply and what the buyer secretly offers: a black market. Finish by grading the rule from A to F, with a reason, and link it to Diocletian.

UNIT 5

WORKERS, OWNERS AND FAIR RULES

Owners and workers need each other. Owners bring capital and bear the risk; workers bring labor, skill and time; both deserve honest dealing. Scripture is plain that wages must be paid fairly and on time (Deuteronomy 24:14-15; James 5:4) and that work should be done heartily (Colossians 3:23). In this unit you will study what happened when the factory age brought great gains and real hardships, and how people answered: some owners, like Robert Owen at New Lanark, by running their mills differently; Christian reformers like Lord Shaftesbury, by changing the law; and later the Fair Labor Standards Act of 1938.

You will also see how the bank failures and stock frauds around the crash of 1929 led to deposit insurance and honest-disclosure laws that still protect savers, and how some government rules backfired, from the Roman emperor Diocletian's price edict of AD 301 to the gasoline lines of the 1970s. The lesson running through the unit is that good rules act like a fair referee: they protect honest dealing, safety and children, and keep any one side from abusing power, while leaving people free to work, trade, build and give. For the portfolio you will write a history of one rule that worked or backfired.

PREREQUISITES

- Knows how prices work as signals and why fixed prices cause shortages (Units 1 and 3)
- Knows what a bank run is (Unit 2)
- Can calculate percents, overtime pay and percent change

MASTERY CHECKLIST

- ☐ I can describe the costs and gains of the factory age and how Robert Owen ran New Lanark.
- ☐ I can explain what the Factory Acts and the Fair Labor Standards Act did, and calculate overtime pay.
- ☐ I can explain how the FDIC and the securities laws of 1933–34 answered the failures around 1929.
- ☐ I can explain why Diocletian's price edict and the 1970s gasoline controls backfired.
- ☐ I can explain what makes a rule a fair referee and what makes it a heavy hand.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **The FDIC: Learning Center and history**: Free. The Federal Deposit Insurance Corporation's own account of why it was created in 1933 and how deposit insurance works. Good for Lesson 5.3.
- **The Fair Labor Standards Act of 1938: a history, from the U.S. Department of Labor**: Free. The Department of Labor's own history of how the 1938 law was written and passed, with photographs. Good background for Lesson 5.2. Ages 13+, with a parent.
- **New Lanark World Heritage Site**: Free online. The restored mill village in Scotland where Robert Owen ran his cotton mills, with its school and village store. Good for Lesson 5.1.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

5.1 The Factory Age: Costs, Gains and Robert Owen's New Lanark

2 sessions of 60 minutes

5.2 The Factory Acts and the Fair Labor Standards Act

2 sessions of 60 minutes

5.3 After the Crash: The FDIC, the SEC and Honest Disclosure

2 sessions of 60 minutes

5.4 When Rules Backfire: Diocletian's Edict and the Gasoline Lines

2 sessions of 60 minutes

UNIT 5 REVIEW

Answer each question. Show your work for calculations and use complete sentences for explanations. The review is worth 100 points.

1. **8 pts**

Name two costs and two gains of the factory age for workers.

2. 8 pts

Name three things Robert Owen did at New Lanark, and explain what he proved.

3. 8 pts

A weaver's wage rises from 12 to 18 shillings while prices rise 25%. What is the new real wage in old prices, and by what percent did it rise?

4. 8 pts

What did the Factory Act of 1833 require, and why did it work better than earlier laws?

5. 8 pts

Name the three main requirements of the Fair Labor Standards Act of 1938.

6. 10 pts

A worker earns \$18 an hour and works 47 hours. Calculate her weekly pay with overtime.

7. 8 pts

How did deposit insurance end most bank runs?

8. 8 pts

What did the Securities Act of 1933 and the Securities Exchange Act of 1934 require? Do they guarantee profits?

9. 10 pts

You buy \$2,000 of stock, paying \$400 and borrowing \$1,600. The price falls 25%. How much of your own money is left? What percent did you lose?

10. 8 pts

Why did Diocletian's Edict on Maximum Prices fail?

11. 8 pts

At a market price drivers want and sellers supply 50 million gallons. With a ceiling, drivers want 60 million and sellers supply 42 million. What is the shortage, and what will people see?

12. **8 pts**

Explain what makes a rule a fair referee rather than a heavy hand, with one example of each.

ANSWER KEY

1. Costs (any two): long hours; child labor; crowded, dirty towns; dangerous machines. Gains (any two): steady wages; far cheaper cloth and goods; over the 1800s, substantially higher real wages and standard of living.
2. Any three: stopped hiring children under ten and schooled them; a fair-price village store whose profits paid for the school; clean streets; a sick fund; the Institute and infant school. He proved a mill could treat workers decently and still make a profit.
3. $18 \div 1.25 = 14.4$ shillings. $(14.4 - 12) \div 12 \times 100 = 20\%$.
4. No children under nine in textile mills; ages 9–13 limited to nine hours a day with two hours of school; teenagers to twelve hours; and paid factory inspectors. It worked because the inspectors enforced it.
5. A wage floor (25 cents an hour at first); a standard workweek (44 hours, falling to 40 by 1940) with overtime at 1.5 times the regular rate; and limits on child labor (most work under 16 and hazardous work under 18 barred in interstate commerce).
6. Regular: $40 \times 18 = \$720$. Overtime: $7 \times 27 = \$189$. Total: \$909.
7. Depositors knew they would be repaid up to the limit even if the bank failed, so they had no reason to rush to withdraw; without the rush, sound banks did not fail from panic. In 1934 only nine insured banks failed.
8. Companies selling new stock must register and give a prospectus with true facts and risks; the SEC oversees exchanges and requires regular, honest reports. They do not guarantee profits; they require honest information.
9. Stock is worth $2,000 \times 0.75 = \$1,500$. Repay \$1,600: you owe \$100 more, so you lost all \$400 and \$100 besides: a 125% loss of your money.
10. Prices were rising because the coins had been debased; the edict forbade the symptom without curing the cause. With prices fixed below market levels, sellers withheld goods, markets emptied and black markets grew, despite the death penalty. It was dropped within a few years.
11. $60 - 42 = 18$ million gallons. Long lines, stations running dry, rationing by odd and even days, and black markets.
12. A fair referee protects honest dealing, safety and children and applies equally to all without telling people what to make or charge (examples: just weights, the Factory Act, the FDIC, honest disclosure). A heavy hand overrides prices or

blocks honest work (examples: Diocletian's Edict, 1970s gasoline controls, Soviet price-setting).

PORTFOLIO PIECE: THE LIFE OF A RULE

Choose one rule, law or custom from history or from your own town that either worked well or backfired: for example the Mint Act of 1792, the Factory Act of 1833, the Pure Food and Drug Act of 1906, the FDIC, a building code, Diocletian's Edict, or rent or price controls in a past era. Write a three-page history: the problem it was meant to fix, who argued for it and why, how it worked, what it cost and who paid, what happened afterward, with at least one table of numbers. End with your verdict: was it a fair referee or a heavy hand, and what would you keep or change?

LOOK FOR	WHAT IT MEANS
Research	Accurate facts and dates from reliable sources, listed at the end.
Problem and design	Clearly explains the problem and how the rule tried to fix it.
Costs and consequences	Honestly weighs costs, who paid them and any unintended consequences, with a table of numbers.
Fairness	Presents the arguments on more than one side fairly and stays with settled history.
Verdict	A clear, well-reasoned conclusion using the fair-referee test.

ENTREPRENEURSHIP AND SALES

An entrepreneur sees a need, takes a risk to meet it, and builds a way to make money by serving customers. In this unit you will study four parts of that work. A **business model** is the plan for how a business creates value and earns money; you will see how the McDonald brothers rebuilt a drive-in around speed in 1948, and how Ray Kroc built a different model on top of it. **Financing** is how a business pays to get started: with the founder's own savings, with loans, or by selling a share of ownership, as Henry Ford learned after two failed companies.

Selling at its best is service: John H. Patterson of the National Cash Register Company trained salesmen to understand a merchant's problem before offering a solution. And a **pitch** is the short, honest case for an idea, which Elisha Otis made unforgettable in 1854 by cutting the rope on his own elevator. For the portfolio you will build a business model canvas, a financing plan and a pitch for an idea of your own, which you will present in the capstone at the end of Unit 8.

PREREQUISITES

- Knows profit = revenue – costs and break-even (earlier grades)
- Knows marginal thinking and market structures (Units 1 and 3)
- Can calculate interest, percents and break-even

MASTERY CHECKLIST

- ☐ I can describe a business model with its customers, value, channels, revenue and costs.
- ☐ I can compare bootstrapping, loans and equity, with the costs and risks of each, using numbers.
- ☐ I can explain consultative selling and use questions to understand a customer's need.
- ☐ I can build and deliver an honest pitch with a problem, a solution, proof, numbers and an ask.
- ☐ I can calculate break-even for a product and use it in a pitch.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **Junior Achievement: free resources for students and families**: Free. Programs and materials on entrepreneurship, budgeting and careers. Some programs run through schools or local chapters. Ages 12+.
- **Next Gen Personal Finance (NGPF)**: Free lessons for teachers and homeschool parents, including units on entrepreneurship, paying for a business and careers. A parent may create the free teacher account.
- **Acres of Diamonds, by Russell H. Conwell**: Free. A famous lecture from the late 1800s by a Baptist pastor about finding opportunity close to home by serving others' needs. Read the first part aloud in Lesson 6.1. Ages 12+.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

6.1 The Business Model: The McDonald Brothers' Speedee System

2 sessions of 60 minutes

6.2 Financing: Bootstrapping, Loans and Equity

2 sessions of 60 minutes

6.3 Consultative Selling: John H. Patterson and the Cash Register

2 sessions of 60 minutes

6.4 The Pitch: Elisha Otis Cuts the Rope

2 sessions of 60 minutes

UNIT 6 REVIEW

Answer each question. Show your work for calculations and use complete sentences for explanations. The review is worth 100 points.

1. **8 pts**

Name four changes the McDonald brothers made in 1948 and explain their value proposition.

2. **8 pts**

What two revenue streams did Ray Kroc's McDonald's company earn from each franchised restaurant?

3. **6 pts**

A shop has 120 customers a day, an average sale of \$6.50, and is open 300 days a year. What is its yearly revenue?

4. **8 pts**

Define bootstrapping, debt financing and equity financing.

5. **10 pts**

You need \$8,000. A loan at 6% for one year, or an investor who takes 20% of the year's profit. Compare the cost of each if profit is \$30,000 and if profit is \$5,000.

6. **6 pts**

How did Henry Ford finance the Quadricycle, and why did he later buy out his shareholders?

7. **8 pts**

Name the six steps of consultative selling.

8. **8 pts**

How did John H. Patterson's salesmen sell cash registers to shopkeepers who did not want them?

9. **6 pts**

A register costs \$600 and saves \$12 a day. How many days until it pays for itself?

10. **8 pts**

What made Elisha Otis's 1854 pitch so convincing?

11. **10 pts**

A product has fixed costs of \$150, a price of \$8 and a variable cost of \$3. Find the break-even quantity and the profit if 50 are sold.

12. **14 pts**

Write an outline of an honest pitch for a small business, with all seven parts.

ANSWER KEY

1. Any four: cut the menu to nine items; 15-cent hamburgers; paper wrappers and cups instead of dishes; walk-up window instead of carhops; an assembly-line kitchen. Value proposition: fast, cheap, consistent food for families.
2. A share of the restaurant's sales (franchise fees) and rent on the land and building the company owned or leased.
3. $120 \times 6.50 \times 300 = \$234,000$.
4. Bootstrapping: using the founder's own savings and the business's earnings. Debt: borrowing money that must be repaid with interest. Equity: selling part ownership; investors share profits and losses and are not repaid like a loan.
5. Loan interest: $8,000 \times 0.06 = \$480$ either way. Investor: 20% of \$30,000 = \$6,000; 20% of \$5,000 = \$1,000. The loan costs less in both cases here, but it must be repaid even if there is a loss.
6. He built it with his own wages in a shed (bootstrapping). He bought out the shareholders so he could control the company and spend profits on lower prices and new factories without their objections.
7. Prepare; ask open questions about the situation and need; listen; explain how the product meets the need, with proof; answer objections honestly; recommend only what truly helps.
8. They studied each store's money handling, showed the owner how much was lost in errors and missing cash, and showed how the register would pay for itself, showing the machine at work and using trained methods.
9. $600 \div 12 = 50$ days.
10. He showed the safety brake working himself before a crowd by having the only rope cut, so people saw the proof instead of being told.
11. Break-even = $150 \div (8 - 3) = 30$ units. Profit at 50: $50 \times 5 - 150 = \$100$.
12. Answers will vary. A strong outline has a hook, a real problem, a solution, proof (a live test or sample), numbers (price, costs, break-even, expected profit), the team, two honest risks, and a specific ask.

PORTFOLIO PIECE: MY BUSINESS PLAN PACKET

Assemble a packet for your business idea: (1) a finished business model canvas; (2) a start-up budget with real prices; (3) a financing plan comparing at least two options with numbers for good, average and poor results; (4) a sales-question guide with honest answers to objections; and (5) the written script of your three-minute pitch with a break-even calculation and graph. Add a one-page summary that a parent or banker could read in two minutes. You will use this packet for the capstone pitch in Unit 8 and, if you choose, to run a real business in Unit 9.

LOOK FOR	WHAT IT MEANS
Business model	All nine boxes are filled with specific, realistic answers, and the value proposition is clear.
Numbers	Real start-up prices, revenue and cost estimates, and a correct break-even.
Financing	At least two options compared with correct calculations and a sensible choice.
Selling and pitch	Open questions, honest objection answers and a complete seven-part pitch.
Honesty and safety	Risks are named honestly, and the plan follows the safety rules and includes a parent's supervision.

6.1 THE BUSINESS MODEL: THE MCDONALD BROTHERS' SPEEDEE SYSTEM

OBJECTIVES

- Tell how Dick and Mac McDonald rebuilt their restaurant in 1948 and how Ray Kroc built a franchise and real-estate model on it.
- Describe a business model with its customers, value proposition, channels, revenue streams, key activities and cost structure.
- Fill in a business model canvas for a real business and for your own idea.

Warm-up. Choose a business your family uses often: a grocery store, a library, a barber, a car wash. In one minute, write how it makes money. Then write one thing it gives away free and why.

WATCH

The Explainer: What is a Business Model?

[Harvard Business Review](#) • 2:05

https://www.youtube.com/watch?v=_C-vGu2mL38

WHEN TO WATCH

After the big idea, before you fill in your canvas.

Note: From Harvard Business Review.

KEY TERMS

business model

The plan for how a business creates value for customers and earns money doing it.

revenue stream

A way a business brings in money, such as sales, fees, rent or subscriptions.

value proposition

The reason a customer should choose your product: the problem it solves or the benefit it brings, compared with other choices.

franchise

A license to run a business under another company's name and system, in return for fees.

cost structure

The main costs a business must pay to operate, both fixed and variable.

CORE IDEAS

The story. In 1940 the brothers Richard and Maurice McDonald, called Dick and Mac, opened a drive-in restaurant in San Bernardino, California. Carhops brought orders from a long menu to customers' cars. It made money, but the brothers were frustrated: the menu was long, service was slow, dishes broke and carhops came and went. In 1948 they closed for three months and rebuilt the business. They cut the menu to nine items, centered on a 15-cent hamburger, replaced dishes with paper wrappers and cups, let customers walk up to a window, and redesigned the kitchen like an assembly line, sketching it in chalk on a tennis court to test where each worker should stand. They called it the Speedee Service System.

How they figured it out. At first sales fell; customers missed the carhops. Then families discovered that they could feed their children quickly and cheaply, and the crowds came. In 1954 a salesman of milkshake mixers named Ray Kroc visited to see why one small restaurant needed eight of his machines. He became the brothers' franchising agent and opened his own first McDonald's in Des Plaines, Illinois, in 1955. Kroc and his finance chief, Harry Sonneborn, added a new piece to the model: the company would buy or lease the land under each restaurant and rent it to the franchise owner. Rent became a steady **revenue stream** alongside a share of each restaurant's sales. In 1961 Kroc bought out the brothers for \$2.7 million.

The big idea. A **business model** answers six questions: Who are the customers? What is the **value proposition**, the reason they should choose you? Through what channels do you reach them? How does money come in? What key activities and resources do you need? What is your **cost structure**? The brothers' value proposition was speed, low price and consistency for families. Their cost structure was low: fewer items, less waste, no carhops, no dishes. Kroc's model added **franchise** fees and rent. Worked example: a restaurant sells 500 hamburgers a day at \$0.15. That is \$75 a day; over 360 days, \$27,000 a year from hamburgers alone. If food and paper cost 40% of sales, the hamburgers leave \$16,200 a year to pay wages and rent and to earn a profit.

Think it through. Kroc built one of the most successful businesses in history, but the brothers felt badly treated, especially after he opened a McDonald's near their own

restaurant, which they could no longer call by their name. A business model can be brilliant and the dealings within it still unfair. A great business pairs a strong model with honest agreements.

In business today. Every business has a model, whether it is written down or not. Before starting, sketch yours on one page; you will often find that the most important question is not “What will I make?” but “Who will pay, why, and what will it cost me to serve them?”

PICTURE STUDY



A Horn & Hardart Automat, New York, Unknown photographer, about 1939 · Color postcard · New York City

Image: [Wikimedia Commons](#), public domain

Long before fast-food drive-ins, Joseph Horn and Frank Hardart built another business model around speed. In their Automats, opened in Philadelphia in 1902 and New York in 1912, customers put coins into slots in a wall of little glass windows, opened a door and took out a sandwich or a slice of pie. Workers behind the wall refilled the windows from the kitchen. Millions of city workers ate there.

Look closely

- Read the words on the postcard. What does the Automat claim about itself?
- Find the panel showing the Automat machines. How did a customer get a slice of pie?
- Look at the storefront. Who would the Automat's customers have been?

Talk about it

1. What was the Automat's value proposition? How was it like and unlike the McDonald brothers' model?
2. What were the Automat's main costs? Which costs did its model save?
3. Why might a business model that worked for decades stop working when customers' habits change?

PROJECT

Two Business Model Canvases

You will fill in a business model canvas for a real business in your town, then for your own business idea, which you will keep developing for the rest of this unit and the capstone pitch.

You will need

- A large sheet of paper or two facing pages of your ledger, divided into nine boxes
- Sticky notes
- A visit (with a parent) to a local business, or a parent's knowledge of one
- Calculator

Steps

1. Draw a canvas with nine boxes: Customers, Value proposition, Channels, Customer relationships, Revenue streams, Key activities, Key resources, Key partners, Cost structure.
2. Choose a real local business (a bakery, a hardware store, a lawn service). Fill in each box with sticky notes. Ask a parent or the owner (with a parent present) about anything you do not know.
3. Estimate one revenue stream with numbers: for example, customers per day $\times$ average sale $\times$ days open per year.
4. Now choose your own business idea: something you could truly do with a parent's help (baked goods, tutoring, lawn care, crafts, pet care).
5. Fill in a second canvas for your idea. For the value proposition, write one sentence: "For ___ who need ___, my ___ gives ___, unlike ___."
6. Estimate your revenue and your main costs for one month. What is left as profit?
7. Write three questions you would need to answer before starting. Circle the riskiest one.

Tips

- Use sticky notes so you can move ideas as you learn more.

- Keep your idea small and safe enough to do with a parent; you will use it all through Units 6, 8 and 9.

Check your work

- ☐ I can explain the six main questions of a business model.
- ☐ Both canvases are complete, with at least one revenue estimate in numbers.
- ☐ I can state my idea's value proposition in one sentence.

LEDGER NOTEBOOK

1. Draw the McDonald brothers' 1948 kitchen as a line of stations, with arrows showing how a hamburger moved from grill to window.
2. Copy your two canvases, or tape in photos of them.
3. Make a table comparing three business models: the McDonald brothers' restaurant, Kroc's franchise and real-estate company, and the Automat.

From history. In 1949 the McDonald brothers replaced potato chips on their menu with french fries, and soon added milkshakes. Their small menu, low prices and quick service were copied by many other hamburger stands in the 1950s before McDonald's became the best known.

COMMON MISTAKES

- Thinking a business model is only a product. It is the whole system for creating and capturing value.
- Forgetting the cost structure. Many good ideas fail because each sale costs more to serve than it brings in.
- Thinking a strong model excuses unfair dealing. Honest agreements are part of a great business.

Make it a game • Business Model Canvas Sprint. Draw six boxes: customers, value proposition, channels, revenue streams, key activities and cost structure. In 90 seconds, fill them in from memory for the McDonald brothers' 1948 restaurant. Then your parent names a household business, such as a paper route or bake sale, and you fill in a new canvas in another 90 seconds. Add the franchise twist and see which canvas is stronger.

6.2 FINANCING: BOOTSTRAPPING, LOANS AND EQUITY

OBJECTIVES

- Tell how Henry Ford financed his quadricycle and his three car companies, and how Hewlett and Packard bootstrapped theirs.
- Compare bootstrapping, debt and equity financing, with their costs and risks.
- Calculate the cost of a loan and the cost of giving up equity for the same business.

Warm-up. You need \$200 to start a small business. List every way you could get it. For each, write what you would owe and to whom. Which way would you choose?

WATCH

Entrepreneurship - Debt and Equity Financing

Council for Economic Education · 2:21

<https://www.youtube.com/watch?v=6wBIWqNGyhU>

WHEN TO WATCH

After the big idea, before your financing plan.

Note: From the Council for Economic Education.

BACKUP VIDEO

Introduction to Debt and Equity Financing

Alanis Business Academy · 4:52

https://www.youtube.com/watch?v=fH_gQmiVZgU

Optional, for a fuller comparison of debt and equity.

KEY TERMS

bootstrapping

Starting and growing a business with the founder's own savings and the business's own earnings, without outside money.

debt financing

Borrowing money that must be repaid with interest, whether or not the business succeeds.

equity financing

Selling a share of ownership in exchange for money; investors share in profits and losses but are not repaid like a loan.

dilution

The shrinking of each owner's percentage when new shares are sold to others.

personal guarantee

A promise by a business owner to repay a business loan from his own money if the business cannot.

CORE IDEAS

The story. In 1896, while working as an engineer for the Edison Illuminating Company in Detroit, Henry Ford built his first car, the Quadricycle, in a brick shed behind his house, with his own wages and spare evenings. That was **bootstrapping**. Then he needed real money. In 1899 investors backed the Detroit Automobile Company with Ford as chief engineer; it built few cars and closed in about a year and a half. In 1901 some of the same investors formed the Henry Ford Company; Ford left within months after quarrels over whether to build racing cars or cheap ones. In 1903, with a coal dealer named Alexander Malcomson as his main partner, Ford formed the Ford Motor Company with \$28,000 in cash from twelve investors, who received shares. Within a few years the company was paying them large dividends.

How they figured it out. Ford learned what every founder must learn: outside money brings outside opinions. Lenders want to be repaid on time; investors want a say in decisions. Ford later bought out every outside shareholder so he could run the company his way. Other founders chose differently. In 1939 two young engineers, Bill Hewlett and Dave Packard, started their company in a one-car garage in Palo Alto, California, with about \$538. They sold their first product, an audio oscillator, to customers who paid for it, including the Walt Disney studio, which bought eight for its film *Fantasia*, and they grew mostly from their own profits.

The big idea. There are three main ways to pay for a business. **Bootstrapping:** you keep full ownership and control, but you grow slowly and risk your own savings. **Debt financing:** a bank or a relative lends you money; you keep ownership, but you must repay with interest even if the business fails, and lenders often ask for collateral or a **personal guarantee**. **Equity financing:** investors buy part of the

business; you do not have to repay them, but you share profits and decisions, and your share is **diluted**. Worked example: you need \$10,000. A loan at 8% for one year costs \$800 in interest. Or an investor gives \$10,000 for 25% of the business. If profit is \$20,000, the investor's share is \$5,000, more than the loan's cost; if profit is \$2,000, the investor gets \$500, less than the loan; if there is a loss, the investor shares it, but the loan must still be repaid.

Think it through. Scripture warns that “the borrower is servant to the lender” (Proverbs 22:7), and a wise founder borrows only what the business can surely repay. Equity is not free money either; it is a partnership, and partners must be chosen as carefully as a spouse chooses a home. Many of the soundest small businesses begin by bootstrapping, prove that customers will pay, and only then seek a loan or a partner.

In business today. Small businesses are funded by owners' savings, bank loans, government-backed small-business loans, family and friends, and sometimes outside investors. Whatever the source, put the agreement in writing: how much, for what, when and how it will be repaid or shared, and what happens if the business fails.

PICTURE STUDY



Henry Ford in His Quadricycle, Unknown photographer, photograph about 1910 (the car was built in 1896) · Photograph · The Henry Ford, Dearborn, Michigan

Image: [Wikimedia Commons](#), public domain

Henry Ford built the Quadricycle in his spare time in 1896, in a shed behind the house he rented in Detroit. When it was finished, it was too wide for the shed door, so he broke out part of the brick wall to drive it out. He later sold it for \$200 to help pay for his next car, and years afterward bought it back. In this photograph, taken about 1910, the successful carmaker sits in his first machine.

Look closely

- Look at the wheels and the frame. What other machine were they borrowed from?
- Find the seat, the steering bar and any lamps. What is missing compared with a modern car?
- Look at Ford's posture and face. How do you think he felt about his machine?

Talk about it

1. Ford paid for this car himself. What did he gain by bootstrapping? What did it limit?
2. Why did he need investors to build cars for sale, and what did their money cost him?

3. If you were an investor in 1903, what would you want to know before giving Ford money?

Safety first. This is a planning exercise. Never borrow or lend real money, or accept an investment, without a parent's involvement and written agreement.

PROJECT

Three Ways to Pay for My Business

You will figure out how much money your own business idea from Lesson 6.1 needs to start, then compare paying for it by bootstrapping, a family loan or a family investor, with numbers for good, average and poor results.

You will need

- Your business model canvas from Lesson 6.1
- Store prices for your start-up supplies (flyers or a parent's help online)
- Ledger notebook, calculator or spreadsheet

Steps

1. List everything you must buy before your first sale (supplies, tools, signs). Find real prices and total them. This is your start-up cost.
2. Estimate three results for your first three months: good, average and poor. For each, write revenue, costs and profit.
3. **Option A, bootstrap:** how many weeks of savings or chores would it take to raise the start-up cost? What is the risk?
4. **Option B, family loan:** borrow the start-up cost at 5% for three months. Interest = amount $\times$ 0.05 $\times$ (3 $\div$ 12). Calculate what you would owe and what profit is left in each of the three results.
5. **Option C, family investor:** a parent invests the start-up cost for 30% of the profits for three months. Calculate the investor's share and yours in each result. In the poor result, who bears the loss?
6. Make a comparison table: Option, What I owe, My profit (good/average/poor), Who controls decisions, Risk to me.
7. Choose the option you would use and write a paragraph explaining why. Write a one-paragraph agreement for it that you and your parent could sign.

Tips

- Simple interest = principal $\times$ rate $\times$ time (in years).
- Do not sign or carry out any real loan or investment without a parent. This is planning only, unless your parent decides to go ahead in Unit 9.

Check your work

- ☐ I can explain bootstrapping, debt and equity and the risks of each.
- ☐ My table compares all three options in good, average and poor results.
- ☐ My written agreement says how much, for what, when, and what happens if the business fails.

LEDGER NOTEBOOK

1. Make a timeline of Ford's financing: 1896 Quadricycle (own money); 1899 Detroit Automobile Company; 1901 Henry Ford Company; 1903 Ford Motor Company (\$28,000 from twelve investors); 1919–20 Ford buys out the shareholders.
2. Copy your comparison table.
3. Draw a pie chart of ownership before and after an investor buys 30% of a business.

From history. Hewlett and Packard flipped a coin to decide whose name would come first. The garage where they started, at 367 Addison Avenue in Palo Alto, is now a California historical landmark often called the birthplace of Silicon Valley.

COMMON MISTAKES

- Thinking equity is free money. Investors own part of your business and share its profits for as long as they hold their shares.
- Thinking a loan is safer because you keep ownership. A loan must be repaid even if the business fails.
- Borrowing for things the business does not truly need.

Make it a game • Fund It Fast. Make three cards: bootstrapping, debt and equity. Place them on the table. Your parent reads clues about different businesses, such as Hewlett and Packard in a garage or a lender wanting a personal guarantee. Slap the right card and name one risk and one cost. Equity includes dilution, so also calculate what share an investor owns for 20 percent.

6.3 CONSULTATIVE SELLING: JOHN H. PATTERSON AND THE CASH REGISTER

OBJECTIVES

- Tell how John H. Patterson built the National Cash Register Company and trained its salesmen.
- Explain consultative selling: asking, listening, diagnosing and recommending.
- Practice a sales conversation that serves the customer, including when to recommend not buying.

Warm-up. Remember a time a salesperson helped you, and a time one annoyed you. Write what each did differently. Which one asked more questions?

WATCH

C-SPAN Cities Tour - Dayton: John H. Patterson

C-SPAN • 8:32

<https://www.youtube.com/watch?v=3SCNrXqB17E>

WHEN TO WATCH

After the story of Patterson, before the sales conversations.

Note: A short local-history film from C-SPAN's Cities Tour in Dayton, Ohio.

KEY TERMS

consultative selling

Selling by first understanding the customer's situation and needs through questions, then recommending what truly helps, as a trusted adviser would.

open question

A question that cannot be answered yes or no, such as "What happens when...?"

need

The problem or goal behind a customer's interest; the real reason he might buy.

objection

A reason a customer gives for not buying, which a good seller listens to and answers honestly.

sales script

A planned set of words or steps a salesperson follows.

CORE IDEAS

The story. In 1879 a Dayton, Ohio, businessman named James Ritty invented a machine to record each sale in his own establishment, because he suspected his clerks were pocketing money. In 1884 a Dayton businessman, John H. Patterson, bought the struggling company that made it and renamed it the National Cash Register Company. Patterson had been a coal merchant whose store lost money because clerks made mistakes and some stole; he knew the problem from the inside. But shopkeepers did not want to buy an expensive machine. Many were offended at the idea that their clerks might steal.

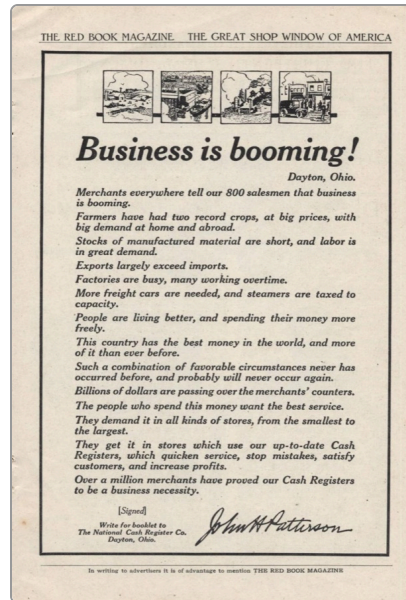
How they figured it out. Patterson decided that NCR would not sell machines; it would sell solutions to shopkeepers' problems. In 1887 his company printed a sales manual, "The Primer," and in 1894 he opened one of the first schools to train salesmen. NCR salesmen were taught to visit a store, ask about how money was handled, watch how sales were recorded, show the owner how much could be lost in errors and missing cash, and then show how the register would pay for itself. They showed the machines working in the store, and used territories and goals, and Patterson rewarded his best salesmen generously. One of his star salesmen, Thomas J. Watson, later built IBM using many of the same methods. Patterson also had serious faults: he was a harsh and unpredictable boss, and in 1913 he and other NCR officers were convicted of using unfair methods to crush competitors, a verdict overturned on appeal in 1915. That same year of 1913, when a terrible flood struck Dayton, he turned the NCR factory into a relief center that fed and sheltered thousands.

The big idea. **Consultative selling** treats the customer's problem as the starting point. A consultative seller (1) prepares by learning about the customer; (2) asks **open questions** to understand the situation and the **need**; (3) listens more than he talks; (4) explains how a product meets that need, with proof; (5) answers **objections** honestly; and (6) recommends only what truly helps, even if that means a smaller sale or no sale. Worked example of value: a shopkeeper loses an estimated \$8 a day to

errors and missing cash. A register that costs \$500 and stops most of those losses pays for itself in about $500 \div 8 \approx 63$ business days, a little over two months.

In business today. Studies of thousands of sales calls have found that successful salespeople ask more questions, especially about the customer's problems and their effects, than unsuccessful ones. The same is true for a young seller at a market table: "What are you looking for?" and "Who is it for?" serve better than a speech. Paul's rule fits every sale: "Look not every man on his own things, but every man also on the things of others" (Philippians 2:4).

PICTURE STUDY



“Business Is Booming!” An Advertisement for the National Cash Register Company, National Cash Register Company, 1915 · Printed magazine advertisement · The Red Book Magazine

Image: [Wikimedia Commons](#), public domain

NCR advertised in popular magazines to make merchants think about their stores and their customers. This advertisement appeared in 1915, about thirty years after Patterson bought the company, and he signed it himself. Notice how much of it is about the merchant’s situation before it says anything about cash registers.

Look closely

- Read the first ten lines. What do they describe: the cash register, or the merchant’s world?
- Find the sentence that finally mentions cash registers. What four things does it promise they will do?
- Find the signature and the number of salesmen. Why would Patterson mention his salesmen?

Talk about it

1. How is this advertisement like a consultative salesman’s visit, which begins with the customer’s situation? How is it different?
2. Which claims in the advertisement could a merchant check for himself? Which are harder to prove?

3. What objections might a shopkeeper of 1915 have raised, and how would an honest salesman answer them?

PROJECT

The Sales Conversation: Questions Before Answers

You will write a short guide of questions for selling your own product from Lesson 6.1, then role-play two sales conversations with family members, one pushy and one consultative, and record what happens.

You will need

- Your business idea and canvas
- Index cards
- Two or three family members to play customers, each with a secret card describing his real need (for example “I need a birthday gift for a grandmother who loves gardening” or “I have only \$5”)
- Ledger notebook

Steps

1. Write five open questions for your product, such as “What brings you to our table today?”, “Who is it for?”, “What have you tried before?”, “What matters most to you: price, quality or speed?”
2. Write two honest answers to the objections you expect most (for example “It costs too much” or “I can make that myself”).
3. **Round 1, pushy.** With the first customer, talk only about your product for two minutes and ask him to buy. Record: Did he buy? How did he feel? Did you learn his real need?
4. **Round 2, consultative.** With the second customer, use your questions first. Listen and take notes. Then recommend only what fits his need, even if it is a smaller purchase or something you do not sell.
5. Swap: each customer reveals his secret card. Compare: in which round did you discover the real need?
6. Make a table: Round, Questions asked, Minutes I talked, Minutes customer talked, Need discovered?, Sale?, Customer’s rating 1–5.
7. Write a paragraph: What did you learn about selling from these two rounds and from Patterson’s salesmen?

Tips

- Aim to let the customer talk at least half the time.
- Sometimes the most honest answer is “I don’t think this is right for you; here is what might be.” That customer will remember you.

Check your work

- ☐ I can explain consultative selling in six steps.
- ☐ My question guide has five open questions and two honest objection answers.
- ☐ My table compares a pushy and a consultative conversation.

LEDGER NOTEBOOK

1. Draw a ladder of the six steps of consultative selling, with one example sentence on each step.
2. Copy your comparison table.
3. Work out the payback time for a register that costs \$400 and saves \$6 a day, and for a product of your own.

From history. NCR’s factory in Dayton was known for its large windows, clean workrooms, lunchrooms and landscaped grounds, unusual for factories of the 1890s. Patterson believed that healthy, well-treated workers made better products, though he also ran the company with an iron hand.

COMMON MISTAKES

- Thinking selling means talking a lot. The best sellers ask and listen.
- Answering objections with pressure. An objection is information; answer it honestly or accept it.
- Selling something that does not fit the customer’s need. It may bring one sale and lose a customer for good.

Make it a game • Questions Before Answers. Your parent secretly picks a need, such as a better backpack or a quiet study spot. You are the salesperson from Patterson's cash register company and must ask only open questions for two full minutes, then recommend a product. Your parent buzzes if you pitch too early. Listen well, diagnose the real need, answer one objection, and score a point.

Scripture. “Look not every man on his own things, but every man also on the things of others.” (Philippians 2:4, KJV)

Consultative selling begins by looking at the customer’s things: his problems, his budget, his goals. A seller who does this is not only more honest; he usually serves better and is trusted longer.

6.4 THE PITCH: ELISHA OTIS CUTS THE ROPE

OBJECTIVES

- Tell how Elisha Otis proved his safety elevator in public in 1854 and won customers.
- Build an honest pitch with a hook, a problem, a solution, proof, numbers, the team and an ask.
- Calculate break-even for a product and use it in a pitch.

Warm-up. In 30 seconds, tell a family member why he should try your favorite food or book. Time yourself. What did you say first? What made him interested or not?

WATCH

Make Inventions: Otis Safety Elevator

Make: · 4:12

<https://www.youtube.com/watch?v=sSjJjKcoNRk>

WHEN TO WATCH

After the story; it shows how Otis's safety brake works.

BACKUP VIDEO

The Secret to Successfully Pitching an Idea | The Way We Work, a TED series

TED: · 4:47

<https://www.youtube.com/watch?v=l0hVIH3EnlQ>

Before you write your pitch cards.

KEY TERMS

pitch

A short, persuasive presentation of a business idea or product to customers, partners or investors.

live test

Showing a product working, so listeners can see the proof for themselves.

hook

An opening line, question or live test that catches the listener's attention.

the ask

The specific request at the end of a pitch: an order, a loan, an investment or a meeting.

break-even point

The number of units you must sell for
revenue to equal total costs: fixed costs
 $\div$ (price – variable cost per unit).

CORE IDEAS

The story. In the 1850s buildings rarely rose above five or six stories, partly because people did not trust elevators. Hoists for goods existed, but if the rope broke, the platform fell. In 1852 Elisha Otis, a master mechanic at a bedstead factory in Yonkers, New York, invented a safety brake: a spring-loaded catch that snapped into notched rails along the shaft the moment the rope lost its tension. He started a small business making safety hoists, but orders were few. People did not believe it would work.

How they figured it out. In 1854, at the Exhibition of the Industry of All Nations in New York's Crystal Palace, Otis built an open elevator platform high above a crowd. He rode it up, stood on it, and ordered an assistant to cut the only rope with an axe. The platform dropped a few inches and stopped. Otis is said to have taken off his hat and called out, "All safe, gentlemen, all safe!" Newspapers carried the story, orders increased, and in 1857 the first passenger safety elevator was installed in the E. V. Haughwout store on Broadway. Otis did not argue that his brake worked; he let the audience see it. Within a few decades, safe elevators helped make tall buildings possible.

The big idea. A good **pitch** is short, clear and true. It usually has seven parts: a **hook**; the **problem** the listener cares about; the **solution**; **proof**, such as a **live test**, a sample, a test or customers' words; the **numbers**: price, costs, profit and break-even; the **team**: why you can do it; and **the ask**: exactly what you want. Worked example of break-even for a pitch: a cookie business has fixed costs of \$60 (a sign, a table cover, a cooler) and sells each bag for \$4 with a variable cost of \$1.50. Break-even = $60 \div (4 - 1.50) = 24$ bags. If you expect to sell 40 bags, profit = $40 \times 2.50 - 60 = \$40$.

In business today. Founders pitch to banks, investors, customers and partners. The best pitches are honest about risks and let the evidence speak. A pitch that hides problems may win once, but it costs the founder his good name. "A false balance is abomination to the LORD" (Proverbs 11:1) applies to words as well as weights.

PICTURE STUDY



Elisha Otis Tests His Safety Elevator, 1854, Unknown artist (signed Giese), 20th century illustration of the 1854 event · Painting (black-and-white reproduction) · Otis Elevator Company

Image: [Wikimedia Commons](#), public domain

This later painting imagines the moment at the Crystal Palace exhibition in New York when the rope holding Otis's platform was cut. The platform, with Otis on it, should have fallen. Instead his safety catch held it fast, and Otis swept off his hat to the crowd. Pictures like this kept the story alive and became part of the company's own pitch for generations.

Look closely

- Find Otis on the platform. What is he doing with his hat?
- Find the workman at the top of the frame. What has just happened to the rope?
- Look at the crowd. How are people reacting?

Talk about it

1. Why was a live test more convincing than a speech or a diagram?
2. What did Otis risk by standing on the platform himself?
3. How could you show your own product working in a pitch?

PROJECT

My Three-Minute Pitch

You will build an honest three-minute pitch for your business idea from this unit, with a live test, real numbers and a clear ask, deliver it to your family, and improve it from their feedback. You will give the finished version in the capstone at the end of Unit 8.

You will need

- Your canvas (6.1), financing plan (6.2) and sales questions (6.3)
- A sample or prototype of your product, if possible
- Index cards, a timer, a phone or camera to record (optional, with a parent)
- Calculator

Steps

1. Calculate your break-even: list fixed costs and the variable cost per unit, choose a price, and use $\text{fixed costs} \div (\text{price} - \text{variable cost})$.
2. Write one index card for each part: Hook, Problem, Solution, Proof, Numbers, Team, Ask.
3. Plan a live test or show a sample: let listeners taste, see, hold or try it.
4. Include at least two real risks and what you will do about them.
5. Practice until the pitch takes three minutes or less. Time it.
6. Deliver it to at least two family members. Ask each to rate 1–5: clear, convincing, honest, and the numbers. Ask for one thing to improve.
7. Revise your pitch. Write down what you changed and why.

Tips

- Start with the listener's problem, not with yourself.
- Make your ask specific: "I am asking for \$40 as a loan, to be repaid by June 30 from the first 16 sales."

Check your work

- ☐ I can name the seven parts of a pitch.

- ☐ My pitch includes a live test or sample, a correct break-even and honest risks.
- ☐ I improved my pitch from real feedback.

LEDGER NOTEBOOK

1. Draw Otis's safety catch: the rails with notches, the spring, the platform, and what happens when the rope is cut.
2. Write out your break-even calculation and draw a break-even graph (revenue line and total cost line crossing).
3. Copy your feedback scores and list your changes.

From history. Elisha Otis died in 1861, only seven years after his famous test. His sons Charles and Norton built the company into one of the largest elevator makers in the world. In 1889 Otis elevators were installed in the Eiffel Tower in Paris.

COMMON MISTAKES

- Making the pitch about you instead of the listener's problem.
- Hiding risks. Listeners trust a founder who names the risks and has a plan for them.
- Forgetting the ask. A pitch without a request leaves the listener unsure what to do.

Make it a game • Cut the Rope Pitch. Count off your pitch on your fingers: hook, problem, solution, proof, numbers, team, ask. Give a 60-second pitch for any item at home, borrowing Elisha Otis's idea of a live test. Your parent holds up a hand each time a part is missing. Then compute your break-even point: costs divided by profit per sale. Beat your own time the second round.

ENTREPRENEURSHIP AND SALES

An entrepreneur sees a need, takes a risk to meet it, and builds a way to make money by serving customers. In this unit you will study four parts of that work. A **business model** is the plan for how a business creates value and earns money; you will see how the McDonald brothers rebuilt a drive-in around speed in 1948, and how Ray Kroc built a different model on top of it. **Financing** is how a business pays to get started: with the founder's own savings, with loans, or by selling a share of ownership, as Henry Ford learned after two failed companies.

Selling at its best is service: John H. Patterson of the National Cash Register Company trained salesmen to understand a merchant's problem before offering a solution. And a **pitch** is the short, honest case for an idea, which Elisha Otis made unforgettable in 1854 by cutting the rope on his own elevator. For the portfolio you will build a business model canvas, a financing plan and a pitch for an idea of your own, which you will present in the capstone at the end of Unit 8.

PREREQUISITES

- Knows profit = revenue – costs and break-even (earlier grades)
- Knows marginal thinking and market structures (Units 1 and 3)
- Can calculate interest, percents and break-even

MASTERY CHECKLIST

- ☐ I can describe a business model with its customers, value, channels, revenue and costs.
- ☐ I can compare bootstrapping, loans and equity, with the costs and risks of each, using numbers.
- ☐ I can explain consultative selling and use questions to understand a customer's need.
- ☐ I can build and deliver an honest pitch with a problem, a solution, proof, numbers and an ask.
- ☐ I can calculate break-even for a product and use it in a pitch.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **Junior Achievement: free resources for students and families**: Free. Programs and materials on entrepreneurship, budgeting and careers. Some programs run through schools or local chapters. Ages 12+.
- **Next Gen Personal Finance (NGPF)**: Free lessons for teachers and homeschool parents, including units on entrepreneurship, paying for a business and careers. A parent may create the free teacher account.
- **Acres of Diamonds, by Russell H. Conwell**: Free. A famous lecture from the late 1800s by a Baptist pastor about finding opportunity close to home by serving others' needs. Read the first part aloud in Lesson 6.1. Ages 12+.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

6.1 The Business Model: The McDonald Brothers' Speedee System

2 sessions of 60 minutes

6.2 Financing: Bootstrapping, Loans and Equity

2 sessions of 60 minutes

6.3 Consultative Selling: John H. Patterson and the Cash Register

2 sessions of 60 minutes

6.4 The Pitch: Elisha Otis Cuts the Rope

2 sessions of 60 minutes

UNIT 6 REVIEW

Answer each question. Show your work for calculations and use complete sentences for explanations. The review is worth 100 points.

1. **8 pts**

Name four changes the McDonald brothers made in 1948 and explain their value proposition.

2. **8 pts**

What two revenue streams did Ray Kroc's McDonald's company earn from each franchised restaurant?

3. **6 pts**

A shop has 120 customers a day, an average sale of \$6.50, and is open 300 days a year. What is its yearly revenue?

4. **8 pts**

Define bootstrapping, debt financing and equity financing.

5. **10 pts**

You need \$8,000. A loan at 6% for one year, or an investor who takes 20% of the year's profit. Compare the cost of each if profit is \$30,000 and if profit is \$5,000.

6. **6 pts**

How did Henry Ford finance the Quadricycle, and why did he later buy out his shareholders?

7. **8 pts**

Name the six steps of consultative selling.

8. **8 pts**

How did John H. Patterson's salesmen sell cash registers to shopkeepers who did not want them?

9. **6 pts**

A register costs \$600 and saves \$12 a day. How many days until it pays for itself?

10. **8 pts**

What made Elisha Otis's 1854 pitch so convincing?

11. **10 pts**

A product has fixed costs of \$150, a price of \$8 and a variable cost of \$3. Find the break-even quantity and the profit if 50 are sold.

12. **14 pts**

Write an outline of an honest pitch for a small business, with all seven parts.

ANSWER KEY

1. Any four: cut the menu to nine items; 15-cent hamburgers; paper wrappers and cups instead of dishes; walk-up window instead of carhops; an assembly-line kitchen. Value proposition: fast, cheap, consistent food for families.
2. A share of the restaurant's sales (franchise fees) and rent on the land and building the company owned or leased.
3. $120 \times 6.50 \times 300 = \$234,000$.
4. Bootstrapping: using the founder's own savings and the business's earnings. Debt: borrowing money that must be repaid with interest. Equity: selling part ownership; investors share profits and losses and are not repaid like a loan.
5. Loan interest: $8,000 \times 0.06 = \$480$ either way. Investor: 20% of $\$30,000 = \$6,000$; 20% of $\$5,000 = \$1,000$. The loan costs less in both cases here, but it must be repaid even if there is a loss.
6. He built it with his own wages in a shed (bootstrapping). He bought out the shareholders so he could control the company and spend profits on lower prices and new factories without their objections.
7. Prepare; ask open questions about the situation and need; listen; explain how the product meets the need, with proof; answer objections honestly; recommend only what truly helps.
8. They studied each store's money handling, showed the owner how much was lost in errors and missing cash, and showed how the register would pay for itself, showing the machine at work and using trained methods.
9. $600 \div 12 = 50$ days.
10. He showed the safety brake working himself before a crowd by having the only rope cut, so people saw the proof instead of being told.
11. Break-even = $150 \div (8 - 3) = 30$ units. Profit at 50: $50 \times 5 - 150 = \$100$.
12. Answers will vary. A strong outline has a hook, a real problem, a solution, proof (a live test or sample), numbers (price, costs, break-even, expected profit), the team, two honest risks, and a specific ask.

PORTFOLIO PIECE: MY BUSINESS PLAN PACKET

Assemble a packet for your business idea: (1) a finished business model canvas; (2) a start-up budget with real prices; (3) a financing plan comparing at least two options with numbers for good, average and poor results; (4) a sales-question guide with honest answers to objections; and (5) the written script of your three-minute pitch with a break-even calculation and graph. Add a one-page summary that a parent or banker could read in two minutes. You will use this packet for the capstone pitch in Unit 8 and, if you choose, to run a real business in Unit 9.

LOOK FOR	WHAT IT MEANS
Business model	All nine boxes are filled with specific, realistic answers, and the value proposition is clear.
Numbers	Real start-up prices, revenue and cost estimates, and a correct break-even.
Financing	At least two options compared with correct calculations and a sensible choice.
Selling and pitch	Open questions, honest objection answers and a complete seven-part pitch.
Honesty and safety	Risks are named honestly, and the plan follows the safety rules and includes a parent's supervision.

ACCOUNTING

Accounting is the language of business. In earlier years you kept ledgers and learned the income statement and the balance sheet. This year you will put the **three financial statements** together: the income statement, the balance sheet and the statement of cash flows, and see how one sale or one purchase moves through all three. You will learn why a company can show a profit and still run out of cash, as the W. T. Grant stores did in 1975, and how bankers and suppliers use **ratios** to judge a business, a practice that began with Lewis Tappan's credit reports in 1841.

Then you will study why honest books need **independent audits**, through the collapse of Enron in 2001, and how charities and churches keep accounts for money given for special purposes, following the example of George Müller, who published every gift to his orphan houses in Bristol. Luca Pacioli wrote in 1494 that a merchant should not go to sleep until his accounts were in order; this unit will show you why. For the portfolio you will prepare and analyze a full set of statements for a small business.

PREREQUISITES

- Knows debits and credits, the ledger, the income statement and the balance sheet (earlier grades), or reviews them first
- Knows $\text{assets} = \text{liabilities} + \text{owner's equity}$
- Can calculate percents and ratios

MASTERY CHECKLIST

- ☐ I can prepare a simple income statement, balance sheet and statement of cash flows and show how they connect.
- ☐ I can explain why profit and cash are not the same, using the W. T. Grant case.
- ☐ I can calculate and interpret the current ratio, debt-to-equity, profit margin and return on equity.
- ☐ I can explain what an auditor does and how Enron's books deceived investors.
- ☐ I can keep fund accounts for a church or charity, separating restricted and unrestricted gifts.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **Accounting Stuff (free videos and practice)**: Free. Short, clear lessons on the three statements, ratios and bookkeeping, from the same teacher whose videos appear in this unit. Ages 13+.
- **Monopoly (Hasbro), played with a real ledger**: Optional family game. Keep a balance sheet for your player at the end of each round of play (cash, property at cost, mortgages owed) and calculate your own debt-to-equity ratio. Ages 8+.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

7.1 The Three Financial Statements Together	2 sessions of 60 minutes
7.2 Ratios and Credit: Lewis Tappan's Mercantile Agency	2 sessions of 60 minutes
7.3 Audits and the Enron Collapse	2 sessions of 60 minutes
7.4 Nonprofit and Church Accounting: George Müller's Open Books	2 sessions of 60 minutes

UNIT 7 REVIEW

Answer each question. Show your work for calculations and use complete sentences for explanations. The review is worth 100 points.

1. **8 pts**

Name the three financial statements and what each shows.

2. **10 pts**

A business sells \$8,000 of goods (\$6,000 cash, \$2,000 on credit), pays \$5,500 of expenses in cash, and buys a \$1,500 machine with cash. Find net income and the net change in cash.

3. **8 pts**

How did the W. T. Grant Company show profits and still go bankrupt?

4. **6 pts**

What did Lewis Tappan's Mercantile Agency do, and why was it needed?

5. **12 pts**

A shop has current assets \$45,000, current liabilities \$30,000, total liabilities \$50,000, equity \$100,000, revenue \$300,000 and net income \$18,000. Calculate the current ratio, debt-to-equity, net margin and return on equity.

6. **6 pts**

Why should a lender look at debt-to-equity as well as return on equity?

7. **8 pts**

Name two ways Enron made its finances look better than they were.

8. **8 pts**

What does the Sarbanes-Oxley Act of 2002 require of chief executives and auditors?

9. **8 pts**

What is segregation of duties? Give an example for a church offering.

10. **6 pts**

If 1 in 10 receipts is wrong and an auditor checks 20 at random, what is the chance of finding none? (Use 0.9 to the 20th power.)

11. **10 pts**

A charity receives \$5,000 unrestricted and \$3,000 restricted for a new van. It spends \$4,200 on programs. What is the change in each fund? May it use the van money to pay for programs?

12. **10 pts**

Explain in a paragraph why George Müller published every gift, and what that teaches about honest accounting.

ANSWER KEY

1. Income statement: revenue, expenses and net income over a period. Balance sheet: assets, liabilities and equity on one date. Statement of cash flows: cash in and out from operating, investing and financing over a period.
2. Net income = $8,000 - 5,500 = \$2,500$. Cash: operating $6,000 - 5,500 = +500$; investing $-1,500$; net change $-\$1,000$.
3. Its income statement showed profits, but much of its sales were on store credit that customers paid slowly or never, and it piled up unsold inventory; its operations used more cash than they brought in for years, so it borrowed until it could not pay its bills.
4. It collected reports from local correspondents on merchants' character, property and payment habits and sold them to subscribers, so wholesalers could judge distant storekeepers before selling on credit.
5. Current ratio 1.5; debt-to-equity 0.5; net margin 6%; return on equity 18%.
6. A high return on equity can come from heavy borrowing, which makes the business riskier; debt-to-equity shows how much it depends on borrowed money.
7. Booking future hoped-for profits in advance; hiding billions in debt in off-balance-sheet partnerships; overstating profits for years.
8. Chief executives and chief financial officers must personally certify that the financial statements are true; auditors' independence was strengthened; a board was created to oversee auditors.
9. Dividing tasks so no one person both handles money and records it. Example: two unrelated people count and sign the count sheet, another deposits, and someone who does not write checks reconciles the bank statement.
10. $0.9^{20} \approx 0.12$, so about a 12% chance of finding none and an 88% chance of finding at least one.
11. Unrestricted $+\$800$; van fund $+\$3,000$. No: restricted gifts may be used only for the van unless the givers consent.
12. A strong answer: because he never asked for money, he owed givers openness; publishing gifts and spending let anyone check that money was used as given; honest, open books build trust, protect the treasurer from suspicion and honor God (2 Corinthians 8:20-21).

PORTFOLIO PIECE: A FULL SET OF STATEMENTS AND AN ANALYSIS

Choose a real small business you have run (for example in Units 6 or 9), a family project, or a detailed case your parent prepares with at least 20 transactions over one month. Prepare a journal, a ledger, and all three financial statements, and show that they connect. Then calculate at least four ratios, write a two-page analysis of how healthy the business is, what its cash flow shows, what internal controls it uses or needs, and what you recommend. If you choose a church or charity project instead, use fund accounting and include a stewardship report.

LOOK FOR	WHAT IT MEANS
Records	A complete, dated journal and ledger with every transaction recorded correctly.
Statements	All three statements are correct and pass the connection checks.
Ratios	At least four ratios are calculated correctly and explained.
Analysis and controls	A clear analysis of health and cash flow, with sensible internal controls.
Honesty and presentation	Neat, honest and complete; errors found are corrected openly, not hidden.

7.1 THE THREE FINANCIAL STATEMENTS TOGETHER

OBJECTIVES

- Prepare a simple income statement, balance sheet and statement of cash flows for a small business.
- Show how net income connects the income statement to the balance sheet, and how the cash-flow statement explains the change in cash.
- Explain, with the W. T. Grant Company as an example, why a profitable business can run out of cash.

Warm-up. You sell \$50 of cookies at a church sale: \$30 paid in cash and \$20 promised by friends who will pay next week. How much did you earn? How much cash do you have? Are those the same number?

WATCH

FINANCIAL STATEMENTS: all the basics in 8 MINS!

Accounting Stuff • 9:05

<https://www.youtube.com/watch?v=Fi1wkUczuyk>

WHEN TO WATCH

After the big idea, before the one-month statements.

Note: From Accounting Stuff.

KEY TERMS

income statement

A report of revenue, expenses and profit (net income) over a period of time.

statement of cash flows

A report of cash coming in and going out over a period, divided into operating, investing and financing activities.

balance sheet

A report of what a business owns (assets), owes (liabilities) and the owners' share (equity) on a single date.

accounts receivable

Money customers owe a business for goods or services already delivered.

retained earnings

The part of owners' equity that comes from profits kept in the business rather than paid out.

CORE IDEAS

The story. The W. T. Grant Company was one of America's largest chains of variety stores, with more than a thousand stores by the early 1970s. In those years it grew fast, opening big new stores and urging customers to buy on its store credit plan. Its income statements showed profits year after year, and its stock was popular with investors. But the money customers owed the company on credit, its **accounts receivable**, piled up, many of those customers were slow to pay or never paid, and stores filled with goods that did not sell. The cash coming in from running the stores was less than the cash going out, year after year, so the company borrowed more and more to pay its bills. In October 1975 W. T. Grant filed for bankruptcy, then one of the largest in American history, and its stores were closed the next year.

How they figured it out. Afterward, two accounting professors, James Largay and Clyde Stickney, studied Grant's statements and showed that the warning had been there all along, not in the income statement but in the cash flows. Grant's operations had used more cash than they produced in most of the years before its collapse. Profit on paper had hidden the fact that the company was running out of money. Their study, published in 1980, helped persuade accountants that every company should publish a full statement of cash flows, which became required in the United States in 1987.

The big idea. The three statements tell one story from three sides. The **income statement** shows whether the business earned a profit over a period. The **balance sheet** shows what it owns and owes on one date. The **statement of cash flows** shows where the cash actually came from and went. Net income flows into **retained earnings** on the balance sheet, and the cash-flow statement explains the change in the balance sheet's cash line. Worked example for one month: a shop sells \$5,000 of goods, \$4,000 for cash and \$1,000 on credit; pays \$3,500 in expenses in cash; and buys a \$1,000 display case with cash. *Income statement:* revenue \$5,000 – expenses \$3,500 = net income \$1,500. *Cash flows:* operating 4,000 – 3,500 = +\$500; investing – \$1,000; net change in cash –\$500. *Balance sheet changes:* cash –\$500, receivables

+\$1,000, equipment +\$1,000, total assets +\$1,500; retained earnings +\$1,500. Both sides rose by \$1,500, so assets still equal liabilities plus equity. The shop earned \$1,500 and has \$500 less cash.

In business today. Bankers and owners read all three statements together. A wise owner watches cash every week, collects what customers owe, does not buy more inventory than will sell, and remembers that bills are paid with cash, not with profit. Luca Pacioli, who described double entry in 1494, told merchants never to go to bed until the day's accounts were balanced.

PICTURE STUDY



The Title Page of Pacioli's *Summa de arithmetica*, Luca Pacioli (author); printed in Toscolano, 1523 edition (first published in Venice, 1494) · Printed book · Library collections

Image: [Wikimedia Commons](#), public domain

Luca Pacioli was a Franciscan friar and a teacher of mathematics. His great book, the *Summa de arithmetica*, first printed in Venice in 1494, included a section on bookkeeping that taught merchants across Europe the Venetian method of double entry. This is the title page of the second edition of 1523, with a list of what the book contains. Every modern set of financial statements grows from the method in this book.

Look closely

- Look at the type and the knotwork border. How is a printed page of 1523 different from a modern textbook?
- Find the large title words. Which can you read?
- Look at the list of contents. Can you spot any words that look like “Venice” or “book” (quaderno)?

Talk about it

1. Why did printing help double-entry bookkeeping spread across Europe?
2. Pacioli taught that every entry must have two sides. How does that rule help catch mistakes?

3. Which of the three statements could a merchant of 1494 have made from his books? Which came later?

PROJECT

One Month, Three Statements

You will record one month of transactions for a small business and prepare all three statements, then check that they fit together.

You will need

- Ledger notebook, calculator or spreadsheet
- The transaction list below

Steps

1. The business starts the month with: cash \$800, no receivables, equipment \$400, no debts, owner's equity \$1,200.
2. Record these transactions in a journal (date, accounts, debit, credit): (1) sells \$1,200 of goods for cash; (2) sells \$500 on credit to a church that will pay next month; (3) buys \$600 of supplies for cash and uses all of them this month; (4) pays \$300 rent; (5) borrows \$1,000 from a parent; (6) buys a \$900 oven with cash; (7) repays \$100 of the loan.
3. Prepare the income statement: revenue, expenses, net income.
4. Prepare the statement of cash flows: operating, investing and financing sections, and the net change in cash.
5. Prepare the ending balance sheet: cash, receivables, equipment; loan payable; owner's equity (beginning equity + net income).
6. Check the links: (a) beginning cash + net change = ending cash; (b) assets = liabilities + equity.
7. Write a paragraph: Did the business earn a profit? Did its cash go up or down? Why are the two different?

Tips

- Borrowing and repaying a loan are financing cash flows; they are not revenue or expenses.
- Buying an oven is an investing cash flow; it becomes equipment on the balance sheet, not an expense this month.

Check your work

- ☐ I can prepare all three statements.
- ☐ My statements pass both checks.
- ☐ I can explain why profit and cash differ, with W. T. Grant as an example.

LEDGER NOTEBOOK

1. Draw three boxes for the statements with arrows: net income to retained earnings, and the cash-flow total to the cash line.
2. Copy your three statements neatly.
3. Write the W. T. Grant story in five sentences with the lesson it teaches.

From history. The rule that U.S. companies publish a full statement of cash flows came from the Financial Accounting Standards Board, a private body that sets accounting rules, in its Statement No. 95, issued in 1987. Before then, companies published a looser “statement of changes in financial position.”

COMMON MISTAKES

- Thinking profit equals cash. Credit sales, inventory and equipment purchases make them differ.
- Putting a loan in revenue. Borrowed money must be repaid; it is a liability.
- Expensing a long-lasting purchase all at once. Equipment goes on the balance sheet and is used up over time.

Make it a game • Three-Statement Sort. Write twelve cards, each with a line from a small business: sales, rent expense, cash, accounts receivable, retained earnings, cash collected from customers, net income and more. Set three piles labeled for the three financial statements. Sort the cards against a timer, then explain where net income appears in each. Shuffle and beat your own time for the sort.

7.2 RATIOS AND CREDIT: LEWIS TAPPAN'S MERCANTILE AGENCY

OBJECTIVES

- Tell how Lewis Tappan founded the first American credit-reporting agency in 1841.
- Calculate and interpret the current ratio, debt-to-equity, gross and net profit margin, and return on equity.
- Use ratios to compare two businesses and decide which is the safer borrower.

Warm-up. A friend asks to borrow \$20 and promises to repay it next week. What would you want to know about him first? List three things. Which can you measure?

WATCH

Financial ratio analysis

The Finance Storyteller • 10:09

<https://www.youtube.com/watch?v=MTq7HuvoGck>

WHEN TO WATCH

After the worked example, before the credit analyst project.

BACKUP VIDEO

3 Liquidity Ratios You Should Know

Accounting Stuff • 5:37

https://www.youtube.com/watch?v=4_GoWaMLGHI

Optional, for more on the current ratio.

KEY TERMS

credit report

A record of how a person or business has borrowed and repaid, used by lenders and suppliers to judge trustworthiness.

current ratio

Current assets ÷ current liabilities; a measure of whether a business can pay its bills due within a year.

debt-to-equity ratio

Total liabilities $\div$ owners' equity; a measure of how much a business depends on borrowed money.

net profit margin

Net income $\div$ revenue $\times 100$; how many cents of profit each dollar of sales brings.

return on equity

Net income $\div$ owners' equity $\times 100$; how much profit the owners' money is earning.

CORE IDEAS

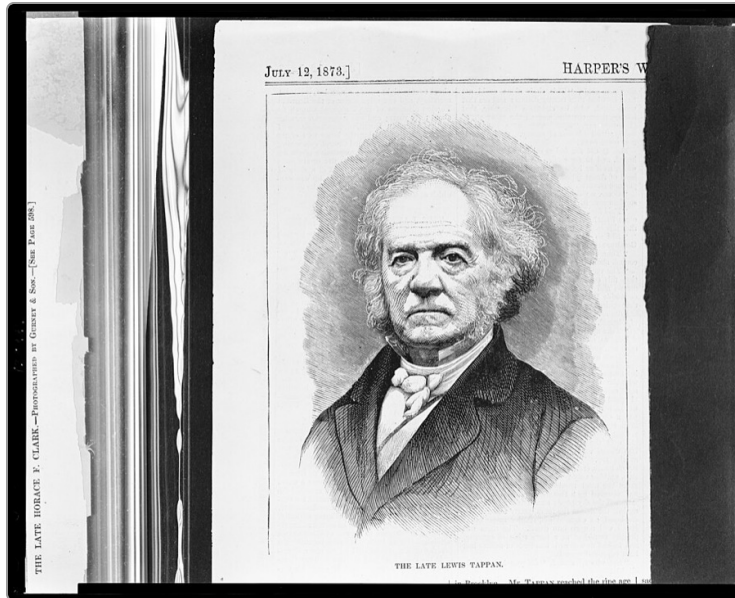
The story. Lewis Tappan was a New York silk merchant, a devout evangelical Christian and a tireless reformer. In the Panic of 1837 many merchants were ruined, including Tappan and his brother, partly because they had sold goods on credit to faraway storekeepers they could not judge. Recovering, Tappan saw a need: wholesalers in New York had no reliable way to know whether a storekeeper in Ohio or Tennessee was honest and able to pay. In 1841 he founded the Mercantile Agency.

How they figured it out. Tappan built a network of correspondents, often local lawyers and bankers, across the country, who sent in regular reports on the merchants in their towns: their character, their habits, their property and how they paid their debts. Clerks copied the reports into huge ledgers in New York, and subscribers paid to read them. The agency grew into R. G. Dun & Company, and in 1933 it merged with its rival, Bradstreet, to form Dun & Bradstreet, which still issues business credit reports. Early reports relied heavily on judgments of character, which could be unfair or mistaken; over time, credit analysts relied more on the numbers in a business's financial statements.

The big idea. Ratios turn financial statements into a few telling numbers. Worked example for Shop A: current assets \$30,000, current liabilities \$12,000, total liabilities \$40,000, owners' equity \$60,000, revenue \$200,000, cost of goods sold \$120,000, net income \$15,000. *Current ratio* = $30,000 \div 12,000 = 2.5$ (it has \$2.50 of near-term assets for each \$1 of near-term bills; above about 1.5 is usually comfortable). *Debt-to-equity* = $40,000 \div 60,000 \approx 0.67$. *Gross margin* = $(200,000 - 120,000) \div 200,000 \times 100 = 40\%$. *Net margin* = $15,000 \div 200,000 \times 100 = 7.5\%$. *Return on equity* = $15,000 \div 60,000 \times 100 = 25\%$. A ratio means most when compared with the same business last year or with similar businesses.

In business today. Banks, suppliers and investors calculate these ratios before they lend, ship goods on credit or invest. Individuals have credit reports and credit scores too, built from their history of paying bills on time. A good name in business is built the same way it was in Tappan's day: by paying what you owe, when you said you would. "A good name is rather to be chosen than great riches" (Proverbs 22:1).

PICTURE STUDY



The Late Lewis Tappan, Unknown engraver, 1873 · Wood engraving · *Harper's Weekly*, July 12, 1873;
Library of Congress

Image: [Wikimedia Commons](#), public domain

This engraved portrait was printed in a newspaper in 1873, the year Lewis Tappan died. By then the credit agency he had founded more than thirty years earlier had offices in many cities. Tappan himself had long since left the business to give his time to Christian missions and reform.

Look closely

- Look at Tappan's face and dress. What kind of man does he seem to be?
- Look at how the engraver used lines to make light and shadow. How long might this have taken to cut?
- Imagine the ledgers of his agency. What kinds of facts about merchants would they contain?

Talk about it

1. Why would a merchant in New York pay for reports about a storekeeper a thousand miles away?
2. What is fair and unfair about judging a borrower by his "character"?
3. Which ratios would have given Tappan's customers better information than opinions alone?

PROJECT

The Credit Analyst: Which Shop Gets the Loan?

You will act as a credit analyst for a bank. Two shops each ask to borrow \$20,000. You will calculate their ratios, compare them, and write a credit report recommending which loan to make.

You will need

- The two shops' figures below
- Ledger notebook, calculator or spreadsheet
- Optional: the summary financial statements of a well-known company, printed by a parent

Steps

1. Shop A: current assets \$30,000; current liabilities \$12,000; total liabilities \$40,000; equity \$60,000; revenue \$200,000; cost of goods sold \$120,000; net income \$15,000.
2. Shop B: current assets \$18,000; current liabilities \$20,000; total liabilities \$90,000; equity \$30,000; revenue \$240,000; cost of goods sold \$168,000; net income \$12,000.
3. Make a table with a row for each ratio (current ratio, debt-to-equity, gross margin, net margin, return on equity) and a column for each shop. Calculate all ten.
4. Mark which shop looks stronger on each ratio.
5. Write a one-page credit report in Tappan's style: Business, Character (what you would want to know), Capacity (ratios), Recommendation, Conditions (for example, a lower amount or collateral).
6. Optional: calculate the current ratio and net margin for a real company from its printed summary statements and compare it with Shop A.

Tips

- A current ratio below 1 means current bills exceed current assets: a warning sign for a short-term lender.

- A high return on equity can come from heavy borrowing; check debt-to-equity too.

Check your work

- ☐ I can calculate the five ratios correctly.
- ☐ My credit report compares the shops and gives reasons for my recommendation.
- ☐ I can explain what Lewis Tappan's agency did and why it was needed.

LEDGER NOTEBOOK

1. Copy your ratio table and draw a bar graph comparing the two shops on each ratio.
2. Write each ratio formula on its own line with a one-sentence meaning.
3. Make a timeline: 1837 Panic; 1841 Mercantile Agency; 1859 R. G. Dun & Company; 1933 Dun & Bradstreet.

From history. Many small-town lawyers, bankers and shopkeepers sent reports to the credit agencies in the 1800s. The old ledgers of R. G. Dun & Company, now kept at Harvard Business School's Baker Library, are used by historians to study thousands of nineteenth-century businesses.

COMMON MISTAKES

- Reading one ratio alone. A business can have a strong margin and dangerous debt.
- Mixing up current and total liabilities. The current ratio uses only bills due within a year.
- Forgetting to multiply margins and returns by 100 to show a percent.

Make it a game • Loan Officer Duel. Your parent secretly writes the figures for two pretend shops: current assets and liabilities, debt, equity, sales and profit. You have two minutes to calculate the current ratio, debt-to-equity, net profit margin and return on equity for each. Decide which shop gets the loan and defend the choice, like Lewis Tappan's agents did with credit reports.

7.3 AUDITS AND THE ENRON COLLAPSE

OBJECTIVES

- Tell how Enron hid debts and losses and collapsed in 2001, and what happened to its workers, investors and auditor.
- Explain what an independent audit is and how internal controls catch errors and fraud.
- Perform a simple audit of a set of records and report what you find.

Warm-up. Your class collected money for a gift. One student kept the money and the list. What could go wrong? What simple rules would make it hard for anyone to make a mistake or take money without being noticed?

WATCH

The Enron Scandal - A Simple Overview

Company Man · 10:43

<https://www.youtube.com/watch?v=hwoLLZoVmUc>

WHEN TO WATCH

After the story of Enron; parents may want to preview it first.

Note: Company Man tells the Enron story plainly in about ten minutes.

BACKUP VIDEO

What is an Audit?

IFAC · 3:58

<https://www.youtube.com/watch?v=OSbS9rxcfmY>

Before the audit project: what an auditor does, from the International Federation of Accountants.

KEY TERMS

audit

An independent examination of a business's records and statements by a qualified outside accountant, who gives an opinion on whether they are fairly presented.

internal controls

The rules and checks inside a business that protect its assets and make its records reliable, such as two people counting cash.

segregation of duties

Dividing tasks so that no one person both handles money and keeps the records of it.

off-balance-sheet entity

A separate company set up so that its debts do not appear on the main company's balance sheet.

whistleblower

A person inside an organization who reports wrongdoing.

CORE IDEAS

The story. Enron, based in Houston, Texas, began in 1985 as a natural-gas pipeline company and grew into a giant energy-trading firm. By 2000 it reported more than \$100 billion in revenue and was praised as one of America's most innovative companies. But much of its reported profit came from booking, in advance, profits it only hoped to earn in future years, and it hid billions of dollars of debt in hundreds of separate partnerships, **off-balance-sheet entities**, some run by its own finance chief. In October 2001 Enron announced a large loss and a cut of more than a billion dollars in its shareholders' equity. In November it admitted that it had overstated its profits for years. On December 2, 2001, it filed for bankruptcy, then the largest in American history.

How they figured it out. In August 2001 an Enron vice president, Sherron Watkins, an accountant, wrote a warning letter to the company's chairman that the accounting could cause the company to "implode." Reporters and analysts had also begun asking how Enron actually made its money. When the truth came out, thousands of Enron employees lost their jobs, and many lost most of their retirement savings, because their retirement plans had been heavily invested in Enron stock. Arthur Andersen, the large accounting firm that had audited Enron, was found to have shredded Enron documents and was convicted in 2002 of obstructing justice; the conviction was later overturned, but the firm had already collapsed. Several Enron executives went to prison. In 2002 Congress passed the Sarbanes-Oxley Act, which requires chief executives and chief financial officers to sign personally that their financial statements are true, strengthens auditors' independence, and created a board to oversee auditors.

The big idea. An **audit** is an independent check of a company's records. Auditors test samples of transactions, count inventory, confirm balances with banks and customers, and examine **internal controls**. The most important control is **segregation of duties**: the person who handles cash should not be the person who records it, and two people should count it. Enron shows what happens when these protections fail: when the auditor depends on the client for large fees, when executives are rewarded for reported profits, and when people who see problems are afraid to speak. Worked example of why sampling works: if 1 in 20 invoices in a stack is fake and an auditor checks 30 at random, the chance of finding none is $(19/20)^{30} \approx 0.21$, so about a 79% chance of catching at least one.

In business today. Every public company in the United States must be audited each year. Small businesses, churches and charities also use outside reviews and simple controls: two counters, deposit slips, bank statements reconciled monthly by someone who does not write checks. Honest books protect the honest. "He that walketh uprightly walketh surely: but he that perverteth his ways shall be known" (Proverbs 10:9).

PICTURE STUDY



The Tax Collectors, Marinus van Reymerswaele, about 1540 · Oil on panel · Musée du Louvre, Paris

Image: [Wikimedia Commons](#), public domain

Marinus van Reymerswaele painted several versions of this scene in the Netherlands in the 1540s. It shows two officials, perhaps collecting town taxes on goods. The faces and hats are exaggerated on purpose: the artist was warning about greed. The writing in the account book is real enough to read in some versions, and lists taxes collected on goods sold in the town.

Look closely

- Look at the faces of the two men. How are they different from each other?
- Find the account book and the coins. What is each man doing with them?
- Look at the shelf and the papers behind them. What do they tell you about this office?

Talk about it

1. One man writes the records while the other handles the money. Is that a good control? What could still go wrong?
2. What would an auditor want to check in this office?
3. Why might a painter of 1540 and an accountant of 2001 both warn about the same temptation?

PROJECT

Be the Auditor

A parent will prepare a small set of records for a pretend bake sale, with a few honest mistakes and one or two hidden problems. You will audit them and write an auditor's report.

You will need

- A parent-prepared packet: a sales tally sheet, 15–20 receipts, a cash count sheet, a deposit slip and a one-page income statement
- Ledger notebook and calculator

Steps

1. Parent preparation (do not look): make a tally of sales, receipts for supplies, a cash count and a deposit slip. Include two honest arithmetic errors and one hidden problem, such as a receipt counted twice, a missing deposit or a sale left off the tally.
2. Add up the sales tally and compare it with the cash count and the deposit slip. Record any difference.
3. Check every receipt against the expense list. Look for duplicates, missing dates and amounts that do not match.
4. Recalculate the income statement. Does it match your totals?
5. List each problem you found: what it is, how much, and whether it looks like an honest error or something to investigate.
6. Write a one-page auditor's report: what you examined, what you found, your opinion (fairly presented or not), and three internal controls you recommend for next year.
7. Discuss with your parent: which problems did you catch? Which did you miss, and what check would have caught them?

Tips

- Start with totals, then follow the differences.
- An auditor is fair: report what you find, and do not accuse anyone of dishonesty without evidence.

Check your work

- ☐ I can explain what an audit is and why it must be independent.
- ☐ I found most of the planted problems and explained them clearly.
- ☐ My report recommends at least three sensible internal controls.

LEDGER NOTEBOOK

1. Make a timeline of Enron: 1985 founded; 2000 reported revenue over \$100 billion; August 2001 Watkins letter; October 2001 loss announced; December 2, 2001 bankruptcy; 2002 Sarbanes–Oxley Act.
2. Draw a diagram of segregation of duties for a bake sale: who sells, who counts, who records, who deposits, who checks the bank statement.
3. Copy your auditor's findings table.

From history. Before it collapsed, Arthur Andersen employed about 85,000 people around the world and was one of the five largest accounting firms. Its founder, Arthur Andersen, had built the firm's name in the early 1900s on a reputation for refusing to approve clients' misleading accounts.

COMMON MISTAKES

- Thinking an audit proves there is no fraud. Auditors test samples and give an opinion; they can be fooled, as at Enron.
- Thinking controls mean distrust. Good controls protect honest people from suspicion as well as catching mistakes.
- Thinking a company that grows fast and reports big profits must be healthy. Check the cash flows and the debts.

Make it a game • Find the Weak Control. Your parent hides five index cards around the house, each describing a pretend business problem, such as one person who both handles cash and records it. Find each card and name the internal control that would fix it, including segregation of duties. Then explain how Enron hid debts in off-balance-sheet entities. One point per fix, one for each Enron fact.

Scripture. “He that walketh uprightly walketh surely: but he that perverteth his ways shall be known.” (Proverbs 10:9, KJV)

Enron's leaders thought clever accounting could hide the truth forever. It was known within months. Honest books are not only right; they are the only safe path.

7.4 NONPROFIT AND CHURCH ACCOUNTING: GEORGE MÜLLER'S OPEN BOOKS

OBJECTIVES

- Tell how George Müller ran the Bristol orphan houses and published an account of every gift.
- Explain fund accounting: restricted and unrestricted gifts, and the statement of activities.
- Keep a month of fund accounts for a church or charity project and report them to givers.

Warm-up. If you gave \$10 to a church collection for a family whose house had burned, what would you expect to happen to your \$10? How would you know it did? Write your answer.

WATCH

What is Fund Accounting?

Aplos • 4:05

<https://www.youtube.com/watch?v=W5D5Dr0j9j4>

WHEN TO WATCH

After the big idea, before the fund ledger.

Note: Made by a company that sells church and nonprofit accounting software; it explains fund accounting clearly. Skip any closing promotion.

KEY TERMS

nonprofit organization

An organization, such as a church, school or charity, that uses any surplus for its mission rather than paying it to owners.

fund accounting

Keeping separate accounts, called funds, for money given or set aside for different purposes.

restricted gift

A gift the giver has designated for a specific purpose, which may be used only for that purpose.

statement of activities

A nonprofit's version of an income statement, showing gifts and other revenue, expenses, and the change in net assets.

stewardship report

A report to givers showing how their gifts were received and used.

CORE IDEAS

The story. George Müller was born in Prussia in 1805 and became a pastor in Bristol, England. In 1836 he opened a home for orphan children, and by 1870 he had built five large orphan houses on Ashley Down, caring for about 2,000 children at a time and more than 10,000 over his lifetime. Müller made a decision unusual for a charity: he would never ask anyone for money, but only pray and let the needs be known through the work itself. He received, over his life, gifts totaling about one and a half million pounds, a vast sum in his day.

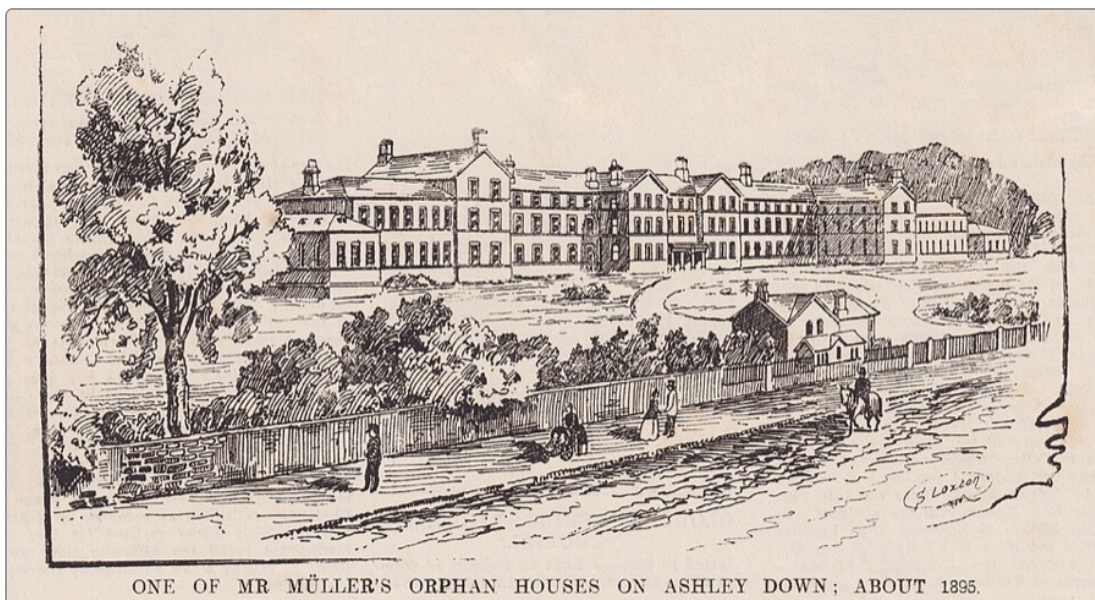
How they figured it out. Because he never asked for money, Müller believed he owed givers and the public complete openness. Every year he published a *Report* listing every gift received, often by date, place and the giver's initials, along with how the money was spent: food, clothing, schooling, buildings and the missionaries and schools he also supported. Gifts given for a particular purpose, such as building a new house, were kept for that purpose. Visitors were welcome to see the homes at set times. Children left the houses able to read and write and trained for a trade or for service, at a time when many poor children received no schooling at all.

The big idea. A **nonprofit organization** does not have owners who take profits, so its accounts are built around purposes instead. In **fund accounting**, each fund is like its own small ledger. **Restricted gifts** may be used only for the purpose the giver chose; unrestricted gifts may be used for any part of the mission. The **statement of activities** shows revenue and gifts, expenses, and the change in net assets for each kind of fund. Worked example: a church receives \$12,000 in a month: \$9,000 in general offerings (unrestricted), \$2,000 for a missions trip (restricted), and \$1,000 for a new roof (restricted). It spends \$8,500 on general expenses and \$1,200 on the trip. Net change: unrestricted +\$500; missions fund +\$800; roof fund +\$1,000. Even if the

general fund were short, the church could not borrow from the roof fund without the givers' permission.

In business today. Churches and charities use simple, strong controls: two unrelated people count every offering and sign the count sheet; deposits are made promptly; someone who does not write checks reconciles the bank statement; and the books are reviewed each year by people outside the treasurer's office. Paul handled the Jerusalem collection the same way, traveling with trusted companions "that no man should blame us" and "providing for honest things, not only in the sight of the Lord, but also in the sight of men" (2 Corinthians 8:20-21).

PICTURE STUDY



The Müller Orphan Houses at Ashley Down, Bristol, Unknown engraver, 1895 · Engraving · Bristol, England

Image: [Wikimedia Commons](#), public domain

These buildings on Ashley Down were built entirely from gifts that George Müller never asked for. This engraving shows one of them about 1895, when Müller was nearly ninety and still overseeing the work. Today the buildings are part of a college and apartments, and the charity that bears his name continues to serve children and families.

Look closely

- Count the rows of windows. How many children do you think lived in a building this size?
- Look at the grounds around the building. What might the children have done there?
- Look at the plainness of the building. What does it say about how the money was spent?

Talk about it

1. Why would a man who never asked for money publish every gift he received?
2. What would givers want to know about how a building like this was paid for?
3. How could a church or charity in your town show the same openness today?

PROJECT

The Fund Ledger and a Stewardship Report

You will keep fund accounts for a month of a real or pretend church or charity project, such as a youth group raising money for a mission trip and a food pantry, and then write a stewardship report to the givers.

You will need

- Ledger notebook or a spreadsheet with three columns of funds
- The transaction list below, or real records from a project you help with (with the leader's permission)
- Calculator

Steps

1. Set up three funds: General (unrestricted), Mission Trip (restricted), Food Pantry (restricted). Starting balances: \$200, \$0, \$50.
2. Record these transactions in the right funds: (1) bake sale raises \$340, of which \$140 was given "for the mission trip"; (2) a family gives \$100 for the pantry; (3) general offering for the youth group \$75; (4) buy \$60 of pantry food; (5) pay \$45 for bake-sale supplies from General; (6) pay a \$250 deposit for the trip; (7) car wash raises \$180 for the trip.
3. Find each fund's ending balance and the total.
4. Prepare a simple statement of activities: revenue and gifts, expenses, and change in net assets for each fund.
5. Write down the internal controls you would use: who counts, who records, who deposits, who checks.
6. Write a one-page stewardship report to the givers, in plain words, telling what was given, what was spent, what is left in each fund and what comes next.
7. Answer: the General fund is short \$40 next month and the Mission Trip fund has \$500. May the treasurer move \$40? What should he do instead?

Tips

- Restricted means restricted: never move restricted money to another purpose without the givers' consent.
- A stewardship report should be short and clear enough for a child to understand.

Check your work

- ☐ I can explain fund accounting and restricted gifts.
- ☐ My fund ledger balances and each fund's ending balance is correct.
- ☐ My stewardship report is clear and honest.

LEDGER NOTEBOOK

1. Draw three jars labeled with the funds, and write each fund's ending balance on its jar.
2. Copy your statement of activities.
3. Write a short list of rules for counting a church offering, as you would post it on the wall of the counting room.

From history. George Müller began traveling as a preacher when he was seventy and over seventeen years visited many countries, speaking to millions. He died in 1898, at the age of 92, in the orphan house where he lived. His personal possessions at his death were worth only a little over £100.

COMMON MISTAKES

- Borrowing from a restricted fund to cover a shortfall elsewhere. It breaks faith with the givers.
- Thinking charities do not need controls because everyone is trustworthy. Controls protect trustworthy people from suspicion.
- Reporting only totals. Givers want to know how their gifts for each purpose were used.

Make it a game • Müller's Open Books. Label three cups: orphan food, building fund and wherever needed. Your parent hands you beans, each marked with how it was given. Record every gift on a paper ledger and spend only as each gift allows. Your parent tries to tempt you to use restricted gifts for the wrong purpose. Finish with a stewardship report to your parent, as George Müller published.

Scripture. “Avoiding this, that no man should blame us in this abundance which is administered by us: Providing for honest things, not only in the sight of the Lord, but also in the sight of men.” (2 Corinthians 8:20-21, KJV)

Paul carried a large gift for the poor in Jerusalem and made sure that trusted companions went with him so that no one could suspect him. Good church accounting follows the same rule: honest before God and openly honest before people.

ACCOUNTING

Accounting is the language of business. In earlier years you kept ledgers and learned the income statement and the balance sheet. This year you will put the **three financial statements** together: the income statement, the balance sheet and the statement of cash flows, and see how one sale or one purchase moves through all three. You will learn why a company can show a profit and still run out of cash, as the W. T. Grant stores did in 1975, and how bankers and suppliers use **ratios** to judge a business, a practice that began with Lewis Tappan's credit reports in 1841.

Then you will study why honest books need **independent audits**, through the collapse of Enron in 2001, and how charities and churches keep accounts for money given for special purposes, following the example of George Müller, who published every gift to his orphan houses in Bristol. Luca Pacioli wrote in 1494 that a merchant should not go to sleep until his accounts were in order; this unit will show you why. For the portfolio you will prepare and analyze a full set of statements for a small business.

PREREQUISITES

- Knows debits and credits, the ledger, the income statement and the balance sheet (earlier grades), or reviews them first
- Knows $\text{assets} = \text{liabilities} + \text{owner's equity}$
- Can calculate percents and ratios

MASTERY CHECKLIST

- ☐ I can prepare a simple income statement, balance sheet and statement of cash flows and show how they connect.
- ☐ I can explain why profit and cash are not the same, using the W. T. Grant case.
- ☐ I can calculate and interpret the current ratio, debt-to-equity, profit margin and return on equity.
- ☐ I can explain what an auditor does and how Enron's books deceived investors.
- ☐ I can keep fund accounts for a church or charity, separating restricted and unrestricted gifts.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **Accounting Stuff (free videos and practice)**: Free. Short, clear lessons on the three statements, ratios and bookkeeping, from the same teacher whose videos appear in this unit. Ages 13+.
- **Monopoly (Hasbro), played with a real ledger**: Optional family game. Keep a balance sheet for your player at the end of each round of play (cash, property at cost, mortgages owed) and calculate your own debt-to-equity ratio. Ages 8+.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

7.1 The Three Financial Statements Together	2 sessions of 60 minutes
7.2 Ratios and Credit: Lewis Tappan's Mercantile Agency	2 sessions of 60 minutes
7.3 Audits and the Enron Collapse	2 sessions of 60 minutes
7.4 Nonprofit and Church Accounting: George Müller's Open Books	2 sessions of 60 minutes

UNIT 7 REVIEW

Answer each question. Show your work for calculations and use complete sentences for explanations. The review is worth 100 points.

1. **8 pts**

Name the three financial statements and what each shows.

2. **10 pts**

A business sells \$8,000 of goods (\$6,000 cash, \$2,000 on credit), pays \$5,500 of expenses in cash, and buys a \$1,500 machine with cash. Find net income and the net change in cash.

3. **8 pts**

How did the W. T. Grant Company show profits and still go bankrupt?

4. **6 pts**

What did Lewis Tappan's Mercantile Agency do, and why was it needed?

5. **12 pts**

A shop has current assets \$45,000, current liabilities \$30,000, total liabilities \$50,000, equity \$100,000, revenue \$300,000 and net income \$18,000. Calculate the current ratio, debt-to-equity, net margin and return on equity.

6. **6 pts**

Why should a lender look at debt-to-equity as well as return on equity?

7. **8 pts**

Name two ways Enron made its finances look better than they were.

8. **8 pts**

What does the Sarbanes-Oxley Act of 2002 require of chief executives and auditors?

9. **8 pts**

What is segregation of duties? Give an example for a church offering.

10. **6 pts**

If 1 in 10 receipts is wrong and an auditor checks 20 at random, what is the chance of finding none? (Use 0.9 to the 20th power.)

11. **10 pts**

A charity receives \$5,000 unrestricted and \$3,000 restricted for a new van. It spends \$4,200 on programs. What is the change in each fund? May it use the van money to pay for programs?

12. **10 pts**

Explain in a paragraph why George Müller published every gift, and what that teaches about honest accounting.

ANSWER KEY

1. Income statement: revenue, expenses and net income over a period. Balance sheet: assets, liabilities and equity on one date. Statement of cash flows: cash in and out from operating, investing and financing over a period.
2. Net income = $8,000 - 5,500 = \$2,500$. Cash: operating $6,000 - 5,500 = +500$; investing $-1,500$; net change $-\$1,000$.
3. Its income statement showed profits, but much of its sales were on store credit that customers paid slowly or never, and it piled up unsold inventory; its operations used more cash than they brought in for years, so it borrowed until it could not pay its bills.
4. It collected reports from local correspondents on merchants' character, property and payment habits and sold them to subscribers, so wholesalers could judge distant storekeepers before selling on credit.
5. Current ratio 1.5; debt-to-equity 0.5; net margin 6%; return on equity 18%.
6. A high return on equity can come from heavy borrowing, which makes the business riskier; debt-to-equity shows how much it depends on borrowed money.
7. Booking future hoped-for profits in advance; hiding billions in debt in off-balance-sheet partnerships; overstating profits for years.
8. Chief executives and chief financial officers must personally certify that the financial statements are true; auditors' independence was strengthened; a board was created to oversee auditors.
9. Dividing tasks so no one person both handles money and records it. Example: two unrelated people count and sign the count sheet, another deposits, and someone who does not write checks reconciles the bank statement.
10. $0.9^{20} \approx 0.12$, so about a 12% chance of finding none and an 88% chance of finding at least one.
11. Unrestricted $+\$800$; van fund $+\$3,000$. No: restricted gifts may be used only for the van unless the givers consent.
12. A strong answer: because he never asked for money, he owed givers openness; publishing gifts and spending let anyone check that money was used as given; honest, open books build trust, protect the treasurer from suspicion and honor God (2 Corinthians 8:20-21).

PORTFOLIO PIECE: A FULL SET OF STATEMENTS AND AN ANALYSIS

Choose a real small business you have run (for example in Units 6 or 9), a family project, or a detailed case your parent prepares with at least 20 transactions over one month. Prepare a journal, a ledger, and all three financial statements, and show that they connect. Then calculate at least four ratios, write a two-page analysis of how healthy the business is, what its cash flow shows, what internal controls it uses or needs, and what you recommend. If you choose a church or charity project instead, use fund accounting and include a stewardship report.

LOOK FOR	WHAT IT MEANS
Records	A complete, dated journal and ledger with every transaction recorded correctly.
Statements	All three statements are correct and pass the connection checks.
Ratios	At least four ratios are calculated correctly and explained.
Analysis and controls	A clear analysis of health and cash flow, with sensible internal controls.
Honesty and presentation	Neat, honest and complete; errors found are corrected openly, not hidden.

UNIT 8

FINANCE

Finance is the study of money over time and under risk. A dollar today is worth more than a dollar next year, because today's dollar can be put to work; that idea, the **time value of money**, sits underneath savings accounts, loans, stocks, bonds and insurance. In this unit you will calculate present and future values with the story of the sale of Manhattan in 1626, learn what a share of stock is and why John Bogle's first index fund of 1976 changed investing for ordinary families, and see why bond prices fall when interest rates rise, using Britain's 260-year-old consols and America's Liberty Bonds.

Then you will study **insurance**, from the merchants and shipowners at Edward Lloyd's coffee house to Benjamin Franklin's fire company, and how spreading risk lets many carry one another's burdens. The year ends with your **capstone pitch** and a **family market day**. All investing in this unit is practice with pretend money. Scripture's counsel runs through it all: plan diligently (Proverbs 21:5), spread your risks (Ecclesiastes 11:2), avoid needless debt (Proverbs 22:7), and give generously (2 Corinthians 9:7).

PREREQUISITES

- Knows simple and compound interest and percent change
- Can use exponents and a calculator's power key
- Has a business plan packet and pitch from Unit 6

MASTERY CHECKLIST

- ☐ I can calculate future value and present value and use the rule of 72.
- ☐ I can explain what a stock and an index fund are, and how fees and diversification affect returns.
- ☐ I can explain why bond prices fall when interest rates rise, with a worked example.
- ☐ I can explain how insurance pools risk and calculate an expected loss.
- ☐ I can deliver a capstone pitch and present my year's work at a family market day.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **The Way to Wealth, by Benjamin Franklin (1758)**: Free. Franklin's sayings about work, thrift and debt, from Poor Richard's Almanack. Read three aloud in Lesson 8.1 or 8.4. Ages 10+.
- **The Stock Market Game (SIFMA Foundation)**: A practice investing game with pretend money, offered through schools and some homeschool groups. A parent registers. Good alongside Lesson 8.2. No real money is invested.
- **TreasuryDirect: education pages**: The U.S. Treasury's site explaining savings bonds and Treasury bonds, bills and notes. Read only; any real purchase is a parent's decision. Good for Lesson 8.3.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

8.1 The Time Value of Money: Manhattan for Sixty Guilders	2 sessions of 60 minutes
--	--------------------------

8.2 The Stock Market and Index Funds	2 sessions of 60 minutes
---	--------------------------

8.3 Bonds and Interest Rates: Consols and Liberty Bonds	2 sessions of 60 minutes
--	--------------------------

8.4 Insurance and Risk, the Capstone Pitch and the Family Market Day

2 sessions of 60 minutes

UNIT 8 REVIEW

Answer each question. Show your work for calculations and use complete sentences for explanations. The review is worth 100 points.

1. **6 pts**

What does Pieter Schaghen's letter of 1626 say about the purchase of Manhattan, and what does it not say?

2. **10 pts**

Find the future value of \$2,000 at 6% for 15 years. Use the rule of 72 to estimate how long it takes to double.

3. (8 pts)

What is the present value of \$5,000 to be received in 4 years at a discount rate of 5%?

4. (8 pts)

What is an index fund, and why did John Bogle believe it would serve ordinary investors well?

5. (10 pts)

\$20,000 grows for 25 years at 7%, or at 6% because of a one-percent fee. Find both results and the difference.

6. (6 pts)

Explain diversification using Ecclesiastes 11:2.

7. (8 pts)

Define coupon, maturity and yield.

8. (10 pts)

A consol pays £5 a year forever. What is its price if market rates are 5%? 4%? 8%?

9. (6 pts)

Why did some families who bought Liberty Bonds receive less than they paid?

10. (8 pts)

How did underwriters at Lloyd's share risk?

11. (10 pts)

2,000 cars are each worth \$15,000. Each year about 1 in 250 is totally destroyed. What is the expected loss per car? What is a reasonable premium if the insurer adds \$20 for costs?

12. (10 pts)

In a paragraph, explain how a wise steward uses saving, investing and insurance together, with one verse.

ANSWER KEY

1. It says the settlers bought the island from the native people for the value of 60 guilders. It does not mention beads or \$24; those came from later retellings.
2. $2,000 \times 1.06^{15} \approx \$4,793.11$. Rule of 72: $72 \div 6 = 12$ years to double.
3. $5,000 \div 1.05^4 \approx \$4,113.51$.
4. A fund that owns all or nearly all the stocks in an index at low cost. Because all investors together earn the market's return before costs, the investors who pay the lowest costs keep the most on average; most actively managed funds trail the market after fees.
5. $20,000 \times 1.07^{25} \approx \$108,548.65$. $20,000 \times 1.06^{25} \approx \$85,837.41$. Difference $\approx \$22,711$.
6. Spreading money across many investments, giving a portion to seven and to eight, so that a loss in one does not ruin the whole, because no one knows what trouble will come.
7. Coupon: the fixed yearly interest a bond pays. Maturity: the date the principal is repaid. Yield: the return a buyer earns at the current price.
8. $5 \div 0.05 = \text{£}100$; $5 \div 0.04 = \text{£}125$; $5 \div 0.08 = \text{£}62.50$.
9. After the war interest rates rose, so the market prices of the older, lower-coupon bonds fell; families who sold before maturity got less than face value. Those who held to maturity were repaid in full.
10. A merchant wrote a description of a ship, voyage and cargo; several men each wrote their names under it, taking a part of the risk in return for a fee, so no one bore the whole loss if the ship was lost.
11. $(1 \div 250) \times 15,000 = \$60$. Premium about \$80.
12. A strong answer: saves an emergency fund for small losses; invests long-term money patiently, diversified and at low cost, without chasing quick riches; insures against large losses he could not bear; avoids needless debt; and gives generously. Verses such as Proverbs 21:5, Ecclesiastes 11:2, Proverbs 22:7, Galatians 6:2 or 2 Corinthians 9:7.

PORTFOLIO PIECE: A FAMILY FINANCE PLAN AND THE CAPSTONE

With a parent, choose one real family goal, such as saving for a car, a trip, college or a new roof. Write a three-page plan: the goal and its cost, the present value or future value calculations showing how much must be saved each month at a realistic interest rate, how the money could be kept safely, what risks could interrupt the plan and which ones insurance or an emergency fund would cover, and how giving fits in. Include a table and a graph. Attach your final capstone pitch script and your market-day ledger.

LOOK FOR	WHAT IT MEANS
Goal and numbers	A real goal with realistic costs and correct time-value calculations.
Safety and risk	Sensible choices for keeping money safe and for handling risks with savings and insurance.
Stewardship	The plan includes giving and reflects wise, patient, debt-careful stewardship.
Capstone pitch	A clear, honest pitch with statements, break-even and risks, delivered in about three minutes.
Market-day record	An honest sales ledger and a reflection on what to improve.

8.1 THE TIME VALUE OF MONEY: MANHATTAN FOR SIXTY GUILDERS

OBJECTIVES

- Tell the story of the Dutch purchase of Manhattan in 1626 and what the record actually says.
- Calculate future value and present value with the compound-interest formula and estimate doubling time with the rule of 72.
- Use the time value of money to compare choices, such as a prize now or more money later.

Warm-up. Would you rather have \$100 today or \$110 one year from now? Write your choice and your reason. Would your answer change if it were \$100 today or \$200 in ten years?

WATCH

Time value of money | Interest and debt | Finance & Capital Markets | Khan Academy

Khan Academy · 8:16

<https://www.youtube.com/watch?v=733mgqrzNKs>

WHEN TO WATCH

After the Manhattan story, before the time-value workbook.

BACKUP VIDEO

The time value of money - German Nande

TED-Ed · 3:37

<https://www.youtube.com/watch?v=MhvjCWfy-lw>

Optional, a short animated review.

KEY TERMS

time value of money

The principle that money available now is worth more than the same amount later, because it can earn interest or be put to work.

future value

What an amount today will grow to at a given interest rate after a number of periods: $FV = PV \times (1 + r)^n$.

present value

What an amount to be received in the future is worth today: $PV = FV \div (1 + r)^n$.

discount rate

The interest rate used to find the present value of future money.

rule of 72

A shortcut: money growing at r percent a year doubles in about $72 \div r$ years.

CORE IDEAS

The story. On November 5, 1626, a Dutch official named Pieter Schaghen wrote a letter from Amsterdam to the government of the Netherlands. Ships had just arrived from the colony of New Netherland, and he reported that the settlers had bought the island of Manhattan from the native people for the value of 60 guilders. The letter, kept today in the National Archives of the Netherlands, is the only record of the sale. Two centuries later, a historian converted 60 guilders into about \$24, and the story of “Manhattan for \$24 in beads” was born. The record does not mention beads, and historians believe the Lenape people probably understood the deal as joint use of the land, not giving it up forever.

How they figured it out. People have long joked that the Lenape were cheated. But in finance there is another way to look at it. What if \$24 had been invested in 1626 at a steady 6% a year? Using the **future value** formula, $FV = 24 \times 1.06^{400}$ for the 400 years to 2026, the answer is more than \$300 billion. At 8%, it would be hundreds of trillions of dollars, more than all the wealth in the world. The lesson is not about who got the better deal; it is about the astonishing power of compound growth over long periods, and how much depends on the rate.

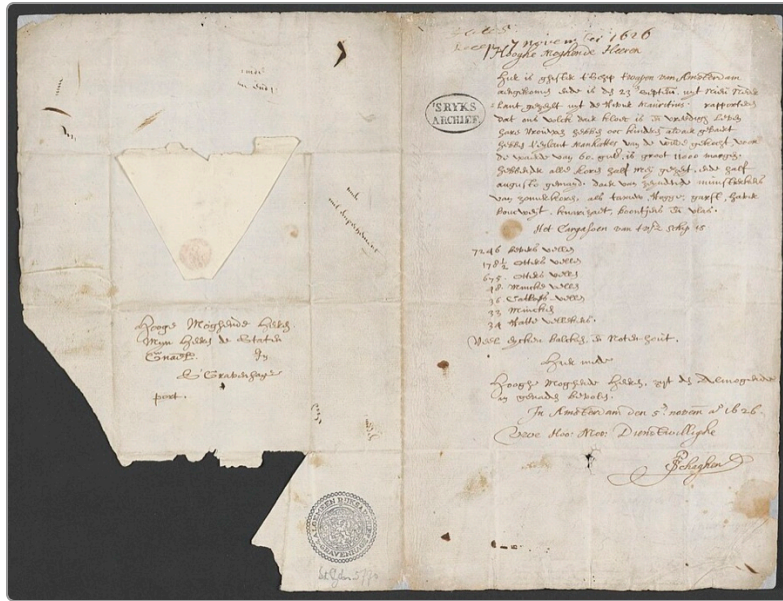
The big idea. The **time value of money** says a dollar now is worth more than a dollar later, because a dollar now can earn interest. **Future value:** $FV = PV \times (1 + r)^n$.

Example: \$1,000 saved at 5% for 10 years grows to $1,000 \times 1.05^{10} \approx \$1,628.89$. **Present value** works backward: $PV = FV \div (1 + r)^n$. Example: a promise of \$1,000 in 5 years, at a **discount rate** of 6%, is worth $1,000 \div 1.06^5 \approx \$747.26$ today. The **rule of 72** estimates doubling time: at 6%, about $72 \div 6 = 12$ years; at 9%, about 8 years.

In business today. Every loan, savings account, bond and business investment uses these formulas. A business deciding whether to buy a machine compares the present

value of the money it will save with the price. A family choosing between paying cash and a payment plan uses them too. Time is the saver's best friend and the borrower's worst enemy: start saving early, and avoid debts that compound against you. "The thoughts of the diligent tend only to plenteousness" (Proverbs 21:5).

PICTURE STUDY



Pieter Schaghen's Letter Reporting the Purchase of Manhattan, Pieter Schaghen, November 5, 1626 · Ink on paper · Nationaal Archief, The Hague
Image: [Wikimedia Commons](#), public domain

This letter is the earliest written record of the purchase of Manhattan. Schaghen wrote it to the States General, the government of the Dutch Republic, as a report of news brought by a ship from New Netherland. Besides the purchase, it lists the cargo the ship carried home: beaver and otter skins, and timber. Notice how much of the letter is about trade.

Look closely

- Look at the handwriting. How is it different from writing today?
- Find the signature at the bottom. Why would an official sign such a report?
- Look for numbers in the letter. What might they be counting?

Talk about it

1. Why is a single letter like this so important to historians?
2. The letter gives a price in guilders. Why is it hard to say what that price would be worth today?
3. What does the cargo list tell you about why the Dutch company wanted a colony there?

PROJECT

The Time-Value Workbook

You will build a small set of time-value tables in your ledger or a spreadsheet and use them to make three real decisions.

You will need

- Calculator with a power key, or a spreadsheet
- Ledger notebook and graph paper

Steps

1. Make a future-value table for \$1,000 at 2%, 5% and 8% for 10, 20, 30 and 40 years. Use $FV = 1,000 \times (1 + r)^n$.
2. Check the rule of 72 against your table: at 8%, does \$1,000 roughly double in 9 years?
3. Recompute the Manhattan question for 4%, 6% and 8% from 1626 to today. Write the answers in words (millions, billions, trillions).
4. **Decision 1:** a contest offers \$5,000 now or \$6,000 in three years. At a discount rate of 5%, which is worth more today? Show the present value of \$6,000.
5. **Decision 2:** you can save \$50 a month starting at 14 or starting at 24. Using a spreadsheet (or a parent's help with a savings calculator), compare the totals at age 65 at 6% a year. Write the difference.
6. **Decision 3:** a store offers a \$900 laptop for \$0 down and \$45 a month for 24 months. What is the total paid? How much more than the price? What interest rate does that suggest, roughly?
7. Graph \$1,000 at 2% and at 8% over 40 years on the same axes. Write two sentences about what the graph shows.

Tips

- In a spreadsheet, $=1000*(1+0.05)^{10}$ gives the future value of \$1,000 at 5% for 10 years.
- Small differences in rate become huge over long times. That is the whole lesson.

Check your work

- ☐ I can calculate future and present value.
- ☐ My tables and graph are correct and labeled.
- ☐ I can use the time value of money to make a real decision.

LEDGER NOTEBOOK

1. Copy your future-value table and graph.
2. Write the two formulas, FV and PV, and one worked example of each.
3. Make a timeline: 1626 Schaghen's letter; 1664 New Amsterdam becomes New York; the 1800s, the "\$24" story begins; today.

From history. The colony of New Netherland was run by the Dutch West India Company, a trading company like the East India Company. In 1664 an English fleet took New Amsterdam without a battle, and it was renamed New York after the king's brother, the Duke of York.

COMMON MISTAKES

- Multiplying the rate by the years instead of compounding. Five years at 6% is 1.06^5 , not $1 + 5 \times 0.06$.
- Using 6 instead of 0.06 in the formula.
- Forgetting that a promise of money later is worth less than the same money now.

Make it a game • Doubling Time Duel. Your parent calls out interest rates. Use the rule of 72 to give the doubling time within ten seconds, then check with a calculator. Score a point for each answer within a year. Then tell your parent what the record actually says about the Dutch purchase of Manhattan in 1626, and how many times sixty guilders would double in four hundred years at 6 percent.

Scripture. "The thoughts of the diligent tend only to plenteousness; but of every one that is hasty only to want." (Proverbs 21:5, KJV)

Compound growth rewards the patient and diligent saver, while haste, such as borrowing to have things now, often leads to want. The time value of money is this proverb written as a formula.

8.2 THE STOCK MARKET AND INDEX FUNDS

OBJECTIVES

- Explain what a share of stock is, how stock prices are set, and what a stock index measures.
- Tell how John Bogle started the first index fund for ordinary investors in 1976.
- Calculate how diversification and fees affect an investor's results, using a practice portfolio with pretend money.

Warm-up. If you could own a tiny piece of one company whose products you use, which would it be? Write why. Then ask: what could go wrong if all your savings were in that one company?

WATCH

How does the stock market work? - Oliver Elfenbaum

TED-Ed · 4:30

https://www.youtube.com/watch?v=p7HKvqRI_Bo

WHEN TO WATCH

Before the story of John Bogle.

Note: From TED-Ed.

BACKUP VIDEO

Three things to know about stocks

Khan Academy · 1:59

<https://www.youtube.com/watch?v=q739U0l0z6o>

After the big idea, as a short review.

KEY TERMS

stock (share)

A unit of ownership in a company, which entitles the owner to a part of its profits and a say in some decisions.

dividend

A part of a company's profit paid out to shareholders.

stock index

A number that tracks the prices of a group of stocks, such as the S&P 500 or the Dow Jones Industrial Average.

index fund

A fund that owns all or nearly all the stocks in an index, so its results match the index, at low cost.

expense ratio

The yearly fee a fund charges, as a percent of the money invested.

diversification

Spreading money across many investments so that a loss in one does not ruin the whole.

CORE IDEAS

The story. Stock exchanges began as places where people could buy and sell shares of companies, from the Amsterdam exchange of the 1600s to the New York Stock Exchange, which grew from the Buttonwood Agreement of 1792. For most of history, investors tried to pick the stocks that would do best, often paying brokers and fund managers high fees for advice. In 1974 the economist Paul Samuelson wrote that someone should start a fund that simply owned the whole market at low cost. A young fund executive named John Bogle, who had written his college thesis at Princeton on mutual funds in 1951, decided to try.

How they figured it out. Bogle founded the Vanguard Group in 1975, and on August 31, 1976, it launched the First Index Investment Trust, which owned the 500 stocks in the S&P 500 index. It hoped to raise \$150 million and raised only about \$11 million; critics called it “Bogle’s folly,” and one rival said no one would be satisfied with average returns. Bogle’s argument was arithmetic: since all investors together own the whole market, the average investor must earn the market’s return before costs, so the investors who pay the lowest costs will, on average, keep the most. Over the following decades, studies showed that most funds that tried to beat the market fell short of it after their fees. Index funds grew from almost nothing into one of the most common ways ordinary families save for the future.

The big idea. A **stock** is a share of ownership in a business. Its price rises and falls with what buyers and sellers expect the company to earn. A **stock index** tracks a group of stocks; an **index fund** owns them all, giving wide **diversification** at low cost. Worked example of fees: \$10,000 growing at 7% a year for 30 years becomes $10,000 \times 1.07^{30} \approx \$76,123$. If a fee of one percent a year cuts the return to 6%, it becomes

$10,000 \times 1.06^{30} \approx \$57,435$, about \$18,700 less. Worked example of diversification: if you own one company and it fails, you lose everything; if you own 500 and one fails, you lose about 0.2%. “Give a portion to seven, and also to eight; for thou knowest not what evil shall be upon the earth” (Ecclesiastes 11:2).

Think it through. Stocks can fall sharply, as in 1929 and many times since, and no one can predict the next year. They have rewarded patient owners over long periods because they are shares in real businesses that produce real goods and profits. That is very different from games of chance or from chasing quick riches, which Scripture warns against (Proverbs 28:20). A wise steward invests only money he will not need for many years, spreads it widely, keeps costs low and does not panic.

In business today. Many workers save for retirement through plans at work that offer index funds. This course does not give investment advice, and any real investing is a decision for adults. In this lesson you will practice with pretend money only.

PICTURE STUDY



The Courtyard of the Exchange in Amsterdam, Emanuel de Witte, 1653 · Oil on panel · Museum Boijmans Van Beuningen, Rotterdam

Image: [Wikimedia Commons](#), public domain

The Amsterdam Exchange, built in 1611, was where merchants met every day at set hours to trade goods, bills of exchange and shares of the Dutch East India Company. Emanuel de Witte, who usually painted church interiors, painted it full of people. Each pillar was a meeting place for a particular trade, so a buyer knew where to find his seller.

Look closely

- Count the groups of people. What might each group be trading?
- Find the clock. Why would an exchange keep strict hours?
- Look at the colonnades and pillars. How would traders find each other in this crowd?

Talk about it

1. How is this exchange like a modern stock exchange? How is it different?
2. Why does having many buyers and sellers in one place help set a fair price?
3. If you owned one share of the East India Company in 1653, what would you hope to receive?

Safety first. All investing in this course is practice with pretend money. Never open an account, enter personal or card information, or buy any investment online; a parent makes any real decision.

PROJECT

The Practice Portfolio and the Fee Calculator

You will build a pretend portfolio of \$10,000 in two ways, track it for four weeks, and calculate how fees and diversification change long-term results. No real money is invested.

You will need

- A newspaper business page or a parent's help looking up stock and index prices online
- Ledger notebook or spreadsheet

Steps

1. **Portfolio A:** pretend to put all \$10,000 into one company you know. Record the share price and how many shares you could buy.
2. **Portfolio B:** pretend to put \$10,000 into an S&P 500 index fund. Record the index level.
3. Each week for four weeks, record the company's share price and the index level. Calculate each portfolio's value and percent change from the start.
4. Make a table and a line graph of both portfolios week by week.
5. **Fee calculator:** calculate \$10,000 after 30 years at 7%, at 6.5% (0.5% fee) and at 6% (one-percent fee). Record the differences.
6. **Diversification test:** imagine 10 companies, each \$1,000. One loses everything, two lose 50%, three gain 20%, four gain 10%. What is the portfolio worth? Compare with putting all \$10,000 into the company that lost everything, or into the one that gained the most.
7. Write a paragraph: what did you learn about risk, fees and patience? Why is four weeks too short to judge an investment?

Tips

- Percent change = $(\text{new} - \text{old}) \div \text{old} \times 100$.
- Do not open any account or buy anything. This is practice only.

Check your work

- ☐ I can explain what a stock, an index and an index fund are.

- ☐ My tables show the effect of fees and diversification correctly.
- ☐ I can explain why a wise investor diversifies, keeps costs low and thinks long-term.

LEDGER NOTEBOOK

1. Copy your portfolio table and graph.
2. Draw a pie chart for a one-stock portfolio and one for an index fund with many slices.
3. Make a timeline: 1602 East India Company shares; 1611 Amsterdam Exchange; 1792 Buttonwood Agreement; 1896 Dow Jones average begins; 1957 S&P 500; 1976 first index fund for ordinary investors.

From history. The Dow Jones Industrial Average began on May 26, 1896, with just twelve companies, including makers of cotton oil, sugar, leather and rubber. Of the original twelve, General Electric was the one that stayed in the average longest, until 2018.

COMMON MISTAKES

- Thinking a stock is a ticket in a game of chance. It is a share of a real business, though its price can swing widely.
- Ignoring fees. A small yearly fee compounds into a large sum over decades.
- Judging an investment by a few weeks. Stocks are for money you will not need for many years.

Make it a game • Index Fund Fee Race. Guess first: which grows larger over thirty years, 1,000 dollars at 7 percent growth with a 1 percent yearly fee, or the same with a 0.1 percent fee? Then calculate both and compare your guess. Next, explain to your parent what a stock is, what an index measures, and how John Bogle's 1976 fund helped ordinary investors. Your parent scores one point per clear answer.

8.3 BONDS AND INTEREST RATES: CONSOLS AND LIBERTY BONDS

OBJECTIVES

- Explain what a bond is: principal, coupon, maturity and yield.
- Tell the stories of Britain's consols and America's Liberty Bonds.
- Calculate why bond prices fall when interest rates rise, with a worked example.

Warm-up. Your friend lends a neighbor \$100 and gets a signed promise of \$5 a year plus the \$100 back in ten years. A year later, banks start paying 8% on savings. Would anyone pay your friend \$100 for that promise now? More or less?

WATCH

Relationship between bond prices and interest rates | Finance & Capital Markets | Khan Academy

Khan Academy · 13:15

<https://www.youtube.com/watch?v=l7FDx4DPapw>

WHEN TO WATCH

After the consol example; pause and predict each price before it is shown.

BACKUP VIDEO

Introduction to bonds | Stocks and bonds | Finance & Capital Markets | Khan Academy

Khan Academy · 8:41

https://www.youtube.com/watch?v=Qh-M3_L4xYk

Before the story, if bonds are new to you.

KEY TERMS

bond

A loan to a government or company, represented by a certificate that promises regular interest payments and repayment of the principal on a set date.

coupon

The fixed yearly interest a bond pays, often stated as a percent of its face value.

maturity

The date when a bond's principal is repaid.

yield

The return a buyer earns on a bond at its current price; for a bond with no maturity, $\text{yield} = \text{coupon} \div \text{price}$.

credit risk

The risk that a borrower will fail to pay interest or principal.

CORE IDEAS

The story: consols. In 1751 the British government combined many of its debts into one kind of bond, the “consolidated annuities,” soon called **consols**. They paid 3% a year on their face value forever, with no date for repayment, although the government kept the right to repay them whenever it chose. For two centuries consols were among the safest investments in the world; families, banks and charities held them, and their prices rose and fell with interest rates. In 2015 the British government finally repaid the last of them, including some descended from the debts of the 1750s.

The story: Liberty Bonds. When the United States entered the First World War in 1917, it needed far more money than taxes could raise. The Treasury sold **Liberty Bonds** to ordinary Americans in four Liberty Loans and a Victory Loan, from 1917 to 1919, paying interest from 3.5% to 4.75%. Posters, parades and famous actors urged people to buy, and millions of families who had never owned a bond bought one, often in small amounts. Together the loans raised about \$21.5 billion. After the war, as interest rates rose, the market prices of some Liberty Bonds fell below their face value, and many families who had to sell early received less than they had paid, although those who held them to maturity were repaid in full.

The big idea. A **bond** is a loan you can sell. Its **coupon** is fixed when it is issued. If interest rates on new bonds rise, an old bond with a lower coupon is less attractive, so its price must fall until its **yield** matches the new rate. Worked example with a consol: a consol with a £100 face value pays £3 a year. If buyers want a 3% return, it sells for $3 \div 0.03 = £100$. If market rates rise to 4%, it sells for $3 \div 0.04 = £75$. If rates fall to 2%, it sells for $3 \div 0.02 = £150$. Bonds that mature soon change less in price,

because the principal will be repaid soon. Bonds also carry **credit risk**: a company or government that may not pay must offer a higher yield.

In business today. Governments, cities, school districts and companies borrow by selling bonds; savers, pension funds and insurance companies buy them. A family that understands bonds understands mortgages and savings bonds too. Paying interest on borrowed money is the borrower's side of the same arithmetic, so a wise borrower watches rates as carefully as a wise lender.

PICTURE STUDY



A Liberty Loan Poster, 1917, U.S. government (Liberty Loan Committee), 1917 · Color lithograph poster · Library of Congress, Prints and Photographs Division
Image: [Wikimedia Commons](#), public domain

The government printed millions of posters to sell Liberty Bonds. Artists donated their work, and the posters hung in shop windows, post offices, banks and schools. They were advertisements, like Wedgwood's catalogs or NCR's magazine pages, but for a loan to the nation.

Look closely

- Read the words on the poster. What does it ask people to do?
- Find the Liberty Bell and the two dates. What feeling does the artist want to create?
- Look for any numbers about interest or repayment. What facts does the poster give, and what does it leave out?

Talk about it

1. Why would a government sell bonds to ordinary families instead of only to banks?
2. What does a person who buys a bond give, and what does he receive?
3. Is this poster an honest advertisement? What would a buyer have wanted to know about selling the bond early?

PROJECT

The Bond Market at the Kitchen Table

You will issue pretend bonds, change the interest rate, and see what happens to their prices. Then you will calculate prices for real-world kinds of bonds.

You will need

- Index cards for bond certificates
- Play money
- Ledger notebook, calculator or spreadsheet

Steps

1. Make three bond certificates: (A) a consol: \$100 face, pays \$4 a year forever; (B) a 1-year bond: \$100 face, \$4 interest, repays \$104 in one year; (C) a 10-year bond: \$100 face, \$4 a year for 10 years, then \$100 back.
2. At a market rate of 4%, each sells for about \$100. Record it.
3. Rates rise to 5%. Calculate each price: (A) $4 \div 0.05$; (B) $104 \div 1.05$; (C) use the present value of each payment: add $4 \div 1.05^t$ for $t = 1$ to 10, plus $100 \div 1.05^{10}$ (a spreadsheet helps).
4. Rates fall to 3%. Calculate each price again.
5. Make a table: Bond, Price at 3%, at 4%, at 5%. Which bond's price changed most? Least? Why?
6. Hold an auction: a parent announces a new market rate, and family members bid play money for each bond. Do the bids come close to your calculated prices?
7. Write a paragraph explaining to a younger child why bond prices go down when interest rates go up.

Tips

- In a spreadsheet, $=PV(0.05,10,-4,-100)$ gives the price of bond C at 5%.
- Longer bonds move more with rates because more of their payments are far in the future.

Check your work

- ☐ I can explain coupon, maturity and yield.
- ☐ My price table is correct for all three bonds.
- ☐ I can explain why bond prices fall when interest rates rise.

LEDGER NOTEBOOK

1. Draw a seesaw with “interest rates” on one end and “bond prices” on the other, and label it with numbers from your consol example.
2. Copy your price table.
3. Design a bond certificate for a pretend town project (a library or a bridge) with face value, coupon, maturity date and signatures.

From history. Many Liberty Bonds were bought in tiny amounts. Children saved for the war loans by buying 25-cent Thrift Stamps, pasting them into cards until they could trade sixteen of them for a War Savings Stamp, a small government savings certificate that paid interest.

COMMON MISTAKES

- Thinking a bond’s price never changes. Its coupon is fixed, but its market price moves with interest rates.
- Thinking a bond is always safe. A borrower can fail to pay; that is credit risk.
- Confusing coupon and yield. The coupon is fixed; the yield depends on the price you pay.

Make it a game • Bond Riddle Swap. Write four riddle cards about bonds. Example: I promise 50 dollars every year and 1,000 dollars back in ten years; what are my coupon, maturity and principal? Swap with your parent and solve each other's riddles. Add one riddle each about Britain's consols and America's Liberty Bonds, and one about credit risk. The most correct answers wins.

8.4 INSURANCE AND RISK, THE CAPSTONE PITCH AND THE FAMILY MARKET DAY

OBJECTIVES

- Tell how merchants at Edward Lloyd’s coffee house and Benjamin Franklin’s fire company shared risk.
- Explain how insurance pools risk, and calculate expected loss and a fair premium.
- Deliver a capstone pitch and present your year’s work at a family market day.

Warm-up. List three bad things that could happen to your family in a year that would cost a lot of money. For each, write one way to make it less likely and one way to be ready if it happens.

WATCH

[How insurance works](#) | [Insurance](#) | [Financial mathematics \(TX TEKS\)](#)
| [Khan Academy](#)

[Khan Academy](#) • 3:37

https://www.youtube.com/watch?v=i4FAekxeS_o

WHEN TO WATCH

After the big idea, before the risk pool.

KEY TERMS

insurance

An agreement in which many people each pay a small, certain amount (the premium) into a pool that pays the large, uncertain losses of the few who suffer them.

premium

The amount paid for insurance coverage.

expected loss

The chance of a loss times its cost; the average loss per person over many people.

underwriter

A person or company that agrees to bear a risk in return for a premium; originally, one who wrote his name under the description of a voyage.

deductible

The part of a loss the insured person pays before the insurance pays the rest.

mutual insurance

Insurance owned by its policyholders, who share any surplus.

CORE IDEAS

The story. In the 1680s Edward Lloyd opened a coffee house in London near the river, and it became the meeting place for shipowners, sea captains and merchants. Lloyd posted news of ships' arrivals and losses. A merchant who wanted to protect a cargo would write a description of the ship, the voyage and the goods on a paper, and men willing to share the risk would write their names under it, each taking a part, in return for a fee: they were called **underwriters**. Their association, Lloyd's of London, still insures ships and much else today. In Philadelphia in 1752, Benjamin Franklin and his neighbors founded the Philadelphia Contributionship, a **mutual** fire-insurance company owned by its members, which still exists. Franklin had already organized a volunteer fire company and written, about fire, that "an ounce of prevention is worth a pound of cure."

How they figured it out. No one could know whether a particular ship would sink or a particular house would burn. But merchants and neighbors learned that across many ships and many houses, losses happened at fairly steady rates. If each paid a small, certain **premium** into a pool, the pool could pay the large, uncertain losses of the unlucky few. The Contributionship also inspected houses before insuring them and charged more for risky ones, rewarding owners who built safely, and its members marked insured houses with a plaque of four clasped hands.

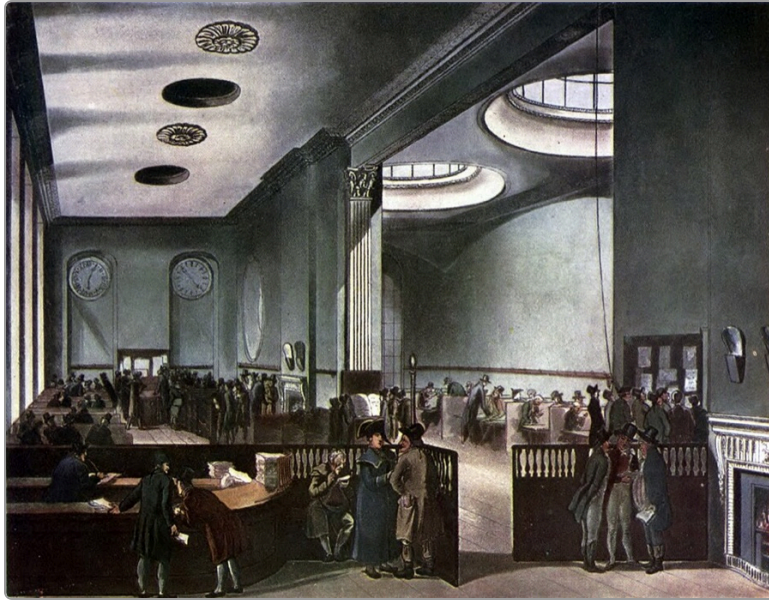
The big idea. Insurance turns a large, uncertain loss into a small, certain cost. Worked example: 1,000 families each own a house worth \$200,000. Each year, about 1 house in 500 burns. **Expected loss** per house = $(1 \div 500) \times \$200,000 = \$400$. If the insurer adds \$100 for its costs and a safety margin, the premium is about \$500 a year. Together the families pay \$500,000; the pool expects to pay about two houses, \$400,000. A **deductible**, for example \$1,000, lowers the premium because owners pay small losses themselves and take more care. Insurance works best for losses that are rare, large and hard to bear alone; for small losses, a savings fund is cheaper.

The capstone. This week you will finish the year by giving your three-minute pitch from Unit 6, improved with what you have learned about statements, financing and

risk. Include a simple income statement for your first month, your break-even, and the risks you will insure against or plan for. Then hold a family market day: set up a table with your best work from each unit and, if your parent agrees, sell or show a product you have made, explaining to guests how you priced it and what it earned.

In business today. Businesses buy insurance for fire, theft, injuries to customers and workers, and lawsuits. Families insure homes, cars, health and lives. Christians have long seen spreading risk as one way to “bear ye one another’s burdens” (Galatians 6:2), alongside generous help to neighbors in need. A wise steward prevents losses first, saves for small ones, and insures against the ones he could not bear.

PICTURE STUDY



Lloyd's Subscription Room, Thomas Rowlandson and Augustus Charles Pugin, for *The Microcosm of London*, 1809 · Hand-colored aquatint · Published in London by Rudolph Ackermann

Image: [Wikimedia Commons](#), public domain

By 1809 the underwriters of Lloyd's had moved from Edward Lloyd's small coffee house into rooms in the Royal Exchange. This print from *The Microcosm of London* shows the busy "subscription room," where members read the latest shipping news and wrote their names under the risks they agreed to share. The architect Pugin drew the room, and the caricaturist Rowlandson drew the people.

Look closely

- Find the notices on the walls. What news would underwriters need to read?
- Look at the groups of men. What might they be discussing?
- Find anyone writing. What might he be signing?

Talk about it

1. Why would underwriters want to meet in one room rather than in their own offices?
2. How did spreading a risk among many underwriters protect each of them?
3. What news from the sea would make premiums go up?

Safety first. A parent supervises all selling and handling of money at market day. Sell only to family and guests you know, handle food safely, and check local rules before selling food to the public.

PROJECT

The Risk Pool, the Capstone Pitch and Market Day

You will run a small insurance pool with dice, calculate a fair premium, and then give your capstone pitch and set up your family market day table.

You will need

- Two dice and play money
- Your business plan packet and pitch from Unit 6
- A table, signs and your best portfolio work from each unit
- Products to sell or show, if your parent agrees

Steps

1. **The risk pool.** Each of five players owns a “ship” worth \$1,000. Each round, roll two dice for each ship: a roll of 2 or 12 (a chance of 2 in 36) means the ship is lost.
2. Calculate the expected loss per ship per round: $(2 \div 36) \times \$1,000 \approx \$56$. Set a premium of \$70 to cover costs.
3. Play ten rounds twice: once with no insurance (each player bears his own losses), once with every player paying \$70 a round into a pool that pays any loss. Record each player’s money after each round.
4. Compare: in which game did someone lose much more than others? Did the pool have enough money? Write what you learned.
5. **Capstone pitch.** Update your pitch with a one-month income statement, your break-even and two risks with your plan for each. Deliver it to your family in three minutes. Ask them to score you 1–5 on clarity, honesty and numbers.
6. **Market day.** Set up a table with one piece of your best work from each unit (for example the trade plan, the currency report, the market study, the stakeholder report, the rule history, the plan packet, the statements and the time-value workbook). Label each.
7. If your parent agrees, sell or show a product you made. Keep a tally of sales, make change carefully, and record the results in your ledger. Explain to at least three guests how you priced your product.

Tips

- Practice your pitch once more the day before, with a timer.
- At market day, let the guests ask questions; use the consultative questions from Lesson 6.3.

Check your work

- ☐ I can explain how insurance pools risk and calculate an expected loss.
- ☐ My capstone pitch includes statements, break-even and risks.
- ☐ My market-day table shows one piece from each unit and my sales are honestly recorded.

LEDGER NOTEBOOK

1. Copy your risk-pool results and graph each player's money in the two games.
2. Draw the Philadelphia Contributionship's four-hands plaque and explain what it meant.
3. Write your market-day sales ledger: item, price, quantity, total, and one sentence about what you would change next time.

From history. In 1734 Lloyd's began publishing *Lloyd's List*, a newspaper of shipping news. It was printed for nearly 300 years, making it one of the longest-running publications in the world, before it moved entirely online in 2013.

COMMON MISTAKES

- Thinking insurance is a waste if you never make a claim. You paid for protection; the pool paid those who suffered losses.
- Insuring small losses you could easily pay yourself. Savings are cheaper for small risks.
- Forgetting prevention. The cheapest loss is the one that never happens.

Make it a game • Fire Company Risk Pool. Play Franklin's fire company with a die.

Rolling a one means a fire costing 600 beans; everyone else loses nothing. Calculate the expected loss for one house and set a fair premium. Then pool six households, each paying that premium, and roll for each house. Discuss what a deductible and an underwriter do, and why Lloyd's merchants shared risk.

Scripture. “Bear ye one another’s burdens, and so fulfil the law of Christ.” (Galatians 6:2, KJV)

Insurance is one practical way neighbors share burdens: many pay a little so that the few who suffer a great loss are not crushed by it. It does not replace generous help to a neighbor in need, but it can serve alongside it.

FINANCE

Finance is the study of money over time and under risk. A dollar today is worth more than a dollar next year, because today's dollar can be put to work; that idea, the **time value of money**, sits underneath savings accounts, loans, stocks, bonds and insurance. In this unit you will calculate present and future values with the story of the sale of Manhattan in 1626, learn what a share of stock is and why John Bogle's first index fund of 1976 changed investing for ordinary families, and see why bond prices fall when interest rates rise, using Britain's 260-year-old consols and America's Liberty Bonds.

Then you will study **insurance**, from the merchants and shipowners at Edward Lloyd's coffee house to Benjamin Franklin's fire company, and how spreading risk lets many carry one another's burdens. The year ends with your **capstone pitch** and a **family market day**. All investing in this unit is practice with pretend money.

Scripture's counsel runs through it all: plan diligently (Proverbs 21:5), spread your risks (Ecclesiastes 11:2), avoid needless debt (Proverbs 22:7), and give generously (2 Corinthians 9:7).

PREREQUISITES

- Knows simple and compound interest and percent change
- Can use exponents and a calculator's power key
- Has a business plan packet and pitch from Unit 6

MASTERY CHECKLIST

- ☐ I can calculate future value and present value and use the rule of 72.
- ☐ I can explain what a stock and an index fund are, and how fees and diversification affect returns.
- ☐ I can explain why bond prices fall when interest rates rise, with a worked example.
- ☐ I can explain how insurance pools risk and calculate an expected loss.
- ☐ I can deliver a capstone pitch and present my year's work at a family market day.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **The Way to Wealth, by Benjamin Franklin (1758)**: Free. Franklin's sayings about work, thrift and debt, from Poor Richard's Almanack. Read three aloud in Lesson 8.1 or 8.4. Ages 10+.
- **The Stock Market Game (SIFMA Foundation)**: A practice investing game with pretend money, offered through schools and some homeschool groups. A parent registers. Good alongside Lesson 8.2. No real money is invested.
- **TreasuryDirect: education pages**: The U.S. Treasury's site explaining savings bonds and Treasury bonds, bills and notes. Read only; any real purchase is a parent's decision. Good for Lesson 8.3.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

8.1 The Time Value of Money: Manhattan for Sixty Guilders	2 sessions of 60 minutes
--	--------------------------

8.2 The Stock Market and Index Funds	2 sessions of 60 minutes
---	--------------------------

8.3 Bonds and Interest Rates: Consols and Liberty Bonds	2 sessions of 60 minutes
--	--------------------------

8.4 Insurance and Risk, the Capstone Pitch and the Family Market Day

2 sessions of 60 minutes

UNIT 8 REVIEW

Answer each question. Show your work for calculations and use complete sentences for explanations. The review is worth 100 points.

1. **6 pts**

What does Pieter Schaghen's letter of 1626 say about the purchase of Manhattan, and what does it not say?

2. **10 pts**

Find the future value of \$2,000 at 6% for 15 years. Use the rule of 72 to estimate how long it takes to double.

3. (8 pts)

What is the present value of \$5,000 to be received in 4 years at a discount rate of 5%?

4. (8 pts)

What is an index fund, and why did John Bogle believe it would serve ordinary investors well?

5. (10 pts)

\$20,000 grows for 25 years at 7%, or at 6% because of a one-percent fee. Find both results and the difference.

6. (6 pts)

Explain diversification using Ecclesiastes 11:2.

7. (8 pts)

Define coupon, maturity and yield.

8. (10 pts)

A consol pays £5 a year forever. What is its price if market rates are 5%? 4%? 8%?

9. (6 pts)

Why did some families who bought Liberty Bonds receive less than they paid?

10. (8 pts)

How did underwriters at Lloyd's share risk?

11. (10 pts)

2,000 cars are each worth \$15,000. Each year about 1 in 250 is totally destroyed. What is the expected loss per car? What is a reasonable premium if the insurer adds \$20 for costs?

12. (10 pts)

In a paragraph, explain how a wise steward uses saving, investing and insurance together, with one verse.

ANSWER KEY

1. It says the settlers bought the island from the native people for the value of 60 guilders. It does not mention beads or \$24; those came from later retellings.
2. $2,000 \times 1.06^{15} \approx \$4,793.11$. Rule of 72: $72 \div 6 = 12$ years to double.
3. $5,000 \div 1.05^4 \approx \$4,113.51$.
4. A fund that owns all or nearly all the stocks in an index at low cost. Because all investors together earn the market's return before costs, the investors who pay the lowest costs keep the most on average; most actively managed funds trail the market after fees.
5. $20,000 \times 1.07^{25} \approx \$108,548.65$. $20,000 \times 1.06^{25} \approx \$85,837.41$. Difference $\approx \$22,711$.
6. Spreading money across many investments, giving a portion to seven and to eight, so that a loss in one does not ruin the whole, because no one knows what trouble will come.
7. Coupon: the fixed yearly interest a bond pays. Maturity: the date the principal is repaid. Yield: the return a buyer earns at the current price.
8. $5 \div 0.05 = \text{£}100$; $5 \div 0.04 = \text{£}125$; $5 \div 0.08 = \text{£}62.50$.
9. After the war interest rates rose, so the market prices of the older, lower-coupon bonds fell; families who sold before maturity got less than face value. Those who held to maturity were repaid in full.
10. A merchant wrote a description of a ship, voyage and cargo; several men each wrote their names under it, taking a part of the risk in return for a fee, so no one bore the whole loss if the ship was lost.
11. $(1 \div 250) \times 15,000 = \$60$. Premium about \$80.
12. A strong answer: saves an emergency fund for small losses; invests long-term money patiently, diversified and at low cost, without chasing quick riches; insures against large losses he could not bear; avoids needless debt; and gives generously. Verses such as Proverbs 21:5, Ecclesiastes 11:2, Proverbs 22:7, Galatians 6:2 or 2 Corinthians 9:7.

PORTFOLIO PIECE: A FAMILY FINANCE PLAN AND THE CAPSTONE

With a parent, choose one real family goal, such as saving for a car, a trip, college or a new roof. Write a three-page plan: the goal and its cost, the present value or future value calculations showing how much must be saved each month at a realistic interest rate, how the money could be kept safely, what risks could interrupt the plan and which ones insurance or an emergency fund would cover, and how giving fits in. Include a table and a graph. Attach your final capstone pitch script and your market-day ledger.

LOOK FOR	WHAT IT MEANS
Goal and numbers	A real goal with realistic costs and correct time-value calculations.
Safety and risk	Sensible choices for keeping money safe and for handling risks with savings and insurance.
Stewardship	The plan includes giving and reflects wise, patient, debt-careful stewardship.
Capstone pitch	A clear, honest pitch with statements, break-even and risks, delivered in about three minutes.
Market-day record	An honest sales ledger and a reflection on what to improve.

BONUS: RUN A REAL BUSINESS

This optional unit turns your capstone pitch into a real business. With a parent as your partner and supervisor, you will write a full business plan, pitch it to family “investors” who may lend you money or buy a share of your profits under a written agreement, and run the business for one month. You will keep a daily journal and ledger, review your numbers at mid-month and adjust, and at the end close the books with all three financial statements, a report to your investors, an honest profit split and a gift.

Choose a business you can do well and safely with a parent: baked goods for neighbors and church friends you know, garden seedlings, handmade cards, lawn and garden help, pet care, tutoring a younger child, or a simple repair service. Along the way you will meet four business founders who did the same things on a larger scale: H. J. Heinz, who started again with his family’s money after his first company failed; Sam Walton, who learned a hard lesson from his first store’s lease; F. W. Woolworth, whose first store failed in weeks; and the Dutch East India Company, whose investors waited eight years for their first dividend. Use this unit after market day, over the summer, or alongside the year.

PREREQUISITES

- Business plan packet and pitch from Unit 6 and the capstone in Unit 8
- Can keep a journal and ledger and prepare the three statements (Unit 7)
- A parent who agrees to be partner, supervisor and cash-box keeper

MASTERY CHECKLIST

- ☐ I can write a full business plan and pitch it to investors with a written agreement.
- ☐ I can run a small business safely for a month, with a daily journal, a ledger and a cash count.
- ☐ I can review my numbers at mid-month, find what is and is not working, and change my plan.
- ☐ I can prepare the three financial statements for my month and report honestly to my investors.
- ☐ I can split the profit as agreed, repay what I owe, save and give.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **U.S. Small Business Administration: Write your business plan**: Free. The government's guide to the parts of a business plan, written for adult founders but clear enough to follow with a parent. Good for Lesson 9.1.
- **Next Gen Personal Finance: entrepreneurship lessons**: Free activities on starting a business, pricing and keeping records. A parent may create the free teacher account.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

9.1 The Full Business Plan and the Investor Pitch	2 sessions of 60 minutes
9.2 Launch and Run: The First Two Weeks	2 sessions of 60 minutes
9.3 The Mid-Month Review: Measure, Learn, Adjust	2 sessions of 60 minutes
9.4 Close the Books: Statements, the Investor Report, the Profit Split and the Gift	2 sessions of 60 minutes

UNIT 9 REVIEW

This review covers your own business and the four stories in the unit. Answer each question, show your work for calculations, and attach your statements. The review is worth 100 points.

1. **8 pts**

Name the ten sections of your business plan and give one sentence from your own plan for any three.

2. **8 pts**

Why did H. J. Heinz repay creditors the law no longer required him to repay, and how might that have helped his business?

3. **8 pts**

What mistake did Sam Walton make with his first store, and what did it teach him?

4. **10 pts**

Your float is \$25. You sell 22 items at \$3 and spend \$8 from the cash box on supplies. How much cash should be in the box? If you count \$87, what is the difference?

5. **8 pts**

What did F. W. Woolworth learn from his failed first store in Utica?

6. **10 pts**

Your product sells for \$5 with a variable cost of \$2. Fixed costs for the month are \$60. Find the contribution margin and break-even. If you sell 35, what is your profit?

7. **8 pts**

You planned to sell 50 units in two weeks and sold 38. What is the variance in units and in percent?

8. **10 pts**

Month revenue \$430; cost of goods used \$150; fixed costs \$30; interest \$3. An investor owns 20% of profit. Find net income, the investor's share and the owner's share.

9. **8 pts**

How long did the VOC's first investors wait for a dividend, and in what was it paid?

10. **8 pts**

Why must an investor report be honest even when the results are poor?

11. **6 pts**

Name three internal controls you used in your business.

12. **8 pts**

Write a paragraph on what you would do differently if you ran your business again, and how you decided what to give.

ANSWER KEY

1. Need and customers; product and price; where and how I will sell; start-up budget; weekly sales forecast; forecast income statement and break-even; help and rules; risks and plans; repaying, profit split, saving and giving; safety rules. Sample sentences will vary.
2. He felt a moral obligation to repay what he owed. It restored his good name and the trust of suppliers, bankers and customers, which a food business needs above all.
3. His lease had no renewal clause, so the landlord refused to renew it in 1950 and took over the store. He learned to read every contract carefully and not let success make him careless.
4. $25 + 66 - 8 = \$83$. Counted \$87: \$4 over; check the tally and change-making.
5. That location and choice mattered: the side street drew too few customers and the five-cent goods were too limited. He chose a busy main street in Lancaster and added ten-cent goods, and it succeeded.
6. Contribution margin \$3; break-even $60 \div 3 = 20$ units; profit $35 \times 3 - 60 = \$45$.
7. $38 - 50 = -12$ units; $-12 \div 50 \times 100 = -24\%$.
8. Net income $430 - 150 - 30 - 3 = \$247$. Investor $0.20 \times 247 = \$49.40$. Owner $247 - 49.40 = \$197.60$.
9. About eight years, from 1602 to 1610; it was paid partly in spices, especially mace, rather than cash.
10. Investors trusted you with their money and need the truth to make decisions; honesty keeps your good name and their trust for the future; hiding losses is a form of lying.
11. Any three: a parent kept the cash box; daily cash counts; daily inventory counts; receipts for every expense; keeping business and personal money separate; two people counting cash.
12. Answers will vary. A strong answer names specific changes based on the numbers and feedback, and explains a thoughtful, cheerful plan for giving (2 Corinthians 9:7; Proverbs 3:9).

PORTFOLIO PIECE: ONE MONTH IN BUSINESS: THE COMPLETE FILE

Assemble the complete file of your real business: the full business plan, the signed investor and partnership agreements, the daily journal, ledger, inventory and cash records, the mid-month variance table and experiment results, the three closing financial statements, the investor report with receipts for payments, and a final reflection of one to two pages on what you learned about work, honesty, customers and money, and where your gift went.

LOOK FOR	WHAT IT MEANS
Plan and agreements	A complete ten-section plan with evidence-based forecasts and signed, clear agreements.
Daily records	Complete, dated records with cash and inventory counts that agree or have explained differences.
Review and adjustment	A correct variance table and unit economics, real feedback, and at least one tested change.
Statements and report	Correct, connected statements and an honest, clear investor report with payments made as agreed.
Stewardship and safety	Safety rules followed, a parent involved throughout, and a thoughtful plan for giving and saving.

9.1 THE FULL BUSINESS PLAN AND THE INVESTOR PITCH

OBJECTIVES

- Write a full business plan for a one-month business, with a budget, a sales forecast and risks.
- Pitch the plan to family “investors” and agree in writing on a loan or a profit share.
- Check local rules, set safety rules and sign a partnership agreement with a parent.

Warm-up. Reread your capstone pitch from Unit 8 and the feedback you received. Write the two changes you most need to make before real money is involved.

WATCH

Writing a Business Plan: What You Need to Know | It's a Money Thing

Red Canoe Credit Union • 3:43

<https://www.youtube.com/watch?v=7ykkhepT9aE>

WHEN TO WATCH

Before you write your ten-section plan.

Note: From a credit union’s money-education series.

KEY TERMS

business plan

A written document describing what a business will sell, to whom, at what price, how it will operate, its expected finances and its risks.

sales forecast

An estimate of how many units you will sell and when, based on evidence such as orders, past sales or a survey.

investor agreement

A written agreement setting out how much an investor or lender provides, on what terms, and how and when he will be repaid or share in profits.

permit

Written permission from a town, county or state to do something, such as sell food or set up a stand.

moral obligation

A debt one feels bound in conscience to repay even when the law does not require it.

CORE IDEAS

The story. Henry John Heinz was born near Pittsburgh in 1844. As a boy he sold vegetables from his mother's garden, and by his teens he had several acres of his own. In 1869 he and a partner began bottling horseradish in clear glass, so customers could see it was pure, unlike rivals who padded theirs with turnip and wood fibers. The business grew fast, but in the financial panic of the 1870s it failed, and in 1875 Heinz was declared bankrupt. He was deeply ashamed, and he wrote in a notebook the letters "M.O.," for moral obligations, beside the names of everyone he owed.

How they figured it out. In 1876, with money from his brother John and his cousin Frederick, Heinz started again under the name F. & J. Heinz, with Henry as manager. He had a plan: pure, well-made foods in honest packages, sold by trained salesmen, with careful books. That first year the company began selling tomato ketchup. Over the following years Heinz paid back the creditors of his failed company, though the law no longer required him to. In 1888 he bought out his brother and cousin and renamed the company H. J. Heinz. He later supported the Pure Food and Drug Act of 1906, and he spent much of his free time as a Sunday-school teacher and leader.

The big idea. A **business plan** lets you and your investors see the whole business before money is spent. A full plan for a one-month business answers: the need and the customers; the product and price; where and how you will sell; a start-up budget with real prices; a **sales forecast** for each week, with your evidence; a monthly income statement forecast and break-even; the help you need and the rules you must follow (a **permit**, food rules); the risks and your plan for each; and how you will repay, share, save and give. Then you pitch it. Family investors may make a loan (for example, \$40 repaid with \$2 interest at month's end) or buy a share of the profits (for example, 25% of the month's profit). Every term goes in a written **investor agreement**.

In business today. Banks and investors read business plans before they lend or invest, and towns have rules for selling food and setting up stands. Heinz's story

shows that the most valuable asset in any plan is the founder's honesty. "A good name is rather to be chosen than great riches" (Proverbs 22:1).

PICTURE STUDY



Henry John Heinz, Pach Brothers Studio, about 1914 · Gelatin silver photograph · National Portrait Gallery, Smithsonian Institution, Washington, D.C.

Image: [Wikimedia Commons](#), public domain

This portrait was made about 1914, when Heinz was seventy and his company employed thousands of people and sold its foods around the world. The famous slogan "57 Varieties," which he chose in 1896, was already known everywhere. He kept his notebook of moral obligations all his life.

Look closely

- Look at Heinz's face and expression. What kind of man does the photographer show?
- Look at his clothes. Are they showy or plain?
- Imagine this man at thirty-one, bankrupt and ashamed. What do you think changed in him, and what stayed the same?

Talk about it

1. Why would Heinz repay debts the law no longer required him to repay?
2. Why would his brother and cousin invest in a man who had just failed?
3. What would you write in your own notebook of moral obligations before starting a business?

Safety first. A parent supervises all selling and handling of money. Sell only to people you know or at events your parent approves; never go door to door or meet strangers alone; never give out personal information or sell online without a parent; follow local food and permit rules and handle food safely.

PROJECT

Write the Plan, Make the Pitch, Sign the Agreements

You will turn your capstone pitch into a full written plan, pitch it to your family investors, and sign the agreements you need before you begin.

You will need

- Your Unit 6 plan packet and capstone pitch
- Real prices for supplies (store flyers or a parent's help)
- Ledger notebook or spreadsheet
- Paper for written agreements

Steps

1. With a parent, check your town's rules for what you plan to sell: food (cottage-food rules), stands, signs, and whether a permit is needed. Write down what you learned.
2. Write your plan in ten short sections: Need and customers; Product and price; Where and how I will sell; Start-up budget; Weekly sales forecast (with evidence); Forecast income statement and break-even; Help and rules; Risks and plans; Repaying, profit split, saving and giving; Safety rules.
3. Gather evidence for your forecast: ask at least five people you know (with a parent) whether they would buy and how many. Record their answers.
4. Pitch the plan to at least two family members acting as investors. Ask for a specific amount: either a loan with a stated repayment, or an investment for a stated share of profit.
5. Write and sign an investor agreement for each investor: amount, purpose, repayment or profit share, date, and what happens if the business loses money.
6. Write and sign a partnership agreement with your supervising parent: who does what, who keeps the cash box, how purchases are approved, and the safety rules.
7. Open a ledger with your starting balances: cash from investors, any supplies you already own, and what you owe.

Tips

- Make the forecast cautious. It is better to sell more than you planned than less.
- Agree in advance what happens if you lose money. Honest investors would rather know now.

Check your work

- ☐ My plan has all ten sections with real numbers and evidence.
- ☐ I have signed investor agreements and a partnership agreement.
- ☐ I have checked the local rules and written my safety rules.

LEDGER NOTEBOOK

1. Copy your weekly sales forecast as a table and a bar graph.
2. Write your investor agreement neatly and keep a signed copy.
3. Start a “moral obligations” page: everyone you owe, what you owe, and when you will repay.

From history. H. J. Heinz opened his factory to the public, and by the early 1900s about 20,000 visitors a year toured it. They saw clean kitchens, workers in uniforms and the dining rooms and classes the company provided for employees, which helped persuade customers that Heinz foods were pure.

COMMON MISTAKES

- Forecasting from hope instead of evidence. Ask real people before you count on them.
- Taking money without a written agreement. Memories differ; paper does not.
- Skipping the local rules. A few minutes of checking can save a closed stand and a fine.

Make it a game • Investor Grilling. Your parent plays an investor and fires questions about your one-month business, one every 20 seconds: your budget, sales forecast, biggest risk, needed permits and what you will owe if you lose money. Answer without notes. Score a point for each answer with a number. Then agree out loud on loan or profit share terms and repeat them in your own words.

Scripture. “For which of you, intending to build a tower, sitteth not down first, and counteth the cost, whether he have sufficient to finish it?” (Luke 14:28, KJV)

Jesus used a builder’s planning to teach about following Him, and the picture fits every business. A written plan is how you sit down first and count the cost before you begin.

9.2 LAUNCH AND RUN: THE FIRST TWO WEEKS

OBJECTIVES

- Launch your business and run it safely for two weeks.
- Keep a daily journal, a ledger, an inventory count and a cash count that agree with each other.
- Learn from Sam Walton's first store why daily records and careful contracts matter.

Warm-up. Write a checklist of everything you must have ready the morning before your first sale: products, change, signs, records, safety supplies. Then ask your parent what you forgot.

WATCH

How Walmart Began | The Sam Walton Story | Walmart's Origins

Northwest Arkansas Alive • 5:06

<https://www.youtube.com/watch?v=k-IHuRUGwfk>

WHEN TO WATCH

After the story of Sam Walton.

Note: A short local-history film from northwest Arkansas.

KEY TERMS

inventory

Goods on hand to be sold, and the materials to make them.

cash count

Counting the money in the cash box and comparing it with what the records say should be there.

float

The small amount of change kept in the cash box at the start of each selling day.

lease

A contract to rent property for a set time on stated terms.

shrinkage

Inventory lost to damage, spoilage, mistakes or theft.

CORE IDEAS

The story. In 1945, just home from the Army, Sam Walton bought a Ben Franklin variety store in the small cotton town of Newport, Arkansas. He paid with \$5,000 of his own savings and \$20,000 borrowed from his father-in-law. The store had been losing money. Walton studied the store across the street, kept careful daily records, bought goods directly from makers when he could to lower his costs, cut prices and sold more. Within a few years his store was one of the most successful Ben Franklin stores in its region.

How they figured it out. Walton made one costly mistake. His five-year lease on the building had no clause giving him the right to renew it. When it ran out in 1950, the landlord, who had watched the store succeed, refused to renew and bought the business for his own son. Walton was paid a fair price for his goods and fixtures, but he was heartbroken, and he had to start over in a new town, Bentonville. He later wrote that the lesson stayed with him: read every contract carefully, and do not let success make you careless with the paperwork. He also kept the habit of daily numbers, which helped him build Walmart, opened in 1962.

The big idea. A business is run day by day. Each selling day, write a journal entry for every sale and expense; count your **inventory** before and after; and do a **cash count**: starting **float** + cash sales – cash spent = cash that should be in the box. Worked example: float \$20; you sell 18 bags of cookies at \$4 = \$72 cash; you buy \$6 of bags at the store with cash from the box. Expected cash = $20 + 72 - 6 = \$86$. If you count \$84, you are \$2 short: check your change-making and your tally. Inventory works the same way: 30 bags at the start – 18 sold = 12 should remain; if you find 11, record 1 as **shrinkage** and find out why.

In business today. Shopkeepers balance their cash drawers every night and count inventory regularly; differences are investigated, not ignored. Small daily records make the big monthly statements possible. “Be thou diligent to know the state of thy flocks, and look well to thy herds” (Proverbs 27:23).

PICTURE STUDY



Interior of a General Store, Alabama, Walker Evans, for the Farm Security Administration, 1936 ·

Photograph · Library of Congress, Prints and Photographs Division

Image: [Wikimedia Commons](#), public domain

Walker Evans photographed small-town America for a government agency during the 1930s. Stores like this one sold everything a farm family needed, from flour and coffee to nails and thread. The owner had to know his stock, his customers and his cash every day. A few years later, Sam Walton would run a store like this in a small Arkansas town.

Look closely

- Find as many kinds of goods as you can: flour, soap, lanterns, dishes. Which sell quickly, and which slowly?
- Find the calendar and the safe. Why would an owner need both?
- Look at how the flour sacks are stacked in front. Why might an owner put some goods in front and others high up?

Talk about it

1. How would the owner of this store know at the end of the day whether he had made money?
2. What kinds of shrinkage could happen in a store like this?
3. What would you change in this store to sell more, and what would you keep?

Safety first. A parent keeps the cash box and supervises all selling. Sell only where your parent approves, never go door to door alone, and keep food covered, labeled and handled with clean hands.

PROJECT

Two Weeks of Daily Books

You will run your business for two weeks, keeping a daily journal, an inventory count and a cash count, and checking that all three agree.

You will need

- Your products or service supplies
- A cash box with a float of small bills and coins, kept by your parent
- Ledger notebook or spreadsheet with three pages: Journal, Inventory, Cash
- Signs and price tags

Steps

1. Before each selling day, count your inventory and your float with your parent and record them.
2. Record every sale in a tally or journal: date, item, quantity, price, cash or owed.
3. Record every expense the moment it happens, with a receipt taped into your ledger.
4. After each selling day, count inventory and cash. Calculate what each should be and record any difference.
5. Once a week, total your sales, expenses and profit so far, and compare them with your weekly forecast.
6. Keep a short daily diary: what sold, what did not, what customers said, what went wrong and what you will try tomorrow.
7. At the end of two weeks, write a one-page summary with your numbers for your investors.

Tips

- Never mix your own pocket money with the business's cash.
- Thank every customer, and write down any suggestion they give you.

Check your work

- ☐ My journal, inventory and cash counts agree, or every difference is explained.
- ☐ I recorded every sale and expense with receipts.
- ☐ I compared my real sales with my forecast each week.

LEDGER NOTEBOOK

1. Copy one week of your journal neatly.
2. Graph daily sales for the two weeks.
3. Write the lesson of Sam Walton's lease in your own words, and list the agreements in your own business that you should reread.

From history. Sam Walton drove a modest pickup truck most of his life, even after his company became one of the largest in the world. In his autobiography, published in 1992, the year he died, he described how all his life he visited competitors' stores to learn what they did better.

COMMON MISTAKES

- Waiting until the end of the week to write things down. Memory fails; record each sale when it happens.
- Ignoring small cash differences. Small differences, unchecked, become big ones.
- Changing too many things at once. Try one change at a time so you know what worked.

Make it a game • Make the Books Agree. Set up a cash drawer with a float of beans and a few inventory items. Make five pretend sales and purchases, writing each in a journal, ledger and inventory count. Now your parent secretly removes one item or one bean while you look away. Count everything, find the shrinkage and say which record gave it away. Swap and repeat.

9.3 THE MID-MONTH REVIEW: MEASURE, LEARN, ADJUST

OBJECTIVES

- Review two weeks of results against your plan: sales, costs, margins and customer feedback.
- Learn from F. W. Woolworth why a failed start is information, not the end.
- Choose and test one or two changes for the second half of the month.

Warm-up. Look at your daily sales graph from Lesson 9.2. Circle your best day and your worst day. Write one guess about why each was best or worst.

WATCH

The History Of F.W. Woolworth's Five and Dime Stores.

e chang • 10:53

<https://www.youtube.com/watch?v=kKkw8O9lv8E>

WHEN TO WATCH

After the story of Woolworth; stop at about 6:00, when the film moves on to the company's later decades.

Note: A small channel; chosen for its archive photographs of early Woolworth stores.

KEY TERMS

variance

The difference between what you planned (budgeted) and what actually happened.

unit economics

The revenue and cost of a single unit sold, which shows whether each sale makes or loses money.

contribution margin

Price minus variable cost per unit; the amount each sale contributes toward fixed costs and profit.

customer feedback

What customers tell you, directly or by what they buy, about your product, price and service.

pivot

A deliberate change in a business's product, price, place or customers based on evidence.

CORE IDEAS

The story. Frank W. Woolworth was a poorly paid store clerk in Watertown, New York, when his employers held a sale of goods all priced at five cents and nearly everything sold. In 1879, with about \$300 of goods supplied on credit by his employers, he opened his own “Great Five Cent Store” in Utica, New York. It opened in February. Within a few months it had failed: the location on a side street brought too few customers, and the five-cent goods were too limited.

How they figured it out. Woolworth did not give up; he studied what had gone wrong. He chose a busy main street in Lancaster, Pennsylvania, for his second store, which opened in June 1879, and soon added goods priced at ten cents to give customers more choice. It succeeded from the start. He kept measuring: which items sold, which towns and streets drew crowds, which goods could be bought cheaply enough to sell at five or ten cents. By the time of his death in 1919 his company had more than a thousand stores, and in 1913 he had built the Woolworth Building in New York, then the tallest building in the world, paying for it in cash.

The big idea. A mid-month review asks four questions. (1) What is the **variance** between plan and reality for sales, costs and profit? (2) What are my **unit economics**: does each sale earn its keep? Worked example: a bag of cookies sells for \$4 and costs \$1.60 in ingredients and \$0.20 for the bag, so its **contribution margin** is $4 - 1.80 = \$2.20$. If fixed costs for the month are \$44, break-even is $44 \div 2.20 = 20$ bags. If you planned 60 bags and sold 24 in two weeks, you are on pace for about 48, a variance of -12 bags. (3) What is **customer feedback** telling me? (4) What one or two changes will I test? A **pivot** is a change based on evidence, like Woolworth's move to a busier street and his new ten-cent goods.

In business today. Managers hold regular reviews comparing results with plans, and they change course when the numbers say so, without blaming the customers. Failure in a first attempt is common; what matters is learning honestly from it. “In all labour there is profit” (Proverbs 14:23), including the labor of failing well.

PICTURE STUDY



A Woolworth Five-and-Ten-Cent Store by Night, at Christmas, Unknown photographer, published as a postcard, 1910s · Postcard photograph · New Albany, Indiana

Image: [Wikimedia Commons](#), public domain

By the 1910s there was a Woolworth store in almost every American town of any size. This postcard shows one in New Albany, Indiana, decorated for Christmas and photographed after closing, with the counters ready for the next day. Notice how the goods are laid out on open counters, so customers could see and handle them, an idea Woolworth helped make popular.

Look closely

- Look at the counters. How are the goods arranged?
- Find the hanging decorations. Why would a store decorate so much at Christmas?
- Look for price signs. Why would a store with only a few prices be easy to shop in?

Talk about it

1. How is this store different from the general store in Lesson 9.2?
2. Why might a busy main street matter so much to a five-and-ten-cent store?
3. What would Woolworth have measured to decide whether to open a store in New Albany?

PROJECT

The Mid-Month Review and Two Experiments

You will review your first two weeks with your parent and your investors, calculate your variances and unit economics, gather customer feedback, and test one or two changes.

You will need

- Your journal, ledger, inventory and cash records from Lesson 9.2
- Your forecast from Lesson 9.1
- Calculator or spreadsheet

Steps

1. Make a variance table: Item, Planned (two weeks), Actual, Variance, Percent variance. Include units sold, revenue, each cost and profit.
2. Calculate your unit economics: price, variable cost per unit, contribution margin and break-even quantity for the month.
3. Ask at least five customers two questions: “What did you like?” and “What would make you buy again or buy more?” Record their answers.
4. List what is working and what is not. Circle the biggest problem.
5. Choose one or two changes to test in the third week, such as a new location or time, a smaller or larger size, a different price, a better sign, or a new product. Write what you expect to happen.
6. Run the test and record the results each day.
7. Hold a short meeting with your investors: show the variance table, the feedback and your test plan. Write down their questions and advice.

Tips

- Change one thing at a time, or you will not know what caused the result.
- A price change affects both the number sold and the margin on each one; calculate both.

Check your work

- ☐ My variance table and unit economics are correct.

- ☐ I gathered and recorded real customer feedback.
- ☐ I tested at least one change and recorded what happened.

LEDGER NOTEBOOK

1. Copy your variance table.
2. Draw a break-even graph for your business with your actual sales marked on it.
3. Write a short “what I learned” list in Woolworth’s style: what failed, why, and what I will try instead.

From history. When the Woolworth Building opened in 1913, President Woodrow Wilson pressed a button in Washington that lit its 80,000 light bulbs at once. It cost about \$13.5 million, and F. W. Woolworth paid for it entirely in cash, without borrowing.

COMMON MISTAKES

- Blaming customers for low sales. Their choices are information.
- Cutting the price without checking the margin. More sales at a loss is not success.
- Giving up after a slow start. Woolworth’s first store failed; his second succeeded because he learned.

Make it a game • Plan Versus Real Dice. Write a plan for one week: units sold, price and cost. Roll a die for each day to determine real units sold. Compute the variance from plan, your contribution margin and your unit economics. Your parent reads a customer comment. Decide on one experiment or pivot, remembering that Woolworth's failed first store was information, not an ending.

9.4 CLOSE THE BOOKS: STATEMENTS, THE INVESTOR REPORT, THE PROFIT SPLIT AND THE GIFT

OBJECTIVES

- Close the books on your month and prepare an income statement, a balance sheet and a statement of cash flows.
- Write an honest report to your investors and pay what you owe or the agreed profit share.
- Decide, with a parent, what to save, what to give and whether to continue.

Warm-up. Before you add anything up, write your guess: How much did your business earn this month? How much cash do you have? How much do you owe? Seal the guess in an envelope.

WATCH

How one of the most profitable companies in history rose to power - Adam Clulow

TED-Ed • 5:04

<https://www.youtube.com/watch?v=OxeTFB84e2k>

WHEN TO WATCH

After the story of the VOC's first dividend.

Note: From TED-Ed. It mentions the company's violence in the Spice Islands plainly and briefly.

BACKUP VIDEO

Cash Flow vs. Profit: What's the Difference? | Business: Explained

HBS Online • 1:50

<https://www.youtube.com/watch?v=lkEtgnhsV04>

Before you close your books: why profit and cash differ.

KEY TERMS

closing the books

Finishing the records for a period: counting cash and inventory, recording every remaining transaction and preparing the statements.

investor report

A letter or report to investors explaining what happened, the results, the problems and the plans.

first fruits

In Scripture, the first and best part of the harvest given to God; a model for giving before spending.

dividend

A share of profits paid to the owners or investors.

net income

Revenue minus all expenses for the period; the profit or loss.

CORE IDEAS

The story. In 1602 the Dutch East India Company, the VOC, sold shares to anyone in the Netherlands who wanted to invest, from wealthy merchants to servants and craftsmen. It was the first company whose shares were sold widely to the public and traded freely on an exchange. Its investors waited eight years for their first dividend. When it came, in 1610, it was paid partly in spices, especially mace, rather than in cash. Shareholders complained that the directors did not show them proper accounts. Over the next century the VOC paid large dividends and became the richest trading company in the world.

How they figured it out. The VOC's early investors learned what every investor learns: a business must report honestly to those whose money it uses. In 1622 shareholders pressed the directors for better accounts and a voice in the company, and some changes followed. The VOC's history also shows that profit is not the only measure: it built its spice monopoly partly by force, including the conquest of the Banda Islands in 1621, and by forced labor, grave wrongs against people made in God's image. Its profits were real, but not all of them were just.

The big idea. Closing the books means counting everything, recording every last transaction and preparing all three statements. Then you report. Worked example: a

month's sales are \$310; ingredients and supplies used \$118; a sign and table cover (fixed costs) \$24; interest owed on a \$40 family loan \$2. **Net income** = $310 - 118 - 24 - 2 = \$166$. If one investor owns 25% of the profit, his share is $0.25 \times 166 = \$41.50$. Repay the \$40 loan plus \$2 interest. The owner's remaining profit is $166 - 41.50 = \$124.50$. Following Wesley's rules and the habit of **first fruits**, decide first how much to give, then how much to save, then how much to spend. An honest **investor report** tells what happened, the numbers, what went wrong, what you learned and what you plan next.

In business today. Public companies publish audited statements and letters to shareholders every year. A small business owner closes the books every month. Whether the numbers are good or bad, the duty is the same: tell the truth, pay what you owe, and give thanks. "Honour the LORD with thy substance, and with the firstfruits of all thine increase" (Proverbs 3:9).

PICTURE STUDY



The Return to Amsterdam of the Second Expedition to the East Indies, Hendrik Cornelisz Vroom, 1599 ·
Oil on canvas · Rijksmuseum, Amsterdam
Image: [Wikimedia Commons](#), public domain

In July 1599 four ships returned to Amsterdam from the East Indies loaded with pepper, cloves and nutmeg, and the investors in the voyage made a large profit. The city celebrated, and Hendrik Vroom painted the scene. Three years later, the separate voyage companies joined to form the Dutch East India Company, with shares open to the public.

Look closely

- Count the large ships. What do their flags and sails tell you?
- Look at the small boats around them. Who might be in them, and why have they come out?
- Find the city in the background. What does the painting say about how important trade was to Amsterdam?

Talk about it

1. Why would investors celebrate the return of these ships?
2. What risks did the investors take when the ships set out two years earlier?
3. If you had invested in this voyage, what would you want to see in the report the directors gave you?

Safety first. A parent supervises the final cash count and all payments. Keep the business's money separate from personal money, and never lend, borrow or invest any of the profit without a parent.

PROJECT

Close the Books and Report

You will close your business's books for the month, prepare the three statements, write your investor report, settle what you owe, and decide what to give, save and spend.

You will need

- All your records from Lessons 9.1–9.3
- Your investor and partnership agreements
- Ledger notebook or spreadsheet, envelopes for give, save and spend

Steps

1. Count your final cash and inventory with your parent. Record any last transactions, including what you owe and what customers owe you.
2. Prepare the income statement for the month: revenue, cost of goods used, other expenses, interest, net income.
3. Prepare the statement of cash flows: operating, investing (any equipment) and financing (money from investors, repayments).
4. Prepare the balance sheet at month's end: cash, inventory, equipment, money owed to you; money you owe; owner's equity. Check that assets = liabilities + equity.
5. Calculate each investor's repayment or profit share exactly as your agreement says. Pay them in person, with a receipt.
6. Write a one-page investor report: what you sold, your results compared with the plan, what went wrong, what you learned, and whether you will continue.
7. Open your sealed guess from the warm-up and compare it with the real numbers.
8. With your parent, divide your own profit into give, save and spend. Write where your gift will go and why.

Tips

- If you lost money, report it as honestly as you would report a profit; investors respect the truth.
- Keep all your records in one folder. A real business plan with a real month of books is a fine thing to show a future employer or teacher.

Check your work

- ☐ My three statements are complete and connect correctly.
- ☐ I paid my investors exactly as agreed and have receipts.
- ☐ My investor report is honest, and I have decided what to give, save and spend.

LEDGER NOTEBOOK

1. Copy your three statements neatly on facing pages.
2. Draw a pie chart of where your month's revenue went: costs, investors, giving, saving, spending.
3. Write a letter to yourself to open in one year: what you learned from running a real business.

From history. A VOC share receipt dated 1606, issued by the company's office in the city of Enkhuizen, was discovered in a Dutch archive in 2010. It is one of the oldest known share certificates in the world.

COMMON MISTAKES

- Counting money owed to you as cash. It is a receivable until it is paid.
- Paying investors from a guess. Calculate from the closed books, exactly as the agreement says.
- Forgetting to give. Giving is not an afterthought; plan it first.

Make it a game • Closing Night Relay. Write each closing step on a card: income statement, balance sheet, cash-flow statement, investor report, pay what you owe or the agreed profit share, and set aside the first fruits. Scatter them across the room. Run to fetch them in the right order, one at a time, and say aloud why that step belongs there. Time yourself and beat your record.

Scripture. “Be thou diligent to know the state of thy flocks, and look well to thy herds.” (Proverbs 27:23, KJV)

A shepherd counted his flock every night. Closing the books is how a business owner knows the state of his flocks: honestly, completely and in time to act.

BONUS: RUN A REAL BUSINESS

This optional unit turns your capstone pitch into a real business. With a parent as your partner and supervisor, you will write a full business plan, pitch it to family “investors” who may lend you money or buy a share of your profits under a written agreement, and run the business for one month. You will keep a daily journal and ledger, review your numbers at mid-month and adjust, and at the end close the books with all three financial statements, a report to your investors, an honest profit split and a gift.

Choose a business you can do well and safely with a parent: baked goods for neighbors and church friends you know, garden seedlings, handmade cards, lawn and garden help, pet care, tutoring a younger child, or a simple repair service. Along the way you will meet four business founders who did the same things on a larger scale: H. J. Heinz, who started again with his family’s money after his first company failed; Sam Walton, who learned a hard lesson from his first store’s lease; F. W. Woolworth, whose first store failed in weeks; and the Dutch East India Company, whose investors waited eight years for their first dividend. Use this unit after market day, over the summer, or alongside the year.

PREREQUISITES

- Business plan packet and pitch from Unit 6 and the capstone in Unit 8
- Can keep a journal and ledger and prepare the three statements (Unit 7)
- A parent who agrees to be partner, supervisor and cash-box keeper

MASTERY CHECKLIST

- ☐ I can write a full business plan and pitch it to investors with a written agreement.
- ☐ I can run a small business safely for a month, with a daily journal, a ledger and a cash count.
- ☐ I can review my numbers at mid-month, find what is and is not working, and change my plan.
- ☐ I can prepare the three financial statements for my month and report honestly to my investors.
- ☐ I can split the profit as agreed, repay what I owe, save and give.

OPTIONAL BOOKS AND GAMES FOR THIS UNIT

- **U.S. Small Business Administration: Write your business plan**: Free. The government's guide to the parts of a business plan, written for adult founders but clear enough to follow with a parent. Good for Lesson 9.1.
- **Next Gen Personal Finance: entrepreneurship lessons**: Free activities on starting a business, pricing and keeping records. A parent may create the free teacher account.

Not required. Every project in this unit works without them. School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

9.1 The Full Business Plan and the Investor Pitch	2 sessions of 60 minutes
9.2 Launch and Run: The First Two Weeks	2 sessions of 60 minutes
9.3 The Mid-Month Review: Measure, Learn, Adjust	2 sessions of 60 minutes
9.4 Close the Books: Statements, the Investor Report, the Profit Split and the Gift	2 sessions of 60 minutes

UNIT 9 REVIEW

This review covers your own business and the four stories in the unit. Answer each question, show your work for calculations, and attach your statements. The review is worth 100 points.

1. **8 pts**

Name the ten sections of your business plan and give one sentence from your own plan for any three.

2. **8 pts**

Why did H. J. Heinz repay creditors the law no longer required him to repay, and how might that have helped his business?

3. **8 pts**

What mistake did Sam Walton make with his first store, and what did it teach him?

4. **10 pts**

Your float is \$25. You sell 22 items at \$3 and spend \$8 from the cash box on supplies. How much cash should be in the box? If you count \$87, what is the difference?

5. **8 pts**

What did F. W. Woolworth learn from his failed first store in Utica?

6. **10 pts**

Your product sells for \$5 with a variable cost of \$2. Fixed costs for the month are \$60. Find the contribution margin and break-even. If you sell 35, what is your profit?

7. **8 pts**

You planned to sell 50 units in two weeks and sold 38. What is the variance in units and in percent?

8. **10 pts**

Month revenue \$430; cost of goods used \$150; fixed costs \$30; interest \$3. An investor owns 20% of profit. Find net income, the investor's share and the owner's share.

9. **8 pts**

How long did the VOC's first investors wait for a dividend, and in what was it paid?

10. **8 pts**

Why must an investor report be honest even when the results are poor?

11. **6 pts**

Name three internal controls you used in your business.

12. 8 pts

Write a paragraph on what you would do differently if you ran your business again, and how you decided what to give.

ANSWER KEY

1. Need and customers; product and price; where and how I will sell; start-up budget; weekly sales forecast; forecast income statement and break-even; help and rules; risks and plans; repaying, profit split, saving and giving; safety rules. Sample sentences will vary.
2. He felt a moral obligation to repay what he owed. It restored his good name and the trust of suppliers, bankers and customers, which a food business needs above all.
3. His lease had no renewal clause, so the landlord refused to renew it in 1950 and took over the store. He learned to read every contract carefully and not let success make him careless.
4. $25 + 66 - 8 = \$83$. Counted \$87: \$4 over; check the tally and change-making.
5. That location and choice mattered: the side street drew too few customers and the five-cent goods were too limited. He chose a busy main street in Lancaster and added ten-cent goods, and it succeeded.
6. Contribution margin \$3; break-even $60 \div 3 = 20$ units; profit $35 \times 3 - 60 = \$45$.
7. $38 - 50 = -12$ units; $-12 \div 50 \times 100 = -24\%$.
8. Net income $430 - 150 - 30 - 3 = \$247$. Investor $0.20 \times 247 = \$49.40$. Owner $247 - 49.40 = \$197.60$.
9. About eight years, from 1602 to 1610; it was paid partly in spices, especially mace, rather than cash.
10. Investors trusted you with their money and need the truth to make decisions; honesty keeps your good name and their trust for the future; hiding losses is a form of lying.
11. Any three: a parent kept the cash box; daily cash counts; daily inventory counts; receipts for every expense; keeping business and personal money separate; two people counting cash.
12. Answers will vary. A strong answer names specific changes based on the numbers and feedback, and explains a thoughtful, cheerful plan for giving (2 Corinthians 9:7; Proverbs 3:9).

PORTFOLIO PIECE: ONE MONTH IN BUSINESS: THE COMPLETE FILE

Assemble the complete file of your real business: the full business plan, the signed investor and partnership agreements, the daily journal, ledger, inventory and cash records, the mid-month variance table and experiment results, the three closing financial statements, the investor report with receipts for payments, and a final reflection of one to two pages on what you learned about work, honesty, customers and money, and where your gift went.

LOOK FOR	WHAT IT MEANS
Plan and agreements	A complete ten-section plan with evidence-based forecasts and signed, clear agreements.
Daily records	Complete, dated records with cash and inventory counts that agree or have explained differences.
Review and adjustment	A correct variance table and unit economics, real feedback, and at least one tested change.
Statements and report	Correct, connected statements and an honest, clear investor report with payments made as agreed.
Stewardship and safety	Safety rules followed, a parent involved throughout, and a thoughtful plan for giving and saving.