

GRADE 2 COOKING & FOOD

First edition

8 units

32 lessons • one school year

A video for every lesson

FIRST EDITION

COURSE GUIDE

This course follows eight strands of cooking and food through one school year: kitchen safety, the food groups, taste and smell, heat and cold, food chemistry, hungry and full and treats in their place, fire and spice, and helping at the family table. Each lesson begins with a short true story: Florence Nightingale asking nurses to wash their hands, Daniel asking for vegetables and water, Oliver Evans building a mill that ran by itself, a Japanese scientist tasting his soup and naming umami, the iceman carrying blocks of ice into the kitchen, a jiggly dessert from a little New York town, Smokey Bear's campfire rules, and the Pilgrims' harvest feast in 1621.

Every lesson follows the same path, made gentle for a seven-year-old: **the story**, then **how they figured it out**, then **the kitchen science** (what is happening to the food), then **let's cook**. The child really cooks: washing, tearing, measuring, pouring, stirring, spreading, mashing, shaking, cutting soft foods with a butter knife or a nylon kid knife, putting dishes together and tasting. A grown-up does every hot and sharp job while the child watches from a safe spot. Food is treated as God's good gift, received with thanks and shared. We talk about food in terms of skill, safety, nourishment, thankfulness and helping others, never in terms of body size or looks.

The year ends with a family feast. The child helps plan the menu, goes shopping with a parent, makes two dishes, sets the table, welcomes the family and leads grace. The old Latin saying *Fabricando fit faber*, "by making, one becomes a maker," fits a seven-year-old in an apron: by cooking, one becomes a cook.

Most videos come from trusted teaching sources: public health and extension channels, children's science channels such as SciShow Kids, and careful kitchen teachers chosen lesson by lesson. Every video was previewed for content, accuracy and modest dress. Videos for second graders are short; watch them together. Some channels end with an invitation to subscribe or a word about their other videos; you can stop the video when the teaching ends. Pause whenever the lesson asks your child to guess what will happen next.

WHO IT IS FOR

Written for children in grade 2 (about ages 7–8). A parent reads the lessons aloud, works beside the child in the kitchen, and does every hot or sharp step. The child should be able to stand safely on a sturdy step stool, follow two or three spoken steps, and begin to read a simple recipe. Nothing needs to be bought beyond an ordinary kitchen and ordinary groceries.

HOW TO USE THIS COURSE

1. **The weekly rhythm.** The year has 32 lessons, one a week, in two short sessions. Session 1 (about 30–40 minutes) is the warm-up, the video, the story and the picture study. Session 2 (about 30–40 minutes) is the kitchen project: make the recipe, do the little test inside it, clean up, and draw or write in the cook's notebook. In the last week of each unit, add a third session for the unit review and the unit challenge.
2. **A grown-up supervises all cooking.** A parent or responsible adult is in the kitchen for every kitchen project in this course, start to finish. Before cooking, check every recipe and every taste test against your own family's food allergies; each recipe card names the major allergens it contains and offers swaps where they are easy.
3. **The grade 2 safety ladder.** Second graders do not use sharp knives. They cut only soft foods (banana, strawberries, cooked potato, cheese slices, kiwi, cucumber already sliced by a grown-up) with a butter knife or a plastic or nylon kid knife. They do **not** use the stove, oven, toaster, microwave, blender or grill. A grown-up does every hot and sharp job while the child watches from a safe spot an arm's length or more away. Children wash, tear, rinse, measure, pour, stir cold mixtures, spread, mash, shake, put food together, and taste.
4. **Story, then science, then cooking.** Read the core ideas aloud. They are short on purpose. After each paragraph, ask your child to tell it back in his or her own words, or to show it with hands or with the food.
5. **Picture study.** Each lesson has one painting or old photograph of a kitchen, a market, a harvest or a table. Look at it quietly together for one or two minutes. Then turn it over and let your child tell everything he or she remembers. Turn it

back and go through the “look for” items and questions, which point to the food, the tools and the people.

6. **The cook’s notebook.** Use one notebook for the whole year. For every recipe, your child draws the finished food, copies or dictates the recipe name, colors a smiley-face rating, and tells one thing to change next time. A parent can write the words while the child draws. Then, when you can, make it again with that change. Cook it, record it, improve it.
7. **How we talk about food and bodies.** This course never talks about weight or how bodies look. We call foods “everyday foods” and “sometimes foods,” never “good” or “bad.” Treats and feasts are good gifts in their place. Praise goes to effort, care, safety, cleanliness and trying again.
8. **Groceries.** The recipes use ordinary grocery-store foods and feed a family of four to six. Most weeks the kitchen project can be the family’s snack, lunch or part of supper, so the course adds little to the grocery bill. Read the recipe card a few days ahead and put its foods on the shopping list.
9. **Optional books and tools.** Some units list free charts and guides, a cookbook, or a simple tool such as a nylon kid knife. They are extras. Every recipe can be made without them.
10. **Unit review and unit challenge.** Each unit ends with a short spoken review (no points: your child may answer by telling, pointing, showing or drawing) and a unit challenge, something real made, served and recorded, such as a family hand-washing check, a week of balanced breakfasts, a family taste test or a sorting game. Keep the challenge pages and photos in a folder.
11. **The family feast.** In the last week your child helps plan a meal, shops with you, makes two dishes with you, sets the table and leads grace.

SCOPE AND SEQUENCE

UNIT 1 • WEEKS 1–4

Kitchen & Food Safety

Florence Nightingale and clean hands; a sealed-bag bread mold test that shows germs grow; Escoffier’s kitchen jobs and the nylon-knife fruit salad; and keeping friends safe from food allergies by reading the label.

- 1.1 Soap, Water and Twenty Seconds
- 1.2 Germs Grow on Bread
- 1.3 Kitchen Rules and Kitchen Jobs
- 1.4 Allergies: Keeping Friends Safe

UNIT 3 • WEEKS 9–12

Taste, Smell & Your Taste Buds

The five tastes and Kikunae Ikeda’s umami; taste buds that grow new every week or two and the try-it-again chart; smell, the nose-pinch test and herbed popcorn; and crunchy and creamy textures.

- 3.1 The Five Tastes
- 3.2 How Taste Buds Work
- 3.3 Smell Is Most of Flavor
- 3.4 Crunchy and Creamy

UNIT 2 • WEEKS 5–8

Food Groups & the Balanced Meal

Daniel’s vegetables and the five food groups on MyPlate; beans and corn, the protein partners of the Three Sisters gardens; Oliver Evans’s mill and the whole wheat kernel; and a balanced breakfast.

- 2.1 Daniel and the King’s Food
- 2.2 Protein Builds: Beans and Corn
- 2.3 Whole Grains: The Wheat Kernel
- 2.4 A Balanced Breakfast

UNIT 4 • WEEKS 13–16

Heat & Cold

Thomas Jefferson’s macaroni and the pot that boils at 212 °F; Abraham and Sarah’s cakes and how an oven bakes; the iceman and the icebox, with ice cream shaken in a bag; and drying fruit, from sun-dried raisins to apple chips.

- 4.1 Hot Stove Safety and Boiling Water
- 4.2 Baking in the Oven
- 4.3 Keeping Food Cold Long Ago
- 4.4 Drying Food

UNIT 5 • WEEKS 17–20

Food Chemistry

Potato starch from the Andes; cream shaken into butter and whipped cream; the Jell-O wiggle and protein that sets; and yeast that blows up a balloon and puffs up soft pretzels.

- 5.1 Starch in Potatoes
- 5.2 Shake Cream into Butter
- 5.3 Jell-O and the Protein Net
- 5.4 Yeast Makes Bread Rise

UNIT 7 • WEEKS 25–28

Fire, the Grill & Spice

Smokey Bear and campfire safety, with foil-packet potatoes a grown-up grills; the Queen of Sheba's spices; salt from the sea and the salt mine; and flavors that go together, like cheese and apples.

- 7.1 A Campfire and a Grill Are Not Toys
- 7.2 Where Spices Come From
- 7.3 Salt Makes Food Taste Better
- 7.4 Flavors That Go Together

UNIT 6 • WEEKS 21–24

Cravings, Reward & a Balanced Diet

Why some snacks are hard to stop eating and the portioned snack bowl; everyday foods and sometimes foods, with Laura Ingalls's Christmas treats; water, the best drink; and treats in their place on a feast day.

- 6.1 Why Some Foods Are Hard to Stop Eating
- 6.2 Everyday Foods and Sometimes Foods
- 6.3 Thirsty? Drink Water
- 6.4 Treats in Their Place

UNIT 8 • WEEKS 29–32

Meal Planning & the Family Table

Fannie Farmer's level cup and no-bake granola bites; the Pilgrims' harvest feast of 1621 and a corn succotash; making a grocery list and shopping; and the family feast, with two dishes, a set table and grace.

- 8.1 Measuring Cups and Spoons
- 8.2 The First Thanksgiving Meal
- 8.3 Making a Grocery List
- 8.4 The Family Feast

WEEKLY PACING CALENDAR

WEEK	PLAN
1	- Session 1: Lesson 1.1 Soap, Water and Twenty Seconds: warm-up, video, teaching and picture study - Session 2: Lesson 1.1 kitchen project (cook the recipe) and cook's notebook <i>Two sessions a week is the usual rhythm: one to learn, one to cook. Younger children can split a long session in two. Cook the week's recipe again at home whenever you can.</i>
2	Session 1: Lesson 1.2 Germs Grow on Bread: warm-up, video, teaching and picture study

WEEK	PLAN
	Session 2: Lesson 1.2 kitchen project (cook the recipe) and cook's notebook
3	- Session 1: Lesson 1.3 Kitchen Rules and Kitchen Jobs: warm-up, video, teaching and picture study - Session 2: Lesson 1.3 kitchen project (cook the recipe) and cook's notebook
4	- Session 1: Lesson 1.4 Allergies: Keeping Friends Safe: warm-up, video, teaching and picture study - Session 2: Lesson 1.4 kitchen project (cook the recipe) and cook's notebook - Session 3: Unit 1 review and unit challenge
5	- Session 1: Lesson 2.1 Daniel and the King's Food: warm-up, video, teaching and picture study - Session 2: Lesson 2.1 kitchen project (cook the recipe) and cook's notebook
6	- Session 1: Lesson 2.2 Protein Builds: Beans and Corn: warm-up, video, teaching and picture study - Session 2: Lesson 2.2 kitchen project (cook the recipe) and cook's notebook
7	- Session 1: Lesson 2.3 Whole Grains: The Wheat Kernel: warm-up, video, teaching and picture study - Session 2: Lesson 2.3 kitchen project (cook the recipe) and cook's notebook
8	- Session 1: Lesson 2.4 A Balanced Breakfast: warm-up, video, teaching and picture study - Session 2: Lesson 2.4 kitchen project (cook the recipe) and cook's notebook - Session 3: Unit 2 review and unit challenge
9	- Session 1: Lesson 3.1 The Five Tastes: warm-up, video, teaching and picture study - Session 2: Lesson 3.1 kitchen project (cook the recipe) and cook's notebook
10	- Session 1: Lesson 3.2 How Taste Buds Work: warm-up, video, teaching and picture study - Session 2: Lesson 3.2 kitchen project (cook the recipe) and cook's notebook
11	- Session 1: Lesson 3.3 Smell Is Most of Flavor: warm-up, video, teaching and picture study - Session 2: Lesson 3.3 kitchen project (cook the recipe) and cook's notebook
12	- Session 1: Lesson 3.4 Crunchy and Creamy: warm-up, video, teaching and picture study - Session 2: Lesson 3.4 kitchen project (cook the recipe) and cook's notebook

WEEK	PLAN
	Session 3: Unit 3 review and unit challenge
13	- Session 1: Lesson 4.1 Hot Stove Safety and Boiling Water: warm-up, video, teaching and picture study - Session 2: Lesson 4.1 kitchen project (cook the recipe) and cook's notebook
14	- Session 1: Lesson 4.2 Baking in the Oven: warm-up, video, teaching and picture study - Session 2: Lesson 4.2 kitchen project (cook the recipe) and cook's notebook
15	- Session 1: Lesson 4.3 Keeping Food Cold Long Ago: warm-up, video, teaching and picture study - Session 2: Lesson 4.3 kitchen project (cook the recipe) and cook's notebook
16	- Session 1: Lesson 4.4 Drying Food: warm-up, video, teaching and picture study - Session 2: Lesson 4.4 kitchen project (cook the recipe) and cook's notebook - Session 3: Unit 4 review and unit challenge
17	- Session 1: Lesson 5.1 Starch in Potatoes: warm-up, video, teaching and picture study - Session 2: Lesson 5.1 kitchen project (cook the recipe) and cook's notebook
18	- Session 1: Lesson 5.2 Shake Cream into Butter: warm-up, video, teaching and picture study - Session 2: Lesson 5.2 kitchen project (cook the recipe) and cook's notebook
19	- Session 1: Lesson 5.3 Jell-O and the Protein Net: warm-up, video, teaching and picture study - Session 2: Lesson 5.3 kitchen project (cook the recipe) and cook's notebook
20	- Session 1: Lesson 5.4 Yeast Makes Bread Rise: warm-up, video, teaching and picture study - Session 2: Lesson 5.4 kitchen project (cook the recipe) and cook's notebook - Session 3: Unit 5 review and unit challenge
21	- Session 1: Lesson 6.1 Why Some Foods Are Hard to Stop Eating: warm-up, video, teaching and picture study - Session 2: Lesson 6.1 kitchen project (cook the recipe) and cook's notebook
22	Session 1: Lesson 6.2 Everyday Foods and Sometimes Foods: warm-up, video, teaching and picture study

WEEK	PLAN
	Session 2: Lesson 6.2 kitchen project (cook the recipe) and cook's notebook
23	- Session 1: Lesson 6.3 Thirsty? Drink Water: warm-up, video, teaching and picture study - Session 2: Lesson 6.3 kitchen project (cook the recipe) and cook's notebook
24	- Session 1: Lesson 6.4 Treats in Their Place: warm-up, video, teaching and picture study - Session 2: Lesson 6.4 kitchen project (cook the recipe) and cook's notebook - Session 3: Unit 6 review and unit challenge
25	- Session 1: Lesson 7.1 A Campfire and a Grill Are Not Toys: warm-up, video, teaching and picture study - Session 2: Lesson 7.1 kitchen project (cook the recipe) and cook's notebook
26	- Session 1: Lesson 7.2 Where Spices Come From: warm-up, video, teaching and picture study - Session 2: Lesson 7.2 kitchen project (cook the recipe) and cook's notebook
27	- Session 1: Lesson 7.3 Salt Makes Food Taste Better: warm-up, video, teaching and picture study - Session 2: Lesson 7.3 kitchen project (cook the recipe) and cook's notebook
28	- Session 1: Lesson 7.4 Flavors That Go Together: warm-up, video, teaching and picture study - Session 2: Lesson 7.4 kitchen project (cook the recipe) and cook's notebook - Session 3: Unit 7 review and unit challenge
29	- Session 1: Lesson 8.1 Measuring Cups and Spoons: warm-up, video, teaching and picture study - Session 2: Lesson 8.1 kitchen project (cook the recipe) and cook's notebook
30	- Session 1: Lesson 8.2 The First Thanksgiving Meal: warm-up, video, teaching and picture study - Session 2: Lesson 8.2 kitchen project (cook the recipe) and cook's notebook
31	- Session 1: Lesson 8.3 Making a Grocery List: warm-up, video, teaching and picture study - Session 2: Lesson 8.3 kitchen project (cook the recipe) and cook's notebook
32	- Session 1: Lesson 8.4 The Family Feast: warm-up, video, teaching and picture study - Session 2: Lesson 8.4 kitchen project (cook the recipe) and cook's notebook

MATERIALS

Cook's notebook (any notebook with blank space for drawing)

One for the whole year: drawings of each dish, the recipe name, a smiley-face rating, and one thing to change next time. A parent may write the words.

A sturdy step stool

So your child can reach the counter and sink safely. It should not wobble.

An apron and a hand towel

Your child's own apron makes kitchen time feel special and keeps clothes clean.

A butter knife or a nylon or plastic kid knife, and a small cutting board

For cutting soft foods only. Put a damp towel under the board so it cannot slide.

Measuring cups (dry and liquid) and measuring spoons

Used in almost every recipe. Children love to measure, level and pour.

Mixing bowls, a whisk, a wooden spoon, a rubber spatula, a colander and a few clean jars with lids

For mixing, rinsing, shaking and storing.

Zipper-top plastic bags, small cups and a muffin tin

For experiments, portioned snacks and taste tests.

An instant-read food thermometer (for the grown-up)

Optional but helpful. The grown-up uses it to check hot foods; your child can read the number aloud.

Clean dish towels, dish soap and paper towels

Cleanup is part of every recipe.

GRADING

No letter grades in grade 2. Give short, warm, honest feedback on effort, safety, helpfulness, careful cleanup and trying again, and keep the notebook pages, recipe cards and unit challenges in a recipe folder for the year.

- Praise the cook, not the dish. Did your child wash hands first, listen to the safety rules, measure carefully, notice and tell what happened, help clean up, and try one change the next time?
- After each unit, write two or three sentences in the folder: what your child did faithfully, one thing that grew, and one thing to keep practicing.
- The unit reviews are spoken and have no points. Note which ideas your child can tell back easily and which to visit again.
- A dish that flops but is honestly drawn and tried again is a success. Runny whipped cream and lumpy pretzels teach as much as perfect ones.
- Never grade or comment on anyone's body, size or how much they ate. Feedback rests on effort, care, safety, cleanliness and improvement.

A NOTE TO PARENTS

You do not need to be a chef to teach this course. Read the story aloud, watch the short video together, and then be your child's kitchen partner. Do every hot and sharp job yourself, and hand over everything else: the washing, measuring, pouring, stirring, spreading, mashing and cleanup. Ask "What do you think will happen?" and "Why do you think it happened?" Those two questions are most of good teaching.

Expect some spills. Second graders pour too fast and stir too hard. That is how hands learn. Keep a towel nearby, smile, and let your child wipe it up. *Fabricando fit faber*: by making, one becomes a maker.

Food in this course is a good gift to be received with thanks and shared. We keep the conversation on skill, nourishment, thankfulness and hospitality, never on weight or appearance, and we name foods neutrally as "everyday foods" and "sometimes foods." Food allergies and any special medical needs belong to your family and your doctor: please read each recipe card's allergen note and make the swaps your family needs.

UNIT 1

KITCHEN & FOOD SAFETY

A good cook is a safe cook. In this unit you will learn the first kitchen habits: washing your hands the right way, keeping food away from germs, knowing which jobs are yours and which jobs belong to a grown-up, and keeping friends with food allergies safe.

You will meet Florence Nightingale, a nurse who asked everyone to wash their hands, and Alexander Fleming, who found a fuzzy mold growing in his laboratory. You will grow mold on bread inside a sealed bag (and never open it!), cut soft fruit with a kid knife, and make no-bake oat bars that friends with many kinds of food allergies can enjoy. God gave us food as a good gift. Taking care of it, and of each other, is part of saying thank you.

PREREQUISITES

- Can stand safely on a step stool at the sink and counter
- Can listen to and follow two or three spoken steps
- Knows that the stove, oven and sharp knives are grown-up jobs

MASTERY CHECKLIST

- ☐ I can wash my hands the right way: wet, soap, scrub for 20 seconds, rinse and dry.
- ☐ I can tell why germs and mold grow on food, and what slows them down.
- ☐ I can say our kitchen rules and cut soft food safely with a kid knife.
- ☐ I can name some of the foods that cause allergies, and I know to ask before I share food.
- ☐ I help clean up after every recipe.

OPTIONAL BOOKS AND TOOLS FOR THIS UNIT

- **CDC: Clean Hands:** Free. The U.S. Centers for Disease Control and Prevention's page on when and how to wash hands, with the five steps used in Lesson 1.1.
- **A nylon or plastic kid knife:** An inexpensive serrated nylon knife made for children cuts bananas, strawberries, cheese and cooked potatoes but not fingers. A plain butter knife works just as well for this year's recipes.
- **A sturdy step stool:** A wide, steady stool with a non-slip top lets a second grader reach the sink and counter safely.

Not required. Every recipe in this unit works in an ordinary home kitchen.

School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

1.1 Soap, Water and Twenty Seconds	2 sessions of 30–40 minutes
1.2 Germs Grow on Bread	2 sessions of 30–40 minutes
1.3 Kitchen Rules and Kitchen Jobs	2 sessions of 30–40 minutes
1.4 Allergies: Keeping Friends Safe	2 sessions of 30–40 minutes

UNIT 1 REVIEW

Ask each question aloud. Your child may answer by telling, pointing, drawing or showing. There are no points; note what your child knows well and what to review.

1. Show me how you wash your hands. How long do you scrub?
2. Tell me about Florence Nightingale. What did she do at the army hospital?
3. Which bread grew mold fastest in your test? What does mold need to grow?
4. Point to three grown-up jobs in our kitchen and three jobs you can do.
5. Show me how you hold a strawberry to cut it with a kid knife.
6. What is a food allergy? What should you do before you share food with a friend?

ANSWER KEY

1. Wet, lather with soap, scrub palms, backs, between fingers and under nails for 20 seconds, rinse, and dry with a clean towel.
2. She and her nurses cleaned the hospital, washed the sheets, cleaned the kitchen, cooked good food and washed their hands often. More soldiers got well.
3. Usually the slice touched by dirty hands or the damp, warm slice. Mold needs food, wetness (moisture), warmth and time. Cold slows it down.
4. Grown-up jobs: the stove, oven, toaster, microwave, sharp knives, graters. My jobs: washing, measuring, pouring, stirring, spreading, cutting soft food with a kid knife, wiping.
5. Board on a damp towel, fingers curled back like a paw on top of the strawberry, slow sawing motion with a butter knife or nylon knife.
6. The body mistakes a food for an enemy and fights it, which can make the person sick. Ask a grown-up before you share, and wash hands and wipe the table after eating.

UNIT CHALLENGE: OUR CLEAN-KITCHEN CHECK

Make a hand-washing poster with the five steps and hang it by the kitchen sink. Then walk through the kitchen with a grown-up and check: soap and a clean towel at the sink, a steady step stool, a damp towel for under the cutting board, a kid knife in its place, and leftovers put away. Draw a star by each thing that is ready.

For one week, keep a family sticker chart: a sticker every time someone washes the five-step way before cooking or eating. At the end of the week, make the veggie tray or fruit salad again for the family, with clean hands from start to finish.

LOOK FOR	WHAT IT MEANS
Poster	Your child made a clear poster of the five hand-washing steps and can explain each step.
Kitchen check	Your child walked through the kitchen checklist with you and could tell why each item matters.
Sticker chart	The chart was kept for a week. Faithful effort counts, not the number of stickers.
Safe, clean cooking	Your child washed up first, cut only soft food with a kid knife, and helped clean up afterward.

1.1 SOAP, WATER AND TWENTY SECONDS

OBJECTIVES

- Tell how Florence Nightingale helped sick soldiers by keeping everything clean.
- Wash hands the right way: wet, lather, scrub for 20 seconds, rinse and dry.
- Wash vegetables under running water and make a vegetable tray with a creamy dip.

Warm-up. Look at your hands closely. Do they look clean? Now rub a little cooking oil on your hands and sprinkle on a pinch of cinnamon. Pretend the cinnamon is germs. Can you get it off with only cold water? Keep the cinnamon on your hands for the lesson's test.

WATCH

Germ Smart: Wash Wash Your Hands

Saskatchewan Health Authority · 4:49

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

WHEN TO WATCH

After the story. Watch, then wash your hands along with the video.

Note: A cartoon song from the Saskatchewan Health Authority. One short scene shows germs at a toilet, to remind children to wash after using the bathroom.

BACKUP VIDEO

10 Steps to Washing Your Hands (Short Version) - Hygiene Habits for Kids

Smile and Learn - English · 2:02

<https://www.youtube.com/watch?v=Br4sQmiJ1jU>

A short review of every hand-washing step.

KEY TERMS

germs

Tiny living things, too small to see, that can make people sick.

soap

A cleaner that grabs grease, dirt and germs so water can wash them away.

lather

The bubbly foam you make when you rub soap and water together.

scrub

To rub hard all over: palms, backs, between fingers and under nails.

CORE IDEAS

The story. Florence Nightingale was an English nurse. In 1854 she sailed to a big army hospital far from home, in a place called Scutari. The soldiers there were very sick. The hospital was dirty. The floors, the sheets and even the kitchen needed cleaning.

How they figured it out. Florence and her nurses got to work. They scrubbed floors. They washed sheets and shirts. They made the kitchen clean and cooked good food. They washed their hands often. Florence wrote down how many soldiers were sick, week after week. Where things were clean, more soldiers got well. Later she wrote a book for nurses. She told them to wash their hands many times every day.

The kitchen science. Germs are tiny living things. They are too small to see. They ride on our hands and get onto our food. Water alone does not get them off, because they stick to the oil and dirt on our skin. Soap grabs the oil and dirt, and the germs come off with it. Then the water washes it all down the drain. Scrubbing for 20 seconds gives the soap time to work. That is about as long as singing the Doxology (“Praise God, from whom all blessings flow”) through once, slowly.

The five steps. *Wet* your hands with clean running water. *Lather* with soap. *Scrub* for 20 seconds: palms, backs, between your fingers and under your nails. *Rinse* under running water. *Dry* with a clean towel. Wash before you cook, before you eat, after you use the bathroom, and after you touch raw meat or eggs.

Let’s cook! You will wash a rainbow of vegetables under running water and stir up a creamy dip. A grown-up cuts the cucumber and pepper. You wash, dry, measure, stir and arrange.

PICTURE STUDY



A Woman Washing Her Hands, Gerard ter Borch, about 1655 · Oil on panel · Gemäldegalerie Alte Meister, Dresden, Germany

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

Long ago, homes had no faucets. To wash your hands, someone poured water from a jug over them into a basin. In this painting a young woman is washing her hands before a meal, and a helper pours the water.

Look closely

- Find the jug and the basin. Where does the clean water come from? Where does the dirty water go?
- Is the water running over her hands, or are her hands sitting in still water? Which way is cleaner?
- Find the towel or cloth she will use to dry her hands.
- Look at the light on her dress. Where is it coming from?

Talk about it

1. How is washing hands with a jug like washing at our sink? How is it different?
2. Why would someone wash before eating, even long ago, before people knew about germs?
3. Who helps you wash your hands or reach the sink?

Safety first. A parent or responsible adult supervises all cooking in this course, every time. Before each recipe, your family checks every food against your own food allergies. Today a grown-up does all the cutting; you wash, measure and stir.

KITCHEN PROJECT

The Cinnamon Germ Test and a Rainbow Veggie Tray

First you will find out whether water alone or soap and scrubbing gets “germs” off your hands. Then you will wash a rainbow of vegetables and make a creamy dip to share.

You will need

- A little cooking oil and ground cinnamon for the germ test
- Soap, a clean towel and a timer
- A colander and clean paper towels
- A medium bowl, measuring cups and spoons, and a spoon for stirring
- A large plate or tray

RAINBOW VEGGIE TRAY WITH CREAMY DILL DIP

Serves 4–6 · Prep 20 min · Chill 15 min (optional)

Ingredients

- 1 cup plain Greek yogurt
- 1 tablespoon lemon juice
- 1 teaspoon dried dill
- ½ teaspoon dried parsley
- ¼ teaspoon garlic powder
- ¼ teaspoon onion powder
- ¼ teaspoon salt
- 1 to 2 tablespoons milk, if the dip is too thick
- 1 pint cherry tomatoes
- 2 cups baby carrots
- 1 cup sugar snap peas
- 1 cucumber and 1 yellow or orange bell pepper (a grown-up slices them)

Method

1. Wash your hands the five-step way.

2. Put the tomatoes, carrots and snap peas in a colander. Rinse them under cool running water, rubbing each handful with your fingers. Pat them dry with paper towels.
3. A grown-up washes the cucumber and pepper and cuts them into sticks and rounds with a sharp knife while you watch from your stool.
4. Measure the yogurt, lemon juice, dill, parsley, garlic powder, onion powder and salt into the bowl. Stir until smooth. If it is too thick, stir in milk, 1 tablespoon at a time.
5. Spoon the dip into a small bowl in the middle of the tray. Arrange the vegetables around it in rainbow order: red, orange, yellow, green.
6. Serve right away, or cover and chill until snack time. Put leftovers back in the refrigerator within 2 hours.

Allergy check: Contains milk. For a milk-free dip, use a plain unsweetened dairy-free yogurt (some are made from soy or nuts, so read the label), or serve the vegetables with hummus (contains sesame).

Steps

1. **Germ test.** With oil and cinnamon still on your hands from the warm-up, rinse with cold water only for 10 seconds. Look. Is the cinnamon gone?
2. Now wash the five-step way with soap, scrubbing for 20 seconds while a grown-up times you. Look again. Where did the cinnamon hide longest? (Usually between fingers, around thumbs and under nails.)
3. Make the veggie tray with clean hands.
4. **Taste test.** Try one vegetable with dip and one without. Which do you like better? Give the tray a family rating: one, two or three smiles.
5. **Clean up.** Wash the bowl, spoons and colander in warm, soapy water. Wipe the counter. Put the leftover vegetables away in the refrigerator.
6. **Improve it.** Next time, what other color could you add to the rainbow? Purple cabbage? Green broccoli?

Tips

- Hang a hand-washing picture by the sink, with the five steps, so everyone remembers.
- Cherry tomatoes can roll away. Rinse them in the colander, not loose in the sink.

Check your work

- ☐ I can wash my hands the five-step way for 20 seconds.
- ☐ I washed vegetables under running water.
- ☐ I made a dip by measuring and stirring, and I helped clean up.

COOK'S NOTEBOOK

1. Trace your hand. Color the places where the cinnamon “germs” hid the longest.
2. Draw your rainbow veggie tray and give it a smile rating.
3. Draw the five steps of hand washing as five little pictures.

From history. Florence Nightingale was very good at math. She drew colorful charts to show how many soldiers were sick and why, so that leaders could see the problem at a glance. People called her “the Lady with the Lamp,” because she walked through the hospital at night carrying a lamp to check on the soldiers.

COMMON MISTAKES

- Rinsing for two seconds and calling it clean. Germs need soap and 20 seconds of scrubbing.
- Forgetting the backs of hands, thumbs and under the nails.
- Drying on your shirt or a dirty towel. Use a clean towel.

Make it a game • The Twenty-Second Guess. Florence Nightingale knew clean hands save lives. Close your eyes and silently count what you think is 20 seconds of scrubbing, then open them when you are done. Your grown-up checks a clock. Closest guess wins a point. Play three rounds, then say the five steps of washing: wet, lather, scrub, rinse and dry.

Scripture. “He that hath clean hands, and a pure heart” (Psalm 24:4, KJV)

God cares about clean hearts most of all. Clean hands in the kitchen are a small way to care for the people we feed.

1.2 GERMS GROW ON BREAD

OBJECTIVES

- Tell how Alexander Fleming noticed mold growing in his laboratory.
- Explain that mold grows from tiny spores when food is warm, damp and left out.
- Set up a sealed-bag bread mold test and make fresh sandwiches with clean hands.

Warm-up. Look at a slice of fresh bread. Smell it and touch it. Then think: have you ever seen old bread with fuzzy green or blue spots? What do you think made those spots? Where did they come from?

WATCH

Mouldy Bread Science Experiment

TheDadLab • 3:49

<https://www.youtube.com/watch?v=EdYQWf6i2VY>

WHEN TO WATCH

Before you set up your own bread test. Watch how the bread changes day by day.

BACKUP VIDEO

Time - lapse of Mold Growing on Bread

MooMooMath and Science • 0:49

<https://www.youtube.com/watch?v=Yeul30NQJwo>

A very short time-lapse: watch mold grow on bread in less than a minute.

KEY TERMS

mold

A tiny living thing (a kind of fungus) that grows on old food and looks fuzzy and green, blue, white or black.

spores

Tiny seeds of mold that float in the air, much too small to see.

sealed

Closed up tight so nothing can get in or out.

experiment

A careful test to find out what happens.

CORE IDEAS

The story. Alexander Fleming was a scientist in London. He grew germs in little glass dishes so he could study them. In 1928 he came back from a holiday and looked at his dishes. On one dish a fuzzy blue-green mold was growing!

How they figured it out. Fleming did not just throw the dish away. He looked closely. All around the mold, the germs had stopped growing. The mold was making something that kept those germs away. He named it penicillin. Years later, other scientists learned how to make lots of it, and it became a medicine that has helped very many sick people get well. Fleming said he found it because he noticed something strange and asked “Why?”

The kitchen science. Mold is a tiny living thing. Its spores float in the air everywhere, like invisible dust. When a spore lands on food that is soft, damp and warm, it starts to grow. It sends thin threads deep into the food, and then it grows the fuzzy spots you can see. Cold slows mold down, so the refrigerator helps food last longer. Drying and sealing food helps too.

Moldy food goes in the trash. The threads go deeper than the spots, so you cannot just pick the spots off soft foods like bread. Do not sniff moldy food. A grown-up wraps it and throws it away.

Let’s cook! You will start a bread test in sealed bags and watch it for two weeks without opening the bags. Then you will make fresh sandwiches with clean hands, spreading and stacking all by yourself.

PICTURE STUDY



The Baker, Job Adriaensz Berckheyde, about 1681 · Oil on canvas · Worcester Art Museum, Worcester, Massachusetts

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

In old Dutch towns, the baker blew a horn when the bread came out of the oven. Everyone knew: fresh bread is ready! Families bought bread often, because it went stale or moldy in a few days.

Look closely

- Find the horn. Why would the baker blow it?
- Count the different kinds of bread you can see. Can you find a pretzel?
- Find the baker's cap and rolled-up sleeves. Why would a baker dress this way?
- Is the bread wrapped or sealed? What might happen to it if it sat there for a week?

Talk about it

1. Why did families long ago buy fresh bread so often?
2. Where does your family keep bread so it stays fresh longer?
3. What do you think the baker's shop smelled like?

Safety first. The mold bags stay sealed the whole time. Never open them, smell them or squeeze them. When the test is over, a grown-up throws the closed bags away. Wash your hands after touching the bags.

KITCHEN PROJECT

The Sealed-Bag Bread Test and Fresh Sandwiches

You will find out what helps mold grow and what slows it down. Then you will make sandwiches from fresh bread with clean hands.

You will need

- 4 slices of bread (homemade or bakery bread molds fastest), 4 zipper-top plastic bags and a marker
- Clear tape, a spray bottle or a teaspoon of water, and clean kitchen tongs
- A butter knife and a cutting board
- A plate for each sandwich

CUCUMBER AND CREAM CHEESE SANDWICHES (AND TURKEY AND CHEESE TOO)

Serves 4 (8 small sandwiches) · Prep 15 min

Ingredients

- 8 slices fresh whole-wheat or white sandwich bread
- 4 ounces cream cheese, softened at room temperature for 20 minutes
- 1 teaspoon dried dill or chives (optional)
- 1 small cucumber (a grown-up slices it into thin rounds)
- 4 slices deli turkey
- 4 slices cheddar or Swiss cheese
- 4 lettuce leaves, washed and patted dry

Method

1. Wash your hands the five-step way.
2. Stir the dill into the soft cream cheese with a spoon.
3. With a butter knife, spread cream cheese on 4 slices of bread, all the way to the edges.
4. Lay the cucumber rounds on 2 of the cream-cheese slices. Top with plain bread to make 2 cucumber sandwiches.

5. On the other 2 cream-cheese slices, lay a lettuce leaf, 2 slices of turkey and 2 slices of cheese. Top with plain bread.
6. Press each sandwich gently. Cut it into two triangles with the butter knife, using a slow sawing motion.
7. Serve right away, or wrap and refrigerate. Put the turkey, cheese and cream cheese back in the refrigerator within 2 hours.

Allergy check: Contains wheat and milk. Some breads also contain soy, eggs or sesame: read the label. For a milk-free sandwich, skip the cheese and use a dairy-free spread. Gluten-free bread can replace wheat bread.

Steps

1. **Set up the test.** Label 4 bags: (1) Touched with dirty hands, (2) Touched with washed hands, (3) Damp and warm, (4) Refrigerator.
2. Before you wash your hands, rub your hands over slice 1 and seal it in bag 1. Then wash the five-step way and touch slice 2 gently; seal it in bag 2. Use tongs to put slice 3 in bag 3, sprinkle it with a teaspoon of water, and seal it. Use tongs to put slice 4 in bag 4, seal it, and put it in the refrigerator.
3. Tape bags 1, 2 and 3 shut and keep them in a warm, dark cupboard. **Never open them.**
4. **Predict.** Which slice will grow mold first? Which will grow the least? Draw your guess.
5. Make the sandwiches with clean hands and share them.
6. **Look every two days** for two weeks, through the bag only. Draw what you see. Then a grown-up throws all four bags away without opening them.
7. **Clean up.** Wipe the counter, wash the knife and board, and put the food away.

Tips

- Bread from a bakery or a homemade loaf molds faster than packaged bread, so the test is quicker.
- If nothing has grown after a week, check again at two weeks.

Check your work

- ☐ I can tell what helps mold grow: warmth, wetness, time and dirty hands.
- ☐ I kept my bags sealed and watched them safely.

- I spread and stacked my own sandwich with clean hands.

COOK'S NOTEBOOK

1. Make a mold chart: draw the four slices on day 2, day 6, day 10 and day 14.
2. Draw your sandwich and write or tell its name.
3. Finish this sentence: "Mold grows fastest when ..."

From history. Not all molds are harmful. Some cheeses, like blue cheese, are made with special safe molds on purpose. But mold that grows by itself on old food is not safe to eat.

COMMON MISTAKES

- Opening a mold bag to look closer or smell it. Keep it sealed.
- Picking the spots off moldy bread and eating the rest. The threads go deeper than you can see.
- Leaving bread out on the counter unwrapped. Wrap it, and freeze extra bread to keep it fresh.

Make it a game • Where Will Mold Grow?. Fleming found mold growing where it was warm and damp. Lay out four bread-spot cards: a sealed bag in the fridge, an open slice on the counter, a damp slice in a bag by a window, and a slice in a dry cupboard. Rank them from fastest mold to slowest. Say why, using spores.

1.3 KITCHEN RULES AND KITCHEN JOBS

OBJECTIVES

- Tell how the French chef Auguste Escoffier gave every cook one job and kept his kitchen calm and safe.
- Say our family kitchen rules, and tell which jobs are grown-up jobs.
- Cut soft fruit safely with a butter knife or nylon kid knife to make a fruit salad.

Warm-up. Walk around the kitchen with a grown-up. Point to three things that are hot or sharp. Then point to three things you can use all by yourself. Which list was easier?

WATCH

Kitchen Safety for Kids - Camp Galileo Anywhere: Chefology

Camp Galileo Anywhere · 4:34

<https://www.youtube.com/watch?v=KL9r9q9n20A>

WHEN TO WATCH

After the story, before you make your kitchen rules poster.

KEY TERMS

chef

The head cook in a kitchen. The word means “chief” in French.

kitchen rules

The family’s list of ways to stay safe and clean while cooking.

kid knife

A butter knife or a plastic or nylon knife that cuts soft food but not fingers.

station

Your own work spot at the counter, with your tools and food ready.

CORE IDEAS

The story. More than a hundred years ago, Auguste Escoffier was a famous chef in France and in London. His kitchens cooked for hundreds of hungry guests every night. Before Escoffier, many big kitchens were noisy and messy. Cooks bumped into each other. Things got burned.

How they figured it out. Escoffier gave every cook one job. One cook made sauces. One cook made soup. One cook cooked vegetables. Another made desserts. Each

cook had a station, kept it clean, and listened for the chef. When the chef called out an order, the cooks answered, “Yes, Chef!” The kitchen became calm, clean and safe, and the food was better too.

Our kitchen rules. Wash your hands first. Tie back long hair and roll up your sleeves. Stand on a steady stool. Grown-ups do every hot job: the stove, the oven, the toaster and the microwave. Grown-ups do every sharp job with sharp knives and graters. Wipe up spills right away so no one slips. Ask before you taste. Clean up when you finish.

Your knife. You use a butter knife or a nylon kid knife, and only on soft foods: bananas, strawberries, kiwi, melon, cheese and cooked potatoes. Put a damp towel under your cutting board so it cannot slide. Hold the food with your fingers curled back on top, like a little paw, and cut slowly with a sawing motion.

Let’s cook! Each person in your family gets a kitchen job today. You will be the fruit cutter. You will make a rainbow fruit salad with your kid knife.

PICTURE STUDY



The Kitchen Maid, Jean-Siméon Chardin, 1738 • Oil on canvas • National Gallery of Art, Washington, D.C.

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

A kitchen maid has been peeling turnips for dinner. She has stopped for a moment to rest and think. Chardin loved to paint quiet kitchen work.

Look closely

- Find the knife. Who is using it? Is she cutting toward her fingers or away from them?
- Find the turnips. Which ones are peeled and which are not?
- Find the copper pot and the chopping block. What job will come next?
- Look at her apron. Why do cooks wear aprons?

Talk about it

1. What is her kitchen job? What job would you choose in your kitchen?
2. Why is peeling with a sharp knife a grown-up job?
3. Why do you think she stopped to rest?

Safety first. You cut only soft foods with a butter knife or a nylon kid knife. A grown-up peels the kiwi and does any cutting with a sharp knife. Keep your cutting board on a damp towel so it does not slide.

Kitchen Jobs and a Rainbow Fruit Salad

You will make a kitchen rules poster and a job chart for your family. Then you will do your job: cut soft fruit with a kid knife for a fruit salad.

You will need

- A large sheet of paper and crayons or markers
- A butter knife or nylon kid knife
- A small cutting board and a damp dish towel to set under it
- A colander, a large bowl and a big spoon
- A small jar with a lid, or a small bowl and a whisk

RAINBOW FRUIT SALAD WITH ORANGE-HONEY DRIZZLE

Serves 6 • Prep 25 min

Ingredients

- 1 pound (about 2 cups) strawberries
- 1 cup blueberries
- 1 cup green or red grapes
- 2 kiwis (a grown-up peels them)
- 2 bananas
- 2 clementines or mandarin oranges, peeled
- **Drizzle:** 3 tablespoons orange juice
- 1 tablespoon honey (or maple syrup)
- A pinch of cinnamon (optional)

Method

1. Wash your hands. Put the strawberries, blueberries and grapes in a colander and rinse them under cool running water. Let them drain on a towel.
2. Pull the green tops off the strawberries with your fingers. Set the board on a damp towel. Cut each strawberry in half with your kid knife,

holding it with curled fingers.

3. A grown-up peels the kiwis with a peeler or sharp knife. You slice the soft kiwis into rounds with your kid knife.
4. Peel the bananas yourself and slice them into coins. Peel the clementines and pull them apart into sections.
5. Put all the fruit in the big bowl.
6. Put the orange juice, honey and cinnamon in the jar, close the lid tight, and shake. Pour it over the fruit and stir gently with the big spoon.
7. Serve right away. Cover leftovers and refrigerate.

Allergy check: Contains none of the nine major allergens. Honey is never given to babies under one year old; if a baby will share the salad, use maple syrup. For children under 4, a grown-up cuts grapes and blueberries in quarters lengthwise.

Steps

1. **Rules poster.** With your family, write or draw six kitchen rules on a big sheet of paper. Hang it in the kitchen.
2. **Job chart.** Give each person a kitchen job for today: washer, cutter, mixer, table setter, wiper. Like Escoffier's cooks, each person does one job well.
3. Make the fruit salad. Before each cut, say the rule: "Soft food, curled fingers, slow saw."
4. **Taste test.** Taste one piece of each fruit. Which is the sweetest? Which is the most sour? Then taste them all together with the drizzle.
5. **Clean up.** Wash the knife, board and bowls in warm, soapy water. Wipe the counter. Hang up the damp towel to dry.
6. **Improve it.** Ask your family: which fruit should we add or leave out next time?

Tips

- Bananas turn brown when they sit out. Add them last, just before serving, or toss them right away in the orange juice.
- A kid knife works best with a slow sawing motion, not pressing hard.

Check your work

- ☐ I can say our kitchen rules.

- ☐ I know which jobs are grown-up jobs.
- ☐ I cut soft fruit with a kid knife, fingers curled, on a board that did not slide.

COOK'S NOTEBOOK

1. Draw your family's job chart with each person doing a kitchen job.
2. Draw your fruit salad and color each fruit. Rate it with one, two or three smiles.
3. Draw your hand holding a strawberry the safe way, fingers curled like a paw.

From history. Escoffier also wrote a giant cookbook, *Le Guide Culinaire* (1903), with more than five thousand recipes. Cooks around the world still learn from it, and many chefs still answer “Yes, Chef!”

COMMON MISTAKES

- Using a sharp knife because it is “faster.” Kid knives and butter knives only, on soft foods.
- Leaving a spill on the floor. Wipe it right away so no one slips.
- Standing on a wobbly chair. Use a steady step stool.

Make it a game • Escoffier's Station Call. Make four station signs on index cards: wash, mix, set, stir. Put them around the kitchen. Your grown-up is Chef Escoffier and calls a station. Race there and say one family kitchen rule that fits that job. No repeats! Then say which jobs are for grown-ups, like the stove and sharp tools.

1.4 ALLERGIES: KEEPING FRIENDS SAFE

OBJECTIVES

- Tell what a food allergy is and name some of the foods that most often cause allergies.
- Find the allergen line on a food label.
- Make no-bake oat bars that leave out the nine major food allergens, and know to ask before I share food.

Warm-up. Do you know anyone who cannot eat peanuts, milk, eggs or wheat? What do they do at a birthday party? Talk about how you could help a friend like that feel welcome.

WATCH

Why Can't I Eat Peanut Butter?

SciShow Kids · 3:24

<https://www.youtube.com/watch?v=yqBw4tdRw9I>

WHEN TO WATCH

After the kitchen science paragraph. Listen for what the body's defenders do.

BACKUP VIDEO

Have Food Allergies: Read the Label

U.S. Food and Drug Administration · 2:18

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

For the grown-up: a short video on reading allergens on a food label.

KEY TERMS

allergy

When the body mistakes a harmless food for an enemy and fights it, which can make a person sick.

allergen

A food (or other thing) that causes an allergy.

label

The words on a food package that tell what is inside.

cross-contact

When a tiny bit of an allergen gets onto another food, from hands, crumbs or tools.

CORE IDEAS

The story. Some children cannot eat certain foods. A tiny bit of peanut, milk or egg can make them very sick. For a long time, food labels were hard to read. They used words like “whey” and “casein,” and many people did not know those words mean milk. In 2004 the United States made a law that food packages must name the main allergens in plain words, like “milk” or “wheat.” In 2023 sesame was added to the list. Now there are nine.

How they figured it out. Doctors and families saw that people were eating allergens by mistake because they could not tell what was in the food. So the label rule was made. Now many packages have a line that starts with the word **Contains**, like “Contains: Milk, Wheat.” Families with allergies read every label, every time.

The kitchen science. Your body has defenders that fight germs. In a food allergy, the defenders make a mistake. They think a food is an enemy and fight it. That can cause itching, a rash, a swollen face, a tummy ache or trouble breathing. If a friend feels sick after eating, tell a grown-up right away. Some children carry a special medicine for emergencies.

The nine major allergens. Milk, eggs, fish, shellfish (like shrimp), tree nuts (like almonds), peanuts, wheat, soybeans and sesame. Never share food with a friend unless a grown-up says it is safe. Wash your hands and wipe the table after eating, so crumbs do not reach a friend.

Let’s cook! You will make chewy no-bake oat bars that leave out all nine major allergens, so many friends can share them.

PICTURE STUDY



Children Eating Lunch in a Schoolroom, Russell Lee, 1946 · Photograph · National Archives, Washington, D.C.

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

This photograph was taken in 1946 in a small country school in Kentucky by Russell Lee, a photographer who worked for the United States government. The children are eating lunch at their desks. A mother brought lunch to school for the two children in the front seats.

Look closely

- How many children can you count? What are they eating from?
- Find the children in the front seats. Who brought their lunch?
- Are the children sitting close together? How could crumbs travel from one desk to the next?
- Find someone who looks happy with lunch.

Talk about it

1. If one of these children had a peanut allergy, how could the others help keep him or her safe?
2. Why is it kind to wash hands and wipe the table after eating?
3. Who serves you lunch? How can you thank them?

Safety first. A grown-up warms the sunflower seed butter and honey in the microwave and cuts the chilled bars. Read every label with a grown-up, because brands change their ingredients and factories. If a guest has an allergy, ask the guest's parents before you share any food.

KITCHEN PROJECT

Read the Label, Then Make Friend-Safe Oat Bars

First you will be a label detective and find the word “Contains” on food packages in your kitchen. Then you will make chewy oat bars without any of the nine major allergens.

You will need

- Five food packages from your cupboard
- A pencil and paper for the label hunt
- A medium microwave-safe bowl (for the grown-up) and a large mixing bowl
- Measuring cups and spoons, a sturdy spoon or rubber spatula
- An 8 × 8-inch pan lined with parchment or wax paper

NO-BAKE SUNFLOWER OAT BARS

Serves 16 small bars · Prep 15 min · Chill 1 hr

Ingredients

- 2 cups old-fashioned rolled oats (certified gluten-free oats, if wheat is a concern)
- ½ cup sunflower seed butter
- ⅓ cup honey or maple syrup
- 1 teaspoon vanilla extract
- A pinch of salt
- ½ cup raisins or dried cranberries
- ¼ cup mini chocolate chips labeled free of the major allergens (optional)

Method

1. Wash your hands. Line the pan with parchment paper so the paper hangs over two sides.
2. Measure the oats, salt and raisins into the large bowl and stir.

3. Measure the sunflower seed butter and honey into the microwave-safe bowl. A grown-up warms it in the microwave for about 30 seconds and stirs until runny and smooth.
4. The grown-up stirs in the vanilla and lets the mixture cool for 5 minutes, until it is just warm. Then you pour it over the oats and stir until every oat is coated. Stir in the chocolate chips last.
5. Scrape the mixture into the pan. Cover your hand with a piece of wax paper and press down hard all over to pack it flat.
6. Chill in the refrigerator for at least 1 hour, until firm. A grown-up lifts the bars out by the paper and cuts them into 16 squares.
7. Keep the bars covered in the refrigerator for up to 1 week.

Allergy check: Made as written with allergen-free chips and certified gluten-free oats, this recipe contains none of the nine major allergens. Always read every label: oats are often processed near wheat, many chocolate chips contain milk or soy, and some sunflower seed butters are made in factories with peanuts or tree nuts. Honey is never given to babies under one year old; use maple syrup if a baby will share.

Steps

1. **Label hunt.** With a grown-up, look at five food packages. Find the ingredient list. Then look for the word **Contains**. Write or tell which allergens each package has.
2. Make the oat bars. Before you start, read the label on your oats, chips and sunflower butter together.
3. While the bars chill, draw a “Welcome, friend!” card to give with a bar.
4. **Taste test.** Rate the bars: too sticky, just right, or too crumbly? Are they sweet enough?
5. **Clean up.** Wash the bowls and spoons, wipe the counter and table, and wash your hands so no crumbs travel.
6. **Improve it.** If the bars fell apart, next time press harder or add 1 more tablespoon of sunflower butter.

Tips

- Wet the spoon or spatula with a little water, and the sticky mixture will not cling so much.

- Sunflower seed butter tastes a little like peanut butter, so many children like it right away.

Check your work

- ☐ I can name some of the nine major allergens.
- ☐ I can find the word “Contains” on a food label.
- ☐ I know to ask a grown-up before I share food with a friend.

COOK’S NOTEBOOK

1. Draw the nine major allergen foods in a big circle: milk, eggs, fish, shellfish, tree nuts, peanuts, wheat, soybeans and sesame.
2. Copy one “Contains” line from a label you found.
3. Draw your oat bars and the friend you would like to share them with.

COMMON MISTAKES

- Thinking a “little bit” of an allergen is fine. For some people, even a crumb can make them sick.
- Reading the label once and never again. Recipes in factories change, so read it every time.
- Giving away bites of your lunch without asking. Always ask a grown-up first.

Make it a game • Allergen Label Hunt. Be a label detective. Find three packages in the pantry and read the allergen line aloud. Score one point for each package, and one bonus point for each common allergen you can name, like milk, eggs, peanuts or wheat. Then tell why we always read the label before sharing food with a friend.

Scripture. “Look not every man on his own things, but every man also on the things of others.” (Philippians 2:4, KJV)

Thinking about a friend’s allergy before you share is one small way to look after the things of others.

UNIT 1

KITCHEN & FOOD SAFETY

A good cook is a safe cook. In this unit you will learn the first kitchen habits: washing your hands the right way, keeping food away from germs, knowing which jobs are yours and which jobs belong to a grown-up, and keeping friends with food allergies safe.

You will meet Florence Nightingale, a nurse who asked everyone to wash their hands, and Alexander Fleming, who found a fuzzy mold growing in his laboratory. You will grow mold on bread inside a sealed bag (and never open it!), cut soft fruit with a kid knife, and make no-bake oat bars that friends with many kinds of food allergies can enjoy. God gave us food as a good gift. Taking care of it, and of each other, is part of saying thank you.

PREREQUISITES

- Can stand safely on a step stool at the sink and counter
- Can listen to and follow two or three spoken steps
- Knows that the stove, oven and sharp knives are grown-up jobs

MASTERY CHECKLIST

- ☐ I can wash my hands the right way: wet, soap, scrub for 20 seconds, rinse and dry.
- ☐ I can tell why germs and mold grow on food, and what slows them down.
- ☐ I can say our kitchen rules and cut soft food safely with a kid knife.
- ☐ I can name some of the foods that cause allergies, and I know to ask before I share food.
- ☐ I help clean up after every recipe.

OPTIONAL BOOKS AND TOOLS FOR THIS UNIT

- **CDC: Clean Hands:** Free. The U.S. Centers for Disease Control and Prevention's page on when and how to wash hands, with the five steps used in Lesson 1.1.
- **A nylon or plastic kid knife:** An inexpensive serrated nylon knife made for children cuts bananas, strawberries, cheese and cooked potatoes but not fingers. A plain butter knife works just as well for this year's recipes.
- **A sturdy step stool:** A wide, steady stool with a non-slip top lets a second grader reach the sink and counter safely.

Not required. Every recipe in this unit works in an ordinary home kitchen.

School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

1.1 Soap, Water and Twenty Seconds	2 sessions of 30–40 minutes
1.2 Germs Grow on Bread	2 sessions of 30–40 minutes
1.3 Kitchen Rules and Kitchen Jobs	2 sessions of 30–40 minutes
1.4 Allergies: Keeping Friends Safe	2 sessions of 30–40 minutes

UNIT 1 REVIEW

Ask each question aloud. Your child may answer by telling, pointing, drawing or showing. There are no points; note what your child knows well and what to review.

1. Show me how you wash your hands. How long do you scrub?
2. Tell me about Florence Nightingale. What did she do at the army hospital?
3. Which bread grew mold fastest in your test? What does mold need to grow?
4. Point to three grown-up jobs in our kitchen and three jobs you can do.
5. Show me how you hold a strawberry to cut it with a kid knife.
6. What is a food allergy? What should you do before you share food with a friend?

ANSWER KEY

1. Wet, lather with soap, scrub palms, backs, between fingers and under nails for 20 seconds, rinse, and dry with a clean towel.
2. She and her nurses cleaned the hospital, washed the sheets, cleaned the kitchen, cooked good food and washed their hands often. More soldiers got well.
3. Usually the slice touched by dirty hands or the damp, warm slice. Mold needs food, wetness (moisture), warmth and time. Cold slows it down.
4. Grown-up jobs: the stove, oven, toaster, microwave, sharp knives, graters. My jobs: washing, measuring, pouring, stirring, spreading, cutting soft food with a kid knife, wiping.
5. Board on a damp towel, fingers curled back like a paw on top of the strawberry, slow sawing motion with a butter knife or nylon knife.
6. The body mistakes a food for an enemy and fights it, which can make the person sick. Ask a grown-up before you share, and wash hands and wipe the table after eating.

UNIT CHALLENGE: OUR CLEAN-KITCHEN CHECK

Make a hand-washing poster with the five steps and hang it by the kitchen sink. Then walk through the kitchen with a grown-up and check: soap and a clean towel at the sink, a steady step stool, a damp towel for under the cutting board, a kid knife in its place, and leftovers put away. Draw a star by each thing that is ready.

For one week, keep a family sticker chart: a sticker every time someone washes the five-step way before cooking or eating. At the end of the week, make the veggie tray or fruit salad again for the family, with clean hands from start to finish.

LOOK FOR	WHAT IT MEANS
Poster	Your child made a clear poster of the five hand-washing steps and can explain each step.
Kitchen check	Your child walked through the kitchen checklist with you and could tell why each item matters.
Sticker chart	The chart was kept for a week. Faithful effort counts, not the number of stickers.
Safe, clean cooking	Your child washed up first, cut only soft food with a kid knife, and helped clean up afterward.

UNIT 2

FOOD GROUPS & THE BALANCED MEAL

God made a world full of good things to eat: “I have given you every herb bearing seed ... and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat” (Genesis 1:29). In this unit you will learn the five food groups on MyPlate: fruits, vegetables, grains, protein and dairy. You will find out what each group does for your body and how to put them together on one plate.

You will hear how Daniel asked for vegetables and water in the king’s palace, how farmers long ago grew corn and beans together, and how Oliver Evans built a flour mill that ran almost by itself. You will make a rainbow rice bowl, bean and cheese tostadas, whole-wheat pancakes and a breakfast parfait bar.

PREREQUISITES

- Washes hands the five-step way before cooking (Unit 1)
- Knows which kitchen jobs are grown-up jobs (Unit 1)
- Can cut soft foods with a kid knife on a board that does not slide (Unit 1)

MASTERY CHECKLIST

- ☐ I can name the five food groups on MyPlate and give an example of each.
- ☐ I can tell the story of Daniel and the king’s food.
- ☐ I can tell what protein does and name foods that have it.
- ☐ I can point to the bran, germ and endosperm on a drawing of a wheat kernel and tell what “whole grain” means.
- ☐ I can build a balanced breakfast with at least three food groups.

OPTIONAL BOOKS AND TOOLS FOR THIS UNIT

- **MyPlate Kids (USDA):** Free. Search “MyPlate Kids” for the U.S. Department of Agriculture’s page for children, with printable MyPlate activity sheets that fit Lessons 2.1 and 2.4.
- **A children’s plate with sections:** Optional. A divided plate makes it easy to see whether a meal has fruits, vegetables, grains and protein. A regular plate and a little imagination work just as well.

Not required. Every recipe in this unit works in an ordinary home kitchen.

School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

2.1 Daniel and the King’s Food	2 sessions of 30–40 minutes
2.2 Protein Builds: Beans and Corn	2 sessions of 30–40 minutes
2.3 Whole Grains: The Wheat Kernel	2 sessions of 30–40 minutes
2.4 A Balanced Breakfast	2 sessions of 30–40 minutes

UNIT 2 REVIEW

Ask each question aloud. Your child may answer by telling, pointing, drawing or showing. There are no points; note what your child knows well and what to review.

1. Name the five food groups on MyPlate. Point to a food from each group in our kitchen.
2. Tell me the story of Daniel and the king’s food.
3. What does protein do for your body? Name two protein foods from plants and two from animals.
4. Who were the Three Sisters, and how did they help each other?
5. Point to the bran, germ and endosperm on your kernel drawing. What does “whole grain” mean?

6. Show me a balanced breakfast. Which food groups are in it?

ANSWER KEY

1. Fruits, vegetables, grains, protein and dairy. Any correct examples (an apple, carrots, bread, beans or eggs, milk or cheese).
2. Daniel wanted to obey God. He asked politely for a ten-day test: vegetables and seeds (pulse) and water. After ten days he and his friends looked healthier than the others, and God gave them wisdom.
3. It helps you grow, build muscles and heal. Plants: beans, peas, lentils, nuts, seeds, peanut butter. Animals: eggs, meat, chicken, fish, milk, cheese.
4. Corn, beans and squash. The corn was a pole for the beans to climb, the beans helped feed the soil, and the squash leaves shaded the ground and kept weeds away.
5. Bran is the outside coat, germ is the tiny baby plant, endosperm is the big starchy middle. Whole grain means all three parts are used.
6. Any breakfast with at least three groups, for example oatmeal (grain), berries (fruit) and milk (dairy).

UNIT CHALLENGE: A WEEK OF BALANCED BREAKFASTS

For five mornings, help make breakfast with at least three food groups. Use your breakfast chart from Lesson 2.4, or make up new ideas: oatmeal with berries and milk, whole-wheat toast with peanut butter and a banana, a parfait, or leftover pancakes with fruit and yogurt.

Each morning, draw your breakfast on a MyPlate chart and color a dot for each food group. At the end of the week, choose your favorite breakfast and make it for the whole family, and give thanks together before you eat.

LOOK FOR	WHAT IT MEANS
Balanced plans	Each breakfast had at least three food groups, and your child could name them.
Helping hands	Your child helped make breakfast each day with clean hands, measuring, pouring, spreading or cutting soft fruit safely.
Chart	The MyPlate chart was kept all five days with a drawing and colored dots.
Serving the family	Your child made and served a favorite breakfast and joined in giving thanks. Effort and cheerfulness count most.

2.1 DANIEL AND THE KING'S FOOD

OBJECTIVES

- Tell the story of Daniel and his friends in the king's palace.
- Name the five food groups on MyPlate and give an example of each.
- Build a rainbow rice bowl with vegetables, grains and protein.

Warm-up. Open the refrigerator and the pantry with a grown-up. Find one fruit, one vegetable, one grain (bread, rice, oats or pasta), one protein (beans, eggs, meat, fish or nuts) and one dairy food (milk, cheese or yogurt). Line them up on the counter.

WATCH

The 5 Fabulous Food Groups

SciShow Kids · 4:31

<https://www.youtube.com/watch?v=L9ymkJK2QCU>

WHEN TO WATCH

After the story. As each food group appears, point to the matching food from your warm-up line.

KEY TERMS

food group

A family of foods that give your body the same kinds of help.

MyPlate

A picture of a plate made by the U.S. Department of Agriculture in 2011 to show the five food groups.

pulse

An old Bible word for seeds and vegetables, like beans, lentils and peas.

balanced

Having some of each kind, not too much of one thing.

CORE IDEAS

The story. Long ago, the king of Babylon took young men from Jerusalem to serve in his palace. One of them was Daniel. The king wanted Daniel and his three friends to eat the king's rich food. But Daniel wanted to obey God, and he did not want to eat food that God's law did not allow.

How they figured it out. Daniel did not grumble or argue. He asked politely for a test. “Give us pulse to eat, and water to drink, for ten days,” he said. Pulse means seeds and vegetables, like beans and lentils. After ten days, Daniel and his friends looked healthier than all the young men who ate the king’s food. God gave them strength and wisdom too.

The kitchen science. God made many kinds of food, and each kind helps our bodies in its own way. In 2011 the U.S. Department of Agriculture drew a picture called **MyPlate** to show five food groups. *Fruits* and *vegetables* give vitamins and help us stay well. *Grains*, like bread, rice and oats, give energy. *Protein*, like beans, eggs, meat and fish, helps us grow. *Dairy*, like milk, cheese and yogurt, helps build strong bones and teeth. Half of the plate is fruits and vegetables.

Not just one group. Daniel’s story is about obeying God and trusting Him. It does not mean we should eat only vegetables. A balanced meal has foods from several groups together, so the body gets everything it needs.

Let’s cook! You will build a rainbow rice bowl. A grown-up cooks the rice. You rinse, tear, measure, shake the dressing and arrange the colors.

PICTURE STUDY



Still Life with Quince, Cabbage, Melon and Cucumber, Juan Sánchez Cotán, about 1602 · Oil on canvas ·
San Diego Museum of Art, San Diego, California
Image: [Wikimedia Commons](#), public domain

Juan Sánchez Cotán was a Spanish painter who later became a monk. He painted simple fruits and vegetables in a dark window, hanging on strings to keep them cool and fresh. Each one looks so real you might want to reach out and pick it up.

Look closely

- Find the four foods. Which are fruits and which are vegetables?
- Why do you think the quince and cabbage hang on strings?
- Find the slice cut out of the melon. What does the inside look like?
- Follow the foods from top left to bottom right. Do they make a curve?

Talk about it

1. Which food group are all of these foods in? What other groups would you add to make a balanced meal?
2. Daniel asked for seeds and vegetables. Which of these foods have seeds inside?
3. Why might a monk paint such plain foods so carefully?

Safety first. A grown-up cooks the rice on the stove, opens the cans and cuts the cucumber with a sharp knife. Let the rice cool a little before you scoop it. Check every food against your family's allergies.

KITCHEN PROJECT

MyPlate Sort and a Rainbow Rice Bowl

First you will sort foods from your kitchen into the five groups. Then you will build a rice bowl with a rainbow of vegetables, grains and protein.

You will need

- A large sheet of paper with a big plate drawn on it, split into five parts
- A colander, a can opener (for the grown-up) and a salad spinner or clean towel
- Measuring cups and spoons, a small jar with a lid
- 4 to 6 bowls and spoons

RAINBOW RICE BOWLS WITH LIME DRESSING

Serves 4–6 • Prep 20 min • Cook (grown-up) 20 min

Ingredients

- 1½ cups long-grain white or brown rice and 3 cups water (or 4½ cups cooked rice)
- ½ teaspoon salt for the rice
- 1 can (15 ounces) black beans
- 1 cup frozen corn, thawed in the refrigerator
- 2 cups baby spinach or romaine lettuce
- 1 cup grated carrots
- 1 cup cherry tomatoes
- 1 small cucumber (a grown-up slices it)
- 1 cup grated cheddar cheese (optional)
- **Lime dressing:** 3 tablespoons olive oil
- 2 tablespoons lime juice
- 1 teaspoon honey
- ¼ teaspoon salt and a pinch of ground cumin

Method

1. A grown-up cooks the rice on the stove: rice, water and salt in a pot, brought to a boil, then covered and simmered on low about 18 minutes (brown rice about 40 minutes). You watch from a safe spot. Let it cool 10 minutes.
2. Wash your hands. A grown-up opens the can of beans. Pour the beans into a colander and rinse them under cool running water until no more foam comes off.
3. Rinse the spinach and tomatoes. Spin or pat them dry. Tear the spinach into bite-size pieces with your fingers.
4. A grown-up cuts the tomatoes in half and slices the cucumber.
5. Put the olive oil, lime juice, honey, salt and cumin in the jar. Close the lid tight and shake hard for 20 seconds.
6. Build each bowl: a scoop of rice on one side, then little piles of spinach, beans, corn, carrots, tomatoes and cucumber in a ring, like a rainbow. Sprinkle cheese on top.
7. Shake the dressing again and drizzle it over each bowl. Refrigerate leftovers within 2 hours.

Allergy check: Contains milk (cheese). Leave out the cheese for a milk-free bowl. Contains no wheat, eggs, nuts, soy or sesame. Honey is never given to babies under one year old.

Steps

1. **MyPlate sort.** Draw a big plate on paper and divide it into fruits, vegetables, grains, protein and dairy (a small circle beside the plate). Put the warm-up foods, or pictures of them, in the right places.
2. Make the rainbow rice bowls.
3. **Group check.** Look at your bowl. Which food groups are in it? Which group is missing? (Fruit! Serve a piece of fruit on the side, or a glass of milk for dairy.)
4. **Taste test.** Taste one bite without dressing and one with. Rate the bowl with one, two or three smiles.
5. **Clean up.** Rinse the colander, wash the jar and bowls, and wipe the counter.
6. **Improve it.** Which color would you add next time? Red pepper? Purple cabbage?

Tips

- Rinsing canned beans washes off the thick, salty liquid.
- Leftover cooked rice works well. A grown-up reheats it until steaming hot (165 °F).

Check your work

- ☐ I can name the five food groups and give an example of each.
- ☐ I can tell the story of Daniel's ten-day test.
- ☐ I built a rainbow bowl and found the food group that was missing.

COOK'S NOTEBOOK

1. Draw MyPlate with its five parts and draw one food in each part.
2. Draw Daniel and his friends with their vegetables and water.
3. Draw your rainbow bowl from the top, with every color.

From history. Before MyPlate, the USDA used other pictures. In the 1940s there were the “Basic Seven” food groups, and in 1992 a pyramid. In 2011 the USDA chose a plate, because that is what we really eat from.

COMMON MISTAKES

- Thinking one food group is “the best.” Each group helps in its own way; we need them together.
- Forgetting fruit and dairy. Look at the whole meal, including drinks and sides.
- Scooping rice while it is steaming hot. Let the grown-up cool it first.

Make it a game • Daniel's Ten Days. Daniel asked for vegetables and water. Your grown-up names a MyPlate food group and starts a five-second clock. Name three foods from that group. Do all five groups, then count your points. Next round, see if you can use only foods from the pantry and fridge. Beat your own score.

Scripture. “Prove thy servants, I beseech thee, ten days; and let them give us pulse to eat, and water to drink.” (Daniel 1:12, KJV)

Daniel was polite and brave. He asked for a test instead of arguing, and God blessed him.

2.2 PROTEIN BUILDS: BEANS AND CORN

OBJECTIVES

- Tell how farmers long ago grew corn, beans and squash together as the “Three Sisters.”
- Explain that protein helps the body grow and heal, and name foods that have protein.
- Help make bean and cheese tostadas, with a grown-up doing the hot steps.

Warm-up. Squeeze the muscle in your arm. Feel your fingernails and your hair. All of these are built with protein! Now guess: which of these foods has protein: an egg, a bean, an apple, a piece of cheese, a piece of chicken? (All but the apple.)

WATCH

Three Sisters (Corn, Beans, and Squash)

WisconsinDPI • 1:10

<https://www.youtube.com/watch?v=FwaNH6khB0k>

WHEN TO WATCH

After the story. Watch how the three plants help each other in the garden.

Note: From PBS Food. Previewed in full; parents may stop it when the cooking part ends.

BACKUP VIDEO

Proteins | Fit Kids: Episode 104 | KSPS PBS

KSPS PBS Public TV • 0:40

https://www.youtube.com/watch?v=4u-eZ0HHN_U

A very short video about protein foods.

KEY TERMS

protein

The part of food that helps your body grow, build muscles and heal cuts.

Three Sisters

Corn, beans and squash planted together, as many Native American farmers did.

legume

A plant that grows its seeds in pods, like beans, peas and peanuts.

tostada

A flat, crunchy corn tortilla with toppings, from Mexico. The word means “toasted.”

CORE IDEAS

The story. Long before there were grocery stores in America, Native American farmers grew three plants together in the same little hill of dirt: corn, beans and squash. The Haudenosaunee people of what is now New York called them the Three Sisters.

How they figured it out. Farmers watched their gardens year after year. They saw that the tall corn made a pole for the bean vines to climb. The beans helped feed the soil. The big, prickly squash leaves shaded the ground, kept it damp and kept weeds away. The three plants grew better together than apart. And when the corn and beans were cooked and eaten together, they made a hearty, filling meal.

The kitchen science. Protein is like building blocks for your body. It helps you grow taller, build muscles, make new skin and heal scrapes. Protein foods include beans, peas, lentils, eggs, meat, chicken, fish, nuts and seeds. Milk, cheese and yogurt have protein too. Beans and corn each have some protein, and eaten together they give the body more of the building blocks it needs.

Let’s cook! You will make bean and cheese tostadas. A grown-up warms the beans and melts the cheese in the oven. You spread, sprinkle, tear lettuce and mash avocado.

PICTURE STUDY



The Herring Net, Winslow Homer, 1885 · Oil on canvas · Art Institute of Chicago

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

Winslow Homer was an American painter who lived by the sea in Maine. He loved to paint fishermen at work. Here two men pull in a net full of herring, a small fish that families ate fresh, salted and smoked. Fish is a protein food.

Look closely

- Find the silver fish in the net and in the boat.
- How many fishermen do you see? What job is each one doing?
- Look at the waves. Is the sea calm or rough? How can you tell?
- Find the big ships far away in the fog.

Talk about it

1. Which food group is fish in? What does that group do for your body?
2. Why is it hard work to catch fish for people to eat?
3. What other protein foods can you name that come from a farm or a garden?

Safety first. A grown-up opens the can, warms the beans, and puts the tostadas in and out of the oven with oven mitts. A grown-up cuts and pits the avocado. Wait until the grown-up says the tostadas are cool enough to top.

KITCHEN PROJECT

A Protein Hunt and Bean and Cheese Tostadas

You will go on a protein hunt in your kitchen and sort what you find into plant proteins and animal proteins. Then you will help make crunchy tostadas with beans, corn and cheese.

You will need

- Paper and a pencil for the protein hunt
- A baking sheet and oven mitts (for the grown-up)
- A butter knife or spoon for spreading, a fork for mashing
- Small bowls for toppings

BEAN AND CHEESE TOSTADAS

Serves 4–6 (8 tostadas) • Prep 15 min • Bake (grown-up) 5–7 min

Ingredients

- 8 corn tostada shells (crunchy flat tortillas)
- 1 can (16 ounces) refried beans
- ½ cup frozen corn, thawed
- 1½ cups grated Monterey Jack or cheddar cheese
- 2 cups chopped lettuce, or a few romaine leaves to tear
- 1 ripe avocado
- 1 tablespoon lime juice and a pinch of salt
- ½ cup mild salsa
- Sour cream or plain yogurt (optional)

Method

1. A grown-up heats the oven to 375 °F. Wash your hands.
2. A grown-up warms the refried beans in a small pot or in the microwave, stirring until soft and spreadable, then lets them cool for a few minutes.
3. Lay the tostada shells on the baking sheet. Spread about 3 tablespoons of beans on each one with the back of a spoon or a butter knife. Go

gently: the shells are crunchy and can crack.

4. Sprinkle each with a spoonful of corn and a handful of cheese.
5. A grown-up bakes the tostadas 5 to 7 minutes, until the cheese melts, and takes them out with oven mitts.
6. While they bake: a grown-up cuts the avocado in half and takes out the pit. You scoop it into a bowl with a spoon and mash it with a fork, lime juice and salt.
7. When the grown-up says they are cool enough, top each tostada with lettuce, a spoonful of avocado and salsa. Eat it right away, with two hands!

Allergy check: Contains milk (cheese, sour cream). For a milk-free tostada, leave off the cheese and sour cream and add more avocado. Check the refried bean and tostada labels; most contain no wheat, but some refried beans contain lard or other added ingredients.

Steps

1. **Protein hunt.** Look in the refrigerator and pantry with a grown-up. Make two lists: proteins from plants (beans, peanut butter, nuts, lentils) and proteins from animals (eggs, milk, cheese, meat, fish).
2. Make the tostadas.
3. **Three Sisters check.** Which of the Three Sisters are on your tostada? (Corn and beans!) Where could you add squash another day?
4. **Taste test.** Take a bite with everything on it. Then taste just the bean and corn part. Rate it with one, two or three smiles.
5. **Clean up.** Put away the cheese and leftover beans in the refrigerator, wash the bowls and spoons, and wipe the table of crumbs.
6. **Improve it.** Next time, would you add more beans, more avocado, or a new topping?

Tips

- If a shell cracks, it still tastes the same. Call it a “tostada salad.”
- Ripe avocados feel a little soft when you press gently near the top.

Check your work

- ☐ I can tell what protein does for my body.

- ☐ I can name protein foods from plants and from animals.
- ☐ I spread and topped tostadas while a grown-up did the hot steps.

COOK'S NOTEBOOK

1. Draw the Three Sisters growing together: corn tall, beans climbing, squash on the ground.
2. Make two columns: plant proteins and animal proteins. Draw three foods in each.
3. Draw your tostada and label each layer.

From history. Corn was first grown in Mexico long ago and spread north. Mexican cooks learned to soak dried corn in water with a little lime (a mineral, not the fruit) to make the dough for tortillas. That old method makes the corn softer and better for us.

COMMON MISTAKES

- Thinking protein only comes from meat. Beans, peas, lentils, nuts, seeds, eggs and dairy have protein too.
- Pressing hard on a tostada shell. Spread gently or it will break.
- Reaching into the oven to check the cheese. The grown-up checks with oven mitts.

Make it a game · Grow the Three Sisters. You and your grown-up act out the Three Sisters garden. One of you stands tall as the corn. The other wraps around the corn as the climbing bean. Then both crouch low and wide like the squash. Swap parts. Then name protein foods for thirty seconds, with no repeats, and tell what protein does for the body.

2.3 WHOLE GRAINS: THE WHEAT KERNEL

OBJECTIVES

- Tell how Oliver Evans built a flour mill that ran almost by itself.
- Name the three parts of a wheat kernel and tell what “whole grain” means.
- Measure and stir whole-wheat pancake batter while a grown-up cooks the pancakes.

Warm-up. Put a spoonful of white flour and a spoonful of whole-wheat flour on two small plates. Look closely. Rub a pinch of each between your fingers. Smell them. What is different? Do not taste the raw flour.

WATCH

Learn about wheat with George the Farmer

George the Farmer · 6:54

<https://www.youtube.com/watch?v=CWVrNNy6kRs>

WHEN TO WATCH

After the story. Watch the wheat go from the field to the mill.

BACKUP VIDEO

What's in a kernel?

Wheat Foundation · 1:00

<https://www.youtube.com/watch?v=QRFH19Qs4b8>

A one-minute look inside a wheat kernel. Watch it before you draw your kernel.

KEY TERMS

kernel

One seed of a grain plant, like wheat, corn or rice.

germ

The tiny part of the kernel that could grow into a new plant. It has vitamins and oil.

bran

The brown outside coat of the kernel. It has fiber.

endosperm

The big white middle of the kernel, full of starch, food for the new plant.

whole grain

A grain food made with all three parts of the kernel.

CORE IDEAS

The story. Long ago, making flour was very hard work. At a mill, men carried heavy sacks of wheat up and down stairs and shoveled the flour by hand. In the 1780s, a young American named Oliver Evans, who lived in Delaware, had an idea. What if the mill could carry the grain by itself?

How they figured it out. Oliver Evans built a mill that used the power of a water wheel to do the carrying. Little buckets on a moving belt lifted the grain up. A long turning screw pushed it across. The grain went in at one end, and flour came out at the other, with only a few people to watch over it. In 1790 he received one of the very first patents in the United States for his idea. George Washington liked it so much that he had his own mill at Mount Vernon changed to work the same way.

The kitchen science. A wheat kernel has three parts. The **bran** is the brown outside coat. The **germ** is the tiny baby plant inside. The **endosperm** is the big white middle, full of starch. White flour is made from the endosperm only. Whole-wheat flour is made from the whole kernel: bran, germ and endosperm. That is why it is browner. The bran gives **fiber**, which helps your tummy work well and helps you feel full. The germ has vitamins.

Let's cook! You will make whole-wheat pancakes. You measure, crack the egg, whisk and stir. A grown-up cooks the pancakes on a hot griddle while you watch for bubbles from a safe spot.

PICTURE STUDY



The Gleaners, Jean-François Millet, 1857 · Oil on canvas · Musée d'Orsay, Paris

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

After the harvest, poor families were allowed to walk through the fields and pick up the wheat the reapers had dropped. This is called gleaning. God told the farmers of Israel to leave grain at the edges of their fields for the poor (Leviticus 19:9-10), and Ruth gleaned in Boaz's field. Millet painted three women gleaning in France.

Look closely

- Find the three women. What are they picking up?
- Look far behind them. What are the giant piles? Who do they belong to?
- Each wheat stalk has many kernels at the top. How many kernels do you think one woman gathered by evening?
- Look at their backs and hands. Is gleaning easy work?

Talk about it

1. What will the women do with the wheat kernels they collect?
2. Would their bread be made of whole wheat or white flour? Why do you think so?
3. How is gleaning like not wasting food in our kitchen?

Safety first. Do not taste uncooked flour or batter, because uncooked flour and uncooked eggs can carry germs. Wash your hands after cracking the egg. A grown-up does all the cooking at the stove; you watch from a safe spot at least an arm's length away.

KITCHEN PROJECT

A Kernel Drawing and Whole-Wheat Pancakes

You will look closely at two flours and draw a wheat kernel. Then you will mix whole-wheat pancake batter, and a grown-up will cook it.

You will need

- A spoonful each of white and whole-wheat flour on two small plates
- A magnifying glass (optional)
- A large bowl and a medium bowl, a whisk and a rubber spatula
- Measuring cups and spoons
- A griddle or large skillet, a pancake turner and a $\frac{1}{4}$ -cup measure (for the grown-up)

WHOLE-WHEAT PANCAKES

Serves 4–5 (about 12 pancakes) · Prep 10 min · Cook (grown-up) 15 min

Ingredients

- 1 cup whole-wheat flour
- $\frac{1}{2}$ cup all-purpose flour (or use $1\frac{1}{2}$ cups whole-wheat flour in all)
- 2 tablespoons sugar
- 2 teaspoons baking powder
- $\frac{1}{2}$ teaspoon salt
- $1\frac{1}{2}$ cups milk
- 1 large egg
- 2 tablespoons vegetable oil or melted butter, plus a little for the griddle
- 1 teaspoon vanilla extract
- Berries, sliced bananas and maple syrup for serving

Method

1. Wash your hands. In the large bowl, whisk the whole-wheat flour, all-purpose flour, sugar, baking powder and salt.

2. In the medium bowl, crack the egg (tap it on the counter, then pull it apart with your thumbs). Fish out any bits of shell with a spoon. Wash your hands.
3. Add the milk, oil and vanilla to the egg and whisk until smooth.
4. Pour the wet mixture into the dry mixture. Stir gently with the spatula just until no dry flour shows. Small lumps are fine. Let the batter rest 5 minutes. Do not taste it.
5. A grown-up heats the griddle over medium heat, brushes it with a little oil, and pours $\frac{1}{4}$ cup of batter for each pancake.
6. Watch from a safe spot for bubbles to pop on top (about 2 minutes). Call out “Bubbles!” Then the grown-up flips each pancake and cooks it 1 to 2 minutes more, until golden.
7. Serve with berries and bananas. Clean up the bowls and whisk with warm, soapy water.

Allergy check: Contains wheat, milk and eggs. For milk-free pancakes, use oat or soy milk (soy is a major allergen) and oil. For egg-free pancakes, use 1 tablespoon ground flaxseed stirred into 3 tablespoons water instead of the egg; they will be a little softer.

Steps

1. **Flour look.** Look at the two flours with a magnifying glass. Which one has tiny brown flakes? (Whole wheat: those flakes are bran.)
2. **Kernel drawing.** Draw a big wheat kernel shaped like an egg. Color the bran brown around the outside, the germ yellow at the bottom, and the endosperm white in the middle. Label them.
3. Mix the batter and help the grown-up watch for bubbles.
4. **Taste test.** If you have white bread and whole-wheat bread, taste a bite of each. Which is softer? Which tastes nuttier? Then rate your pancakes with one, two or three smiles.
5. **Clean up.** Wipe the flour off the counter with a damp cloth, wash the bowls and put the flour away.
6. **Improve it.** Next time, would you add blueberries, cinnamon or mashed banana to the batter?

Tips

- Whole-wheat flour soaks up more liquid. If the batter is too thick to pour, stir in 1 or 2 tablespoons more milk.
- Leftover pancakes freeze well. A grown-up can warm them in the toaster another morning.

Check your work

- ☐ I can name the three parts of a wheat kernel.
- ☐ I can tell what “whole grain” means.
- ☐ I measured and mixed the batter and did not taste it raw.

COOK’S NOTEBOOK

1. Draw and label a wheat kernel: bran, germ and endosperm.
2. Draw Oliver Evans’s mill with buckets carrying grain up.
3. Draw your stack of pancakes and give it a smile rating.

From history. Oliver Evans also dreamed of steam engines. In 1805 he built a steam-powered machine that could move on land and float on water. People in Philadelphia watched it chug through the streets!

COMMON MISTAKES

- Tasting raw batter. Raw flour and uncooked eggs can carry germs; wait until it is cooked.
- Stirring the batter too long. Stir just until mixed, or the pancakes get tough.
- Thinking brown bread is always whole grain. Look for the word “whole” first on the ingredient list.

Make it a game • Kernel Match-Up. Make six cards in three pairs. Write or draw bran with outer coat, germ with baby plant, and endosperm with starchy middle. Turn the cards face down and take turns flipping two. Keep each pair you find. Then draw a wheat kernel from memory and tell what whole grain means.

2.4 A BALANCED BREAKFAST

OBJECTIVES

- Tell why breakfast is called “break-fast” and how corn flakes were invented.
- Plan a breakfast with at least three food groups.
- Build a yogurt, fruit and granola breakfast parfait.

Warm-up. Say the word slowly: “break ... fast.” What fast are we breaking? (The night! You did not eat while you slept.) How do you feel when you wake up hungry? What did you eat for breakfast today, and which food groups were in it?

WATCH

Why Breakfast is Important for Kids

UNRExtension · 1:43

<https://www.youtube.com/watch?v=U40ddSLmxjs>

WHEN TO WATCH

After the kitchen science paragraph.

BACKUP VIDEO

Why Should Kids Eat Breakfast?

Dairy Council of California · 3:27

<https://www.youtube.com/watch?v=amCu4lOdtKU>

Another short look at why breakfast matters.

KEY TERMS

breakfast

The first meal of the day. It “breaks the fast” of the night.

fiber

A part of plant foods that helps your tummy work well and helps you feel full longer.

parfait

Layers of yogurt, fruit and a crunchy topping in a glass. The word is French for “perfect.”

energy

The power your body uses to move, think, play and grow.

CORE IDEAS

The story. In 1894, in Battle Creek, Michigan, two brothers, John and Will Kellogg, were making food at a large health center. One day they boiled some wheat and then had to leave it sitting out. When they came back, it was a little stale. They rolled it out anyway, and instead of a sheet of dough, it broke into thin flakes!

How they figured it out. The brothers toasted the flakes and served them with milk. People liked them. They kept trying other grains, and a few years later they made flakes from corn. Will Kellogg started a company to sell them. Soon many families ate cereal for breakfast instead of cooking a hot breakfast every morning.

The kitchen science. While you sleep, your body keeps working: breathing, growing and keeping you warm. By morning it needs fuel. A balanced breakfast has foods from at least three groups, like a grain, a fruit and a dairy or protein food. Grains give quick energy. Protein (eggs, yogurt, milk, nut butter) and fiber (whole grains, fruit) work slowly, so you feel satisfied until lunch.

Let's cook! You will build a breakfast parfait bar for your family: yogurt, fruit and granola in layers. You measure, spoon, layer and serve. No heat needed!

PICTURE STUDY



Feeding Her Birds, Jean-François Millet, 1860 · Oil on canvas · Palais des Beaux-Arts, Lille, France

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

Millet painted a French farm mother feeding her three little children on the doorstep, one spoonful at a time, like a mother bird feeding baby birds in a nest. That is why the painting is called *Feeding Her Birds*. In the garden behind them, the father is already at work.

Look closely

- Find the bowl and the spoon. What do you think is in the bowl?
- Count the children. Whose turn is it?
- Find the father. What is he doing?
- Look at the children's faces. Are they waiting patiently?

Talk about it

1. Why is the painting called *Feeding Her Birds*?
2. Why would a warm bowl of porridge be a good breakfast for a farm family?
3. Who makes breakfast in your home? How can you help or thank them?

Safety first. This recipe needs no heat. Wash your hands first and wash the fruit under running water. Granola often contains nuts and wheat, so check the label for allergies.

KITCHEN PROJECT

My Balanced Breakfast Plan and a Parfait Bar

You will plan three balanced breakfasts on a chart. Then you will set up a parfait bar so each person in your family can build a breakfast with three food groups.

You will need

- Paper and crayons for a breakfast chart
- Clear cups or small glass jars (one for each person)
- Small bowls and spoons for the parfait bar
- A colander, a butter knife or kid knife, and a cutting board on a damp towel

BUILD-YOUR-OWN BREAKFAST PARFAITS

Serves 4 • Prep 15 min

Ingredients

- 3 cups plain or vanilla yogurt (Greek yogurt has more protein)
- 1 tablespoon honey or maple syrup, if using plain yogurt
- ½ teaspoon vanilla extract, if using plain yogurt
- 1 cup strawberries
- 1 cup blueberries
- 1 banana
- 1 cup granola
- Whole-grain toast or a glass of milk on the side (optional; a grown-up runs the toaster)

Method

1. Wash your hands. Rinse the berries in a colander under cool running water and pat them dry.
2. If you are using plain yogurt, stir in the honey and vanilla.
3. Pull the tops off the strawberries and cut them in quarters with your kid knife, fingers curled. Peel the banana and slice it into coins.

4. Set up the parfait bar: yogurt, strawberries, blueberries, bananas and granola, each in its own bowl with a spoon.
5. Build a parfait: 3 big spoonfuls of yogurt, then fruit, then 1 spoonful of granola. Repeat. Finish with fruit on top.
6. Eat right away, so the granola stays crunchy. Put the yogurt back in the refrigerator.

Allergy check: Contains milk. Most granolas contain wheat or oats processed with wheat, and many contain tree nuts or peanuts: read the label, or use a nut-free granola or the oat bars from Lesson 1.4, crumbled. For a milk-free parfait, use a dairy-free yogurt. Honey is never given to babies under one year old.

Steps

1. **Breakfast chart.** Make a chart with three rows for three days. In each row, draw a breakfast with at least three food groups. Color a dot for each group: red for fruit, green for vegetables, orange for grains, purple for protein, blue for dairy.
2. Set up the parfait bar and help each person build a parfait.
3. **Group count.** Count the food groups in your parfait. (Dairy, fruit and grain: three!) How could you add a fourth? (A hard-cooked egg or a glass of milk; a few spinach leaves blended in a smoothie by a grown-up.)
4. **Taste test.** Which layer do you like best: creamy, fruity or crunchy? Rate the parfait with one, two or three smiles.
5. **Clean up.** Wash the bowls and spoons and wipe the counter.
6. **Improve it.** Make one of the breakfasts on your chart later this week.

Tips

- Glass cups let you see the pretty layers.
- To pack a parfait for later, keep the granola in a separate little bag and add it just before eating.

Check your work

- ☐ I can tell why breakfast is called “break-fast.”
- ☐ I can plan a breakfast with three food groups.
- ☐ I built parfaits for my family and helped clean up.

COOK'S NOTEBOOK

1. Draw your parfait in a tall glass and label each layer.
2. Draw the breakfast chart with three balanced breakfasts.
3. Draw the Kellogg brothers' dough breaking into flakes.

COMMON MISTAKES

- Skipping breakfast because you are in a hurry. Even a quick parfait or a banana with peanut butter is better than nothing.
- Eating only one food group, like plain toast. Add a fruit and a protein or dairy food.
- Adding granola too early, so it gets soggy.

Make it a game • Five Breakfast Plans. The word breakfast means breaking the night's fast. Set a two-minute timer and plan as many different breakfasts as you can on paper, each with at least three food groups. Your grown-up checks them and scores one point for every correct plan. Highest score wins. Mention fiber somewhere.

Scripture. "his compassions fail not. They are new every morning: great is thy faithfulness." (Lamentations 3:22-23, KJV)

Every morning is a new gift from God. Breakfast is a good time to thank Him for His faithfulness.

UNIT 2

FOOD GROUPS & THE BALANCED MEAL

God made a world full of good things to eat: “I have given you every herb bearing seed ... and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat” (Genesis 1:29). In this unit you will learn the five food groups on MyPlate: fruits, vegetables, grains, protein and dairy. You will find out what each group does for your body and how to put them together on one plate.

You will hear how Daniel asked for vegetables and water in the king’s palace, how farmers long ago grew corn and beans together, and how Oliver Evans built a flour mill that ran almost by itself. You will make a rainbow rice bowl, bean and cheese tostadas, whole-wheat pancakes and a breakfast parfait bar.

PREREQUISITES

- Washes hands the five-step way before cooking (Unit 1)
- Knows which kitchen jobs are grown-up jobs (Unit 1)
- Can cut soft foods with a kid knife on a board that does not slide (Unit 1)

MASTERY CHECKLIST

- ☐ I can name the five food groups on MyPlate and give an example of each.
- ☐ I can tell the story of Daniel and the king’s food.
- ☐ I can tell what protein does and name foods that have it.
- ☐ I can point to the bran, germ and endosperm on a drawing of a wheat kernel and tell what “whole grain” means.
- ☐ I can build a balanced breakfast with at least three food groups.

OPTIONAL BOOKS AND TOOLS FOR THIS UNIT

- **MyPlate Kids (USDA):** Free. Search “MyPlate Kids” for the U.S. Department of Agriculture’s page for children, with printable MyPlate activity sheets that fit Lessons 2.1 and 2.4.
- **A children’s plate with sections:** Optional. A divided plate makes it easy to see whether a meal has fruits, vegetables, grains and protein. A regular plate and a little imagination work just as well.

Not required. Every recipe in this unit works in an ordinary home kitchen.

School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

2.1 Daniel and the King’s Food	2 sessions of 30–40 minutes
2.2 Protein Builds: Beans and Corn	2 sessions of 30–40 minutes
2.3 Whole Grains: The Wheat Kernel	2 sessions of 30–40 minutes
2.4 A Balanced Breakfast	2 sessions of 30–40 minutes

UNIT 2 REVIEW

Ask each question aloud. Your child may answer by telling, pointing, drawing or showing. There are no points; note what your child knows well and what to review.

1. Name the five food groups on MyPlate. Point to a food from each group in our kitchen.
2. Tell me the story of Daniel and the king’s food.
3. What does protein do for your body? Name two protein foods from plants and two from animals.
4. Who were the Three Sisters, and how did they help each other?
5. Point to the bran, germ and endosperm on your kernel drawing. What does “whole grain” mean?

6. Show me a balanced breakfast. Which food groups are in it?

ANSWER KEY

1. Fruits, vegetables, grains, protein and dairy. Any correct examples (an apple, carrots, bread, beans or eggs, milk or cheese).
2. Daniel wanted to obey God. He asked politely for a ten-day test: vegetables and seeds (pulse) and water. After ten days he and his friends looked healthier than the others, and God gave them wisdom.
3. It helps you grow, build muscles and heal. Plants: beans, peas, lentils, nuts, seeds, peanut butter. Animals: eggs, meat, chicken, fish, milk, cheese.
4. Corn, beans and squash. The corn was a pole for the beans to climb, the beans helped feed the soil, and the squash leaves shaded the ground and kept weeds away.
5. Bran is the outside coat, germ is the tiny baby plant, endosperm is the big starchy middle. Whole grain means all three parts are used.
6. Any breakfast with at least three groups, for example oatmeal (grain), berries (fruit) and milk (dairy).

UNIT CHALLENGE: A WEEK OF BALANCED BREAKFASTS

For five mornings, help make breakfast with at least three food groups. Use your breakfast chart from Lesson 2.4, or make up new ideas: oatmeal with berries and milk, whole-wheat toast with peanut butter and a banana, a parfait, or leftover pancakes with fruit and yogurt.

Each morning, draw your breakfast on a MyPlate chart and color a dot for each food group. At the end of the week, choose your favorite breakfast and make it for the whole family, and give thanks together before you eat.

LOOK FOR	WHAT IT MEANS
Balanced plans	Each breakfast had at least three food groups, and your child could name them.
Helping hands	Your child helped make breakfast each day with clean hands, measuring, pouring, spreading or cutting soft fruit safely.
Chart	The MyPlate chart was kept all five days with a drawing and colored dots.
Serving the family	Your child made and served a favorite breakfast and joined in giving thanks. Effort and cheerfulness count most.

UNIT 3

TASTE, SMELL & YOUR TASTE BUDS

“O taste and see that the LORD is good” (Psalm 34:8). God gave us a tongue that can taste and a nose that can smell, so that eating His good gifts is a joy and not just a job. In this unit you will discover the five tastes, look at the bumps on your own tongue, find out that your nose does most of the “tasting,” and learn why crunchy and creamy foods feel so different.

You will meet a Japanese scientist who tasted his soup and named a new taste, the scientists who first saw taste buds under a microscope, and Helen Keller, who could not see or hear but knew the world by smell. You will make tomato and mozzarella toast, carrots three ways, herbed popcorn, and crunchy chickpeas with creamy hummus. And you will practice trying new foods with a thankful heart.

PREREQUISITES

- Washes hands and helps clean up every time (Unit 1)
- Knows to check for allergies before tasting (Unit 1)
- Can name the five food groups (Unit 2)

MASTERY CHECKLIST

- ☐ I can name the five tastes: sweet, salty, sour, bitter and umami.
- ☐ I can tell where my taste buds are and that they grow new ones every week or two.
- ☐ I can show with the nose-pinch test that smell is most of flavor.
- ☐ I can describe a food’s texture with words like crunchy, creamy, chewy and crisp.
- ☐ I can try a new food three times, politely and with thanks.

OPTIONAL BOOKS AND TOOLS FOR THIS UNIT

- **A small hand mirror and a flashlight:** For looking at the bumps on your tongue in Lesson 3.2.
- **A box of assorted jelly beans:** Optional. The classic nose-pinch test in Lesson 3.3 works best with several fruit flavors. Raisins, apple and pear bits work too.

Not required. Every recipe in this unit works in an ordinary home kitchen.

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LESSONS IN THIS UNIT

3.1 The Five Tastes

2 sessions of 30–40 minutes

3.2 How Taste Buds Work

2 sessions of 30–40 minutes

3.3 Smell Is Most of Flavor

2 sessions of 30–40 minutes

3.4 Crunchy and Creamy

2 sessions of 30–40 minutes

UNIT 3 REVIEW

Ask each question aloud. Your child may answer by telling, pointing, drawing or showing. There are no points; note what your child knows well and what to review.

1. Name the five tastes. Point to (or tell) a food for each one.
2. Who was Kikunae Ikeda, and what did he discover?
3. Show me where your taste buds are. What happens to them every week or two?
4. Show me the nose-pinch test. What does it prove?
5. Predict: what will happen to crunchy roasted chickpeas left out on a plate overnight?
6. What do you say if you taste a new food and do not like it?

ANSWER KEY

1. Sweet (honey, fruit), salty (pretzels), sour (lemon), bitter (dark cocoa, grapefruit), umami (tomatoes, parmesan, mushrooms).
2. A scientist in Tokyo who tasted his kombu seaweed soup, studied it in his laboratory, and named the fifth taste umami (delicious taste) in 1908.
3. In the bumps on the tongue (and a few on the roof of the mouth and throat). They wear out and new ones grow, so tastes can change.
4. Pinch the nose and chew; you can barely tell the flavor. Let go and the flavor comes back. Most of flavor is smell.
5. They will soak up water from the air and get softer, less crunchy (soggy).
6. “No, thank you,” politely, and maybe try it again another day. Not “Yuck.” Thank the cook.

UNIT CHALLENGE: OUR FAMILY BLIND TASTE TEST

Choose one food and set up three kinds of it: three kinds of apples, three kinds of crackers, or carrots three ways. Put each on a plate with a number. Each family member closes eyes (or wears a scarf as a blindfold) and tastes all three, then rates each with one, two or three smiles and says one taste word and one texture word.

Make a results chart with a column for each person. Which was the family favorite? Then choose one vegetable someone did not like and make a “try it again” plan: three tries, cooked three ways, in the next two weeks.

LOOK FOR	WHAT IT MEANS
Set up the test	Your child washed up, set out and numbered the plates, and gave clear directions to the family.
Words	Your child used taste words (sweet, salty, sour, bitter, umami) and texture words (crunchy, creamy, chewy).
Chart	The results chart shows each person’s ratings, with help writing as needed.
Try-again plan	Your child made a kind, thankful plan to try a less-liked vegetable again. Effort and good manners count most.

3.1 THE FIVE TASTES

OBJECTIVES

- Name the five tastes and find a food for each one.
- Tell how Kikunae Ikeda tasted his soup and named umami, the fifth taste.
- Make tomato and mozzarella toast and find the umami in it.

Warm-up. Think of a lemon. Does your mouth get watery? Now think of a cookie, a pretzel and a cup of cocoa with no sugar. Each one has a different taste. Can you name the taste of each?

WATCH

The Five Tastes

Denver Museum of Nature & Science • 3:48

<https://www.youtube.com/watch?v=MZn2PMUWO-Y>

WHEN TO WATCH

After the story. Taste along with each part of the video, using your tasting tray.

Note: From the Denver Museum of Nature & Science. It briefly mentions a “sugar crash”; that phrase is a popular saying more than settled science.

BACKUP VIDEO

What is Umami? | ATK Kids Food Science Explainers

America's Test Kitchen Kids • 1:20

<https://www.youtube.com/watch?v=42xWxZgfE70>

A one-minute look at umami, the savory taste.

KEY TERMS

taste

What your tongue tells you about food: sweet, salty, sour, bitter or umami.

umami

A rich, savory taste found in tomatoes, cheese, mushrooms and broth. The word is Japanese for “delicious taste.”

bitter

A sharp taste, like dark cocoa, coffee, grapefruit or some green vegetables.

sour

A tangy taste, like lemons, vinegar and yogurt.

CORE IDEAS

The story. More than a hundred years ago, in Tokyo, Japan, a chemistry teacher named Kikunae Ikeda sat down to a bowl of soup. It was made with a big, flat seaweed called kombu. The soup tasted wonderful. But it was not sweet, salty, sour or bitter. What was it?

How they figured it out. Ikeda went to his laboratory with a lot of kombu. He boiled it and boiled it, until only a little dry powder was left. In 1908 he found the part that made the rich taste, and he named the taste **umami**, which means “delicious taste” in Japanese. For many years, people in other countries did not believe there was a fifth taste. Much later, other scientists found the tiny sensors on the tongue that notice umami. Ikeda was right!

The kitchen science. Your tongue can tell five tastes. *Sweet*: honey, fruit, sugar. *Salty*: pretzels, crackers. *Sour*: lemons, pickles, yogurt. *Bitter*: dark cocoa, grapefruit, some green vegetables. *Umami*: ripe tomatoes, parmesan cheese, mushrooms and meat broth. You can taste every one of them all over your tongue.

Let’s cook! You will make a five-tastes tray and then tomato and mozzarella toast, full of umami from ripe tomatoes and cheese. A grown-up does the toasting and slicing. You build the toast.

PICTURE STUDY



Still Life with Cucumbers and Tomatoes, Luis Meléndez, 1772 · Oil on canvas · Museo del Prado, Madrid

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

Luis Meléndez was a Spanish painter who painted the foods of his kitchen so carefully that you can see every bump and shine. Tomatoes came to Spain from the Americas. By Meléndez's time, Spanish cooks loved them.

Look closely

- Find the tomatoes. Are they ripe? How can you tell?
- Find the cucumbers. How is their skin different from the tomatoes' skin?
- Look at the shine on the pot and the tomatoes. Where is the light coming from?
- Which food in the picture do you think has the most umami?

Talk about it

1. What would these tomatoes taste like? Sweet, sour, umami, or a mix?
2. What dish could a cook make with these foods?
3. Why do you think Meléndez painted plain vegetables instead of a fancy feast?

Safety first. Check for allergies before any taste test. Take only a tiny taste of the salt, lemon and cocoa. A grown-up slices the tomatoes and runs the toaster or oven.

KITCHEN PROJECT

A Five-Tastes Tray and Tomato Mozzarella Toast

You will taste one food for each of the five tastes and make a chart. Then you will build tomato and mozzarella toast and find the umami.

You will need

- A muffin tin or five small cups for the tasting tray
- Spoons and a glass of water for rinsing between tastes
- A cutting board on a damp towel, a butter knife or kid knife
- A baking sheet and oven mitts (for the grown-up)

TOMATO AND MOZZARELLA TOAST

Serves 4 · Prep 10 min · Toast (grown-up) 5–8 min

Ingredients

- 4 thick slices whole-wheat or crusty bread
- 1 tablespoon olive oil
- 2 ripe tomatoes (a grown-up slices them)
- 4 ounces fresh mozzarella, or 4 slices of mozzarella cheese
- 2 tablespoons grated parmesan cheese
- A few fresh basil leaves
- A pinch of salt
- **For the five-tastes tray:** a pinch of sugar, a few pretzels or a pinch of salt, a lemon wedge, a pinch of unsweetened cocoa powder or a piece of grapefruit, and a few shreds of parmesan cheese

Method

1. Wash your hands. A grown-up toasts the bread lightly in the toaster or oven and lets it cool a minute.
2. Brush or drizzle the toast with a little olive oil.
3. A grown-up slices the tomatoes. You lay tomato slices on each toast.

4. Tear or slice the soft mozzarella with your kid knife and lay it on the tomatoes. Sprinkle with parmesan and a pinch of salt.
5. Tear the basil leaves with your fingers and scatter them on top.
6. Eat it as it is, or a grown-up puts it under the oven broiler for 2 to 3 minutes to melt the cheese. Let it cool before eating.

Allergy check: Contains wheat and milk. Use gluten-free bread for a wheat-free toast. For a milk-free toast, leave off the cheese and add a spoonful of mashed avocado.

Steps

1. **Five-tastes tray.** Put one food in each cup: sugar (sweet), pretzel or salt (salty), lemon (sour), cocoa or grapefruit (bitter), parmesan (umami).
2. Taste each one, taking a sip of water in between. Make a chart with five boxes. Draw a face for each taste: happy, surprised, puckered, scrunched or “mmm.”
3. Make the tomato and mozzarella toast.
4. **Taste test.** Take a bite of toast. Can you find more than one taste in it? (Salty, a little sweet and sour from the tomato, and umami from the tomato and cheese.) Rate the toast with one, two or three smiles.
5. **Clean up.** Wash the cups and spoons, wipe the board and counter, and put the cheese away.
6. **Improve it.** Next time, what other umami food could you add? (Mushrooms cooked by a grown-up? A little more parmesan?)

Tips

- The ripest, reddest tomatoes have the most umami and sweetness.
- Bitter tastes are strong for children. A tiny pinch of cocoa is plenty.

Check your work

- ☐ I can name the five tastes and a food for each.
- ☐ I can tell how Kikunae Ikeda found umami.
- ☐ I built a tomato mozzarella toast and found its tastes.

COOK'S NOTEBOOK

1. Draw your five-tastes chart with a face for each taste.
2. Draw Kikunae Ikeda's bowl of kombu soup.

3. Draw your toast from the top and label the tomato, cheese and basil.

COMMON MISTAKES

- Thinking there are only four tastes. Umami is the fifth.
- Thinking each taste lives on one part of the tongue. You can taste all five all over your tongue.
- Taking a big spoonful of salt or lemon. A tiny taste is enough.

Make it a game • Taste Riddles. Write or say three riddles, one about sweet, one about sour and one about umami. Example: I am yellow, I make you pucker, and I star in lemonade. Your grown-up guesses. Then your grown-up gives riddles back. Tell how Kikunae Ikeda tasted his soup and named the fifth taste, umami.

Scripture. “O taste and see that the LORD is good” (Psalm 34:8, KJV)

God made our sense of taste. Every good taste can remind us that He is good.

3.2 HOW TASTE BUDS WORK

OBJECTIVES

- Find the bumps on your tongue and tell what taste buds are.
- Explain that taste buds wear out and grow new ones every week or two, and that tastes can change.
- Taste carrots three ways and start a “try it three times” chart.

Warm-up. Take a mirror and a flashlight. Stick out your tongue and look closely. What do you see? Are there tiny bumps? Are they all the same size?

WATCH

How Your Tongue Works

Nemours KidsHealth • 5:02

<https://www.youtube.com/watch?v=0hwOL91cjwM>

WHEN TO WATCH

After you look at your own tongue in the mirror. Pause when the taste buds appear and compare them with your drawing.

BACKUP VIDEO

Your Tongue: The Taste-Maker!

SciShow Kids • 3:52

<https://www.youtube.com/watch?v=C4rdqXXzPGU>

Another short look at how the tongue tastes.

KEY TERMS

taste bud

A tiny group of taste cells, shaped like a flower bud, hidden in the bumps on your tongue.

microscope

A tool that makes very tiny things look big.

papillae

The little bumps on your tongue. Many of them hold taste buds. Say it “puh-PILL-ee.”

try it

To taste a food politely, even if you are not sure you will like it.

CORE IDEAS

The story. The bumps on your tongue are easy to see. But for a long time, nobody knew what was inside them. In 1867 two scientists, Gustav Schwalbe in Germany and Christian Lovén in Sweden, each looked at tongues under a microscope.

How they figured it out. Both men saw the same thing: tiny groups of cells hidden in the sides of the bumps, shaped like little flower buds. They had found the **taste buds**! Later scientists found that each bud has tiny hairs at the top that touch the food and send messages to your brain: “Sweet!” “Sour!” “Bitter!”

The kitchen science. You have thousands of taste buds. They work hard and wear out, so your body grows new ones every week or two. Children often taste bitter foods more strongly than grown-ups do. That is one reason broccoli or spinach may taste strong to you now. Scientists have found that children often need to taste a new food many times, eight times or more, before they enjoy it. Each taste teaches your mouth and brain a little more. Tastes change as you grow.

Trying with thanks. We do not have to love every food. But we can try a little bite with a thankful heart, because someone grew it, bought it and cooked it for us. “No, thank you” after a polite taste is kind. “Yuck!” is not.

Let’s cook! You will taste carrots three ways: crunchy and raw, soft and steamed by a grown-up, and grated in a sweet carrot-raisin salad. Then you will start a “try it three times” chart.

PICTURE STUDY



The Vegetable Seller, Joachim Beuckelaer, 1565 · Oil on panel · Museum Mayer van den Bergh, Antwerp, Belgium

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

Joachim Beuckelaer painted busy markets in Antwerp, in what is now Belgium. Market sellers brought fresh vegetables from the farms around the city every morning. Look at all the shapes and colors!

Look closely

- Find the carrots. What color are they?
- Count how many different vegetables you can find.
- Find a vegetable you have never tasted.
- Look at the seller's hands. What is she doing?

Talk about it

1. Which of these vegetables do you think tastes bitter? Which tastes sweet?
2. If you could buy one vegetable from her stall to try, which would it be?
3. Why do you think markets were so busy long ago?

Safety first. A grown-up peels and cuts the carrots and steams them on the stove. Use pre-grated carrots, or a grown-up grates them; graters are sharp. Check for allergies before tasting.

KITCHEN PROJECT

Carrots Three Ways and a Try-It Chart

You will look at your tongue, taste carrots three ways, and rate each one. Then you will start a chart to try one food three times this week.

You will need

- A hand mirror and flashlight
- A steamer basket and pot (for the grown-up)
- A medium bowl, a spoon and measuring cups and spoons
- Three small plates and paper for a chart

CARROTS THREE WAYS (WITH CARROT-RAISIN SALAD)

Serves 4–6 · Prep 15 min · Cook (grown-up) 6–8 min

Ingredients

- 1 pound carrots, or 2 cups baby carrots plus 2 cups pre-grated carrots
- 1 tablespoon butter and a pinch of salt (for the steamed carrots)
- **Carrot-raisin salad:** 2 cups grated carrots
- 1/3 cup raisins
- 1/3 cup plain or vanilla yogurt
- 1 tablespoon lemon juice
- 1 teaspoon honey (optional)
- A pinch of salt

Method

1. Wash your hands. Rinse the baby carrots in a colander under running water.
2. **Way 1, raw:** Put a few raw baby carrot sticks on the first plate.
3. **Way 2, steamed:** A grown-up steams a cup of carrots in a steamer basket over boiling water for 6 to 8 minutes, until a fork slides in. You watch the steam from a safe spot. The grown-up tosses them with butter and salt and lets them cool on the second plate.

4. **Way 3, carrot-raisin salad:** Put the grated carrots and raisins in the bowl. Measure in the yogurt, lemon juice, honey and salt. Stir until everything is coated. Put some on the third plate.

5. Taste all three. Refrigerate the leftovers within 2 hours.

Allergy check: Contains milk (butter and yogurt). Use olive oil instead of butter and a dairy-free yogurt for a milk-free version. Honey is never given to babies under one year old.

Steps

1. **Tongue look.** With the mirror and flashlight, look at your tongue. Draw the bumps you see. The taste buds are hiding inside them.
2. Make carrots three ways.
3. **Taste test.** Taste each carrot. Is it crunchy or soft? Sweet or plain? Give each one, two or three smiles. Which way do you like best? Which would you try again?
4. **Try-it chart.** Pick one vegetable you are not sure about. Make a chart with three boxes. This week, try it three times, cooked a different way each time if you can. Draw a face in each box.
5. **Clean up.** Wash the plates and bowl, wipe the counter, and put the carrots away.
6. **Improve it.** Next time, try a new carrot way: carrots with a little cinnamon, or roasted by a grown-up.

Tips

- Steamed carrots taste sweeter than raw ones to many people, because cooking softens them and lets the sweet taste come out.
- Small bites are best for trying. A pea-size taste counts.

Check your work

- ☐ I can tell what taste buds are and where they are.
- ☐ I know my taste buds grow new ones and my tastes can change.
- ☐ I tasted carrots three ways and started a try-it chart.

COOK'S NOTEBOOK

1. Draw your tongue with its bumps, and draw one taste bud big, like a flower bud.
2. Draw the three carrot plates and your smile rating for each.

3. Draw your try-it chart with three boxes.

From history. Not all of your taste buds are on your tongue. A few are on the roof of your mouth and in your throat. Catfish have taste buds all over their bodies, so they can taste with their skin!

COMMON MISTAKES

- Deciding you hate a food after one bite. It often takes many tries.
- Saying “Yuck!” at the table. Try a small bite and say “No, thank you” kindly if you need to.
- Thinking your tastes will never change. Taste buds are always being replaced.

Make it a game • Taste Bud Truths. Use a mirror to find the bumps on your tongue. Then play two truths and a tall tale. Tell your grown-up three taste bud sentences, two true and one false. For example, taste buds grow new every week or two. Your grown-up guesses the tall tale. Switch roles after three rounds.

3.3 SMELL IS MOST OF FLAVOR

OBJECTIVES

- Tell how Helen Keller used her sense of smell to know the world.
- Show with the nose-pinch test that smell is most of a food's flavor.
- Mix and shake a seasoning for popcorn that a grown-up pops.

Warm-up. Close your eyes. A grown-up holds three things under your nose, one at a time: an orange peel, a cinnamon stick and a sprig of mint (or a spoon of peanut butter, if no one is allergic). Can you name each one by smell alone?

WATCH

Science for Kids - How to Taste With Your Nose | Operation Ouch

Operation Ouch · 5:09

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

WHEN TO WATCH

After the story. Get your jelly beans ready and try the test along with the doctors.

BACKUP VIDEO

Chirp Science Corner: Taste Test

Owlkids · 1:58

<https://www.youtube.com/watch?v=CHpud5MnM1M>

A short taste test you can try with a friend.

KEY TERMS

smell

What your nose tells you about the tiny bits of a food floating in the air.

aroma

A pleasant smell, like baking bread or popcorn.

flavor

Taste plus smell plus how a food feels, all together.

herb

The leaves of a plant used for flavor, like basil, parsley, oregano and mint.

CORE IDEAS

The story. Helen Keller was born in Alabama in 1880. When she was a baby, a sickness took away her sight and her hearing. She could not see the world or hear it. But her teacher, Anne Sullivan, taught her to form words with her fingers in Helen's hand. Helen learned to read, to write books, and to speak.

How she figured it out. Helen used her nose to learn about the world. She wrote that she could smell a storm coming before it arrived. She knew a bakery, a farm and a garden by their smells. She could even tell what kind of work people did by the smells on their clothes, like the smell of wood or of a kitchen. For Helen, smell was like a window to the world.

The kitchen science. When you chew, tiny bits of food float up the back of your mouth into your nose. Your nose has smell sensors that tell your brain, "Strawberry!" or "Cherry!" or "Popcorn!" Your tongue only tells the five tastes. Your nose tells all the rest. Most of what we call flavor is really smell. That is why food tastes plain when you have a stuffy nose.

Let's cook! A grown-up will pop the popcorn. You will mix a herb seasoning and shake it up in a bag. Then you will taste it with your nose pinched and with your nose open.

PICTURE STUDY



Still Life with Lemons, Oranges and a Rose, Francisco de Zurbarán, 1633 · Oil on canvas · Norton Simon Museum, Pasadena, California

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

Francisco de Zurbarán was a Spanish painter who painted only a few still lifes. This one has three groups set in a quiet row: lemons, oranges with their white blossoms, and a cup with a rose. Imagine how this table smelled!

Look closely

- Find the lemons, the oranges and the rose.
- Find the white orange blossoms. Orange blossoms smell very sweet.
- Look at the cup of water. What else is on its plate?
- Why do you think the background is so dark?

Talk about it

1. If you could smell this painting, which smell would be strongest?
2. A lemon and an orange smell different. How would they taste different?
3. What smell in your kitchen makes you hungry?

Safety first. A grown-up pops the popcorn and melts the butter; popping corn and hot oil are very hot. Popcorn can cause choking in children under 4, so do not share it with little brothers and sisters. Check for allergies before the smell and taste tests.

The Nose-Pinch Test and Herbed Popcorn

You will find out how much of flavor is smell with a jelly bean test. Then you will season popcorn with herbs and smell the difference.

You will need

- Jelly beans in several fruit flavors, or small pieces of apple, pear and raw potato
- A blindfold or scarf (optional)
- A large paper grocery bag or a very large bowl with a lid
- Measuring spoons and a small bowl
- An air popper, a large pot with a lid, or a microwave popcorn bag (for the grown-up)

HERBED PARMESAN POPCORN

Serves 4–6 (about 10 cups) · Prep 5 min · Pop (grown-up) 5 min

Ingredients

- ½ cup popcorn kernels
- 2 tablespoons vegetable oil (if popping in a pot)
- 3 tablespoons butter, melted (or olive oil)
- **Herb seasoning:** 2 tablespoons finely grated parmesan cheese
- 1 teaspoon dried Italian herbs (oregano, basil, thyme) or dried dill
- ½ teaspoon garlic powder
- ½ teaspoon salt

Method

1. Wash your hands. In a small bowl, mix the parmesan, herbs, garlic powder and salt with a spoon. Smell it. What do you notice?
2. A grown-up pops the popcorn: in an air popper, in a microwave, or in a large covered pot with the oil over medium-high heat, shaking the pot until the popping slows to 2 seconds between pops. You listen from a safe spot.

3. The grown-up pours the popcorn into the paper bag or big bowl and lets it cool for 2 minutes, then drizzles the melted butter over it.
4. Sprinkle in the herb seasoning. Fold the bag top down twice (or put the lid on), and shake, shake, shake!
5. Pour into bowls. Pick out any unpopped kernels; they can hurt teeth.

Allergy check: Contains milk (butter, parmesan). For a milk-free popcorn, use olive oil and leave out the parmesan. Contains no wheat, eggs, nuts or soy.

Steps

1. **Nose-pinch test.** Close your eyes and pinch your nose shut. A grown-up hands you a jelly bean (or a piece of apple, pear or potato). Chew it with your nose pinched. Can you tell the flavor? Now let go of your nose. What happens? Try three times.
2. Record your results: “Nose pinched, I tasted _____. Nose open, I tasted _____.”
3. Make the herbed popcorn.
4. **Taste test.** Eat a few pieces with your nose pinched, then with your nose open. Which way tastes more like herbs? Rate the popcorn with one, two or three smiles.
5. **Clean up.** Fold up the bag, wash the bowls, and sweep up any popcorn on the floor.
6. **Improve it.** Next time, try a sweet seasoning: a little cinnamon and sugar.

Tips

- Grate the parmesan very fine (or use the shaker kind) so it sticks to the popcorn.
- Smell each herb in the seasoning before you mix it. Can you tell oregano from basil?

Check your work

- ☐ I can show that smell is most of flavor with the nose-pinch test.
- ☐ I can tell how Helen Keller used her nose.
- ☐ I mixed and shook a seasoning while a grown-up popped the corn.

COOK'S NOTEBOOK

1. Draw a face with arrows showing smells going from the mouth up into the nose.

2. Write or tell your nose-pinch test results.
3. Draw your popcorn bowl and the herbs you used.

From history. Your nose can tell apart a great many smells. Dogs have even better noses: some dogs are trained to sniff out food in airport bags, to help keep plant and animal diseases from traveling into the country.

COMMON MISTAKES

- Thinking the tongue does all the tasting. The nose does most of the work.
- Standing close to the popcorn pot. Hot oil and popping kernels can burn; stay back.
- Giving popcorn to babies and toddlers. It can cause choking.

Make it a game • Follow the Smell Story. Helen Keller knew places by their smells. Tell a story together, one sentence each, where the hero finds the way only by smell, from the bakery to the herb garden to the kitchen. Each sentence must name a smell and use a clue word like aroma or herb. Close your eyes while you tell it.

3.4 CRUNCHY AND CREAMY

OBJECTIVES

- Describe how foods feel in the mouth with texture words.
- Tell how the food scientist Alina Szczesniak made a list of texture words.
- Turn one food, chickpeas, into two textures: crunchy roasted chickpeas and creamy hummus.

Warm-up. Close your eyes. A grown-up puts a cracker, a slice of banana and a raisin in your hand, one at a time. Before you eat each one, guess how it will feel in your mouth. Then eat it. Say one word for each: crunchy, soft, chewy, smooth?

WATCH

How to Make Oven Roasted Chickpeas - 4 Ways!

[Feelgoodfoodie](#) · 3:41

https://www.youtube.com/watch?v=bjnbD_TR95o

WHEN TO WATCH

Before the grown-up roasts the chickpeas. Watch how dry they must be.

BACKUP VIDEO

Texture Taste Test | Kids Cooking

[Explore Planet English](#) · 4:32

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

Watch children describe food textures, then try your own texture words.

KEY TERMS

texture

How a food feels in your mouth:
crunchy, creamy, chewy, soft, crisp,
smooth or lumpy.

creamy

Soft and smooth, with no lumps.

crunchy

Hard and dry, so it breaks with a sound
when you bite it.

soggy

Soft and wet when it should be crisp,
like cereal left too long in milk.

CORE IDEAS

The story. Alina Szczesniak was a food scientist who worked for a big food company in New York in the 1950s and 1960s. She noticed that people talked about how food *feels* as much as how it tastes. “This cracker is stale.” “This pudding is lumpy.” But there were no clear words for scientists to use.

How they figured it out. She and her team asked people to taste foods and describe them. They wrote down every word: crunchy, crisp, chewy, gummy, creamy, hard, soft. In 1963 she made a list of texture words and a way to measure each one. Cooks and food scientists still use her ideas today.

The kitchen science. Water changes texture. Dry foods, like crackers and toast, are crunchy and crisp. When they soak up water from the air or from milk, they turn soft and soggy. When a cook roasts a food in a hot oven, the water dries out, and the outside turns crunchy. When a cook mashes or blends a food with a little liquid, it turns smooth and creamy.

Let’s cook! You will take one food, chickpeas, and make two textures. A grown-up roasts some in the oven until they are crunchy. The rest you help turn into creamy hummus. You rinse, pat dry, measure and add; the grown-up runs the oven and the food processor.

PICTURE STUDY



The Milkmaid, Johannes Vermeer, about 1657–1658 · Oil on canvas · Rijksmuseum, Amsterdam

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

A Dutch kitchen maid stands by a sunny window and pours milk into a bowl, slowly and carefully. Many people think she is making a bread pudding: the hard, crusty bread on the table will soak up the milk and turn soft. Vermeer painted every texture: crusty bread, smooth milk, rough baskets and cool plaster walls.

Look closely

- Find the bread. Is the crust crunchy or soft? How can you tell?
- Find the stream of milk. Is it thick or thin? Why is she pouring so slowly?
- Find something rough (the basket) and something smooth (the jug).
- Look at the light on the bread crusts. Where is it coming from?

Talk about it

1. What will happen to the crunchy bread when it soaks in the milk?
2. Do you like your bread crunchy or soft? Your cereal crunchy or soggy?
3. Why do you think Vermeer painted such an ordinary kitchen job?

Safety first. A grown-up opens the cans, roasts the chickpeas in a hot oven and runs the food processor (its blade is very sharp). Let the chickpeas cool before tasting. Hummus contains sesame (tahini), one of the nine major allergens.

KITCHEN PROJECT

One Food, Two Textures: Crunchy Chickpeas and Creamy Hummus

You will make two foods from one can of chickpeas each, and compare their textures with a texture word chart.

You will need

- A colander and clean dish towels
- A rimmed baking sheet and oven mitts (for the grown-up)
- A food processor or blender (for the grown-up)
- Measuring cups and spoons, a bowl and a spoon

CRUNCHY ROASTED CHICKPEAS AND CREAMY HUMMUS

Serves 6 (as a snack) · Prep 15 min · Roast (grown-up) 25–35 min

Ingredients

- **Crunchy chickpeas:** 1 can (15 ounces) chickpeas
- 1 tablespoon olive oil
- ¼ teaspoon salt
- ½ teaspoon mild paprika or cinnamon-sugar
- **Creamy hummus:** 1 can (15 ounces) chickpeas
- ¼ cup tahini (sesame paste)
- 3 tablespoons lemon juice
- 2 tablespoons olive oil
- 1 small clove garlic, or ¼ teaspoon garlic powder
- ½ teaspoon salt
- 2 to 4 tablespoons cold water
- Carrot sticks, cucumber rounds and pita bread for dipping

Method

1. A grown-up heats the oven to 400 °F and opens both cans. Wash your hands.

2. **Crunchy chickpeas:** Pour one can into the colander and rinse well. Spread them on a clean towel and pat them very dry with another towel. Slip off any loose skins.
3. Put the dry chickpeas on the baking sheet. Drizzle with the oil, sprinkle with salt, and roll them around with your hands until shiny.
4. A grown-up roasts them 25 to 35 minutes, shaking the pan halfway, until golden and crunchy. The grown-up sprinkles them with paprika or cinnamon-sugar. Let them cool on the pan.
5. **Creamy hummus:** Rinse the second can of chickpeas in the colander. Measure the chickpeas, tahini, lemon juice, olive oil, garlic and salt into the food processor bowl.
6. A grown-up puts on the lid and runs the processor for 1 minute, then adds water a tablespoon at a time and runs it 1 to 2 minutes more, until very smooth. Only the grown-up removes the blade.
7. Spoon the hummus into a bowl and serve with vegetables and pita. Refrigerate the hummus within 2 hours. Keep the cooled chickpeas in a loosely covered jar.

Allergy check: Hummus contains sesame (tahini). For a sesame-free dip, leave out the tahini and add 2 more tablespoons olive oil. Pita contains wheat; serve with vegetables for a wheat-free snack. Roasted chickpeas contain none of the nine major allergens.

Steps

1. **Before.** Feel one chickpea straight from the can. Squish it. Is it crunchy or soft?
2. Make both recipes.
3. **Texture chart.** Make a chart with two columns: crunchy chickpeas and creamy hummus. For each, circle words that fit: crunchy, crisp, hard, soft, creamy, smooth, lumpy, chewy.
4. **Taste test.** Which do you like better? Does a crunchy chickpea dipped in creamy hummus taste good together? Rate each with one, two or three smiles.
5. **The soggy test.** Leave three roasted chickpeas on a plate overnight and keep the rest in a jar. Taste one of each the next day. Which stayed crunchy?

6. **Clean up.** Wash the colander and bowls. The grown-up washes the food processor blade.

Tips

- The drier the chickpeas before roasting, the crunchier they get.
- For the smoothest hummus, let the processor run longer than you think.

Check your work

- ☐ I can use texture words to describe food.
- ☐ I can tell how drying makes food crunchy and blending makes it creamy.
- ☐ I helped make two textures from one food.

COOK'S NOTEBOOK

1. Draw a crunchy chickpea and a spoonful of creamy hummus. Write two texture words beside each.
2. Draw three foods: one crunchy, one creamy, one chewy.
3. Draw what happened in your soggy test.

COMMON MISTAKES

- Roasting wet chickpeas. They steam instead of turning crunchy. Dry them well.
- Leaving crackers and chips open to the air. They soak up water and go soft. Close the bag.
- Reaching into the food processor. Only the grown-up handles the blade.

Make it a game • Texture Word Duel. Choose a food, like crunchy chickpeas or creamy hummus. Take turns naming a word that describes how it feels in the mouth: crunchy, creamy, soggy, smooth, chewy, crisp. No repeats! Whoever runs out of words loses the round. Play three foods and tell what Alina Szczesniak did with texture words.

Scripture. “Doth not the ear try words? and the mouth taste his meat?” (Job 12:11, KJV)
God made our mouths to test and enjoy our food, just as our ears test words to see if they are true.

UNIT 3

TASTE, SMELL & YOUR TASTE BUDS

“O taste and see that the LORD is good” (Psalm 34:8). God gave us a tongue that can taste and a nose that can smell, so that eating His good gifts is a joy and not just a job. In this unit you will discover the five tastes, look at the bumps on your own tongue, find out that your nose does most of the “tasting,” and learn why crunchy and creamy foods feel so different.

You will meet a Japanese scientist who tasted his soup and named a new taste, the scientists who first saw taste buds under a microscope, and Helen Keller, who could not see or hear but knew the world by smell. You will make tomato and mozzarella toast, carrots three ways, herbed popcorn, and crunchy chickpeas with creamy hummus. And you will practice trying new foods with a thankful heart.

PREREQUISITES

- Washes hands and helps clean up every time (Unit 1)
- Knows to check for allergies before tasting (Unit 1)
- Can name the five food groups (Unit 2)

MASTERY CHECKLIST

- ☐ I can name the five tastes: sweet, salty, sour, bitter and umami.
- ☐ I can tell where my taste buds are and that they grow new ones every week or two.
- ☐ I can show with the nose-pinch test that smell is most of flavor.
- ☐ I can describe a food’s texture with words like crunchy, creamy, chewy and crisp.
- ☐ I can try a new food three times, politely and with thanks.

OPTIONAL BOOKS AND TOOLS FOR THIS UNIT

- **A small hand mirror and a flashlight:** For looking at the bumps on your tongue in Lesson 3.2.
- **A box of assorted jelly beans:** Optional. The classic nose-pinch test in Lesson 3.3 works best with several fruit flavors. Raisins, apple and pear bits work too.

Not required. Every recipe in this unit works in an ordinary home kitchen.

School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

3.1 The Five Tastes	2 sessions of 30–40 minutes
3.2 How Taste Buds Work	2 sessions of 30–40 minutes
3.3 Smell Is Most of Flavor	2 sessions of 30–40 minutes
3.4 Crunchy and Creamy	2 sessions of 30–40 minutes

UNIT 3 REVIEW

Ask each question aloud. Your child may answer by telling, pointing, drawing or showing. There are no points; note what your child knows well and what to review.

1. Name the five tastes. Point to (or tell) a food for each one.
2. Who was Kikunae Ikeda, and what did he discover?
3. Show me where your taste buds are. What happens to them every week or two?
4. Show me the nose-pinch test. What does it prove?
5. Predict: what will happen to crunchy roasted chickpeas left out on a plate overnight?
6. What do you say if you taste a new food and do not like it?

ANSWER KEY

1. Sweet (honey, fruit), salty (pretzels), sour (lemon), bitter (dark cocoa, grapefruit), umami (tomatoes, parmesan, mushrooms).
2. A scientist in Tokyo who tasted his kombu seaweed soup, studied it in his laboratory, and named the fifth taste umami (delicious taste) in 1908.
3. In the bumps on the tongue (and a few on the roof of the mouth and throat). They wear out and new ones grow, so tastes can change.
4. Pinch the nose and chew; you can barely tell the flavor. Let go and the flavor comes back. Most of flavor is smell.
5. They will soak up water from the air and get softer, less crunchy (soggy).
6. “No, thank you,” politely, and maybe try it again another day. Not “Yuck.” Thank the cook.

UNIT CHALLENGE: OUR FAMILY BLIND TASTE TEST

Choose one food and set up three kinds of it: three kinds of apples, three kinds of crackers, or carrots three ways. Put each on a plate with a number. Each family member closes eyes (or wears a scarf as a blindfold) and tastes all three, then rates each with one, two or three smiles and says one taste word and one texture word.

Make a results chart with a column for each person. Which was the family favorite? Then choose one vegetable someone did not like and make a “try it again” plan: three tries, cooked three ways, in the next two weeks.

LOOK FOR	WHAT IT MEANS
Set up the test	Your child washed up, set out and numbered the plates, and gave clear directions to the family.
Words	Your child used taste words (sweet, salty, sour, bitter, umami) and texture words (crunchy, creamy, chewy).
Chart	The results chart shows each person’s ratings, with help writing as needed.
Try-again plan	Your child made a kind, thankful plan to try a less-liked vegetable again. Effort and good manners count most.

UNIT 4

HEAT & COLD

Heat changes food. Hard pasta turns soft in boiling water. Runny batter turns into fluffy muffins in the oven. Cold changes food too: cream turns into ice cream, and the refrigerator keeps milk fresh. Taking the water out of food changes it again: juicy grapes become chewy raisins.

In this unit you will watch a grown-up boil water and read the thermometer, hear how Abraham and Sarah baked cakes for guests, learn how the iceman brought ice to kitchens long ago, and find out how families dried fruit to keep it all winter. The grown-up does every hot job; you measure, mix, shake and watch from a safe spot. Stoves and ovens are a grown-up's tools at your age, and watching carefully is how good cooks begin.

PREREQUISITES

- Knows the kitchen rules and that the stove and oven are grown-up jobs (Unit 1)
- Can measure with cups and spoons (Units 1–3)
- Knows that cold slows down germs and mold (Lesson 1.2)

MASTERY CHECKLIST

- ☐ I can tell why pot handles are turned in and why I stand back from the stove.
- ☐ I can tell that water boils at 212 °F and turns into steam, and that steam can burn.
- ☐ I can tell how an oven bakes food with hot air all around it.
- ☐ I can tell how people kept food cold before refrigerators, and I made ice cream with ice and salt.
- ☐ I can tell why dried food keeps a long time.

OPTIONAL BOOKS AND TOOLS FOR THIS UNIT

- **A refrigerator thermometer:** Inexpensive. Hang it in the refrigerator and let your child read it each week: it should say 40 °F or below. In the freezer it should say 0 °F.
- **National Center for Home Food Preservation: Drying:** Free. The University of Georgia's guide to drying fruit at home, for the grown-up, with more ideas for Lesson 4.4.
- **Heavy work gloves or a thick towel:** For holding the ice-cream bag in Lesson 4.3. Ice and salt get cold enough to hurt bare hands.

Not required. Every recipe in this unit works in an ordinary home kitchen.

School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

4.1 Hot Stove Safety and Boiling Water	2 sessions of 30–40 minutes
4.2 Baking in the Oven	2 sessions of 30–40 minutes
4.3 Keeping Food Cold Long Ago	2 sessions of 30–40 minutes
4.4 Drying Food	2 sessions of 30–40 minutes

UNIT 4 REVIEW

Ask each question aloud. Your child may answer by telling, pointing, drawing or showing. There are no points; note what your child knows well and what to review.

1. Show me where you stand when a grown-up is cooking at the stove. Which way does the pot handle point?
2. At what temperature does water boil? What are the bubbles made of?
3. Predict: what happens to muffin batter in a hot oven? Why?
4. How did families keep food cold before refrigerators?
5. Why does a refrigerator keep food fresh? How cold should it be?

6. Why do raisins and apple chips keep so long? What happened to the raisin you soaked?

ANSWER KEY

1. On the floor, at least an arm's length back, never reaching over a pot. The handle points in, toward the back of the stove.
2. 212 °F (at sea level). The bubbles are steam, water turned into a hot gas.
3. It rises and turns golden. Bubbles of gas from the baking powder grow in the heat, and then the heat sets the muffin. Hot air bakes it on all sides.
4. With ice cut from frozen ponds in winter, stored in icehouses, and brought by the iceman to the icebox; or in a springhouse over cold water.
5. Cold slows down germs. It should be 40 °F or below (the freezer 0 °F).
6. The water has been taken out, and germs and mold need water to grow. The soaked raisin got plump again because it soaked up water.

UNIT CHALLENGE: ONE APPLE, FOUR WAYS

Use apples to see what heat, cold and drying do to the same food. Make four plates: fresh apple slices; apple slices frozen in a bag overnight; your dried apple chips; and warm cinnamon apples cooked by a grown-up in a pan with a little butter and cinnamon until soft.

Taste each with your family. Make a chart with four boxes. In each box, draw the apple and write or tell one texture word (crunchy, soft, chewy, crisp, mushy) and one taste word (sweet, sour, plain). Circle the family favorite.

LOOK FOR	WHAT IT MEANS
Four ways	Your child helped prepare all four plates, with a grown-up doing the cutting and the stove.
Safe watching	Your child stayed back from the stove and oven and used gloves or mitts only when told.
Chart	The chart has a drawing and at least one word for each way, with help writing as needed.
Telling why	Your child can tell, in his or her own words, what heat, cold or drying did to the apple. Effort and curiosity count most.

4.1 HOT STOVE SAFETY AND BOILING WATER

OBJECTIVES

- Tell the kitchen rules for the stove: grown-ups cook, handles turned in, children stand back.
- Watch water heat up and boil, and tell that water boils at 212 °F and turns into steam.
- Help make pasta with butter and parmesan while a grown-up does the boiling and draining.

Warm-up. Look at a dry piece of spaghetti or macaroni. Try to bend it. What happens? What do you think will happen to it in boiling water? Draw your guess.

WATCH

What is Freezing Point, Melting Point and Boiling Point? | Chemistry Lessons | Dr. Binocs Show

Peekaboo Kidz · 6:26

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

WHEN TO WATCH

After the kitchen science paragraph. Pause when water starts to boil and say the number: 212 °F.

BACKUP VIDEO

Perfect Pasta: what is pasta made from?

Eat Happy Project · 1:48

https://www.youtube.com/watch?v=H8CDN_NeAyU

A short look at what pasta is made from.

KEY TERMS

boil

When water gets so hot that big bubbles of steam rise and pop all over. Water boils at 212 °F.

steam

Water that has turned into an invisible gas. It is very hot and can burn.

simmer

Small, gentle bubbles, a little below boiling.

pot handle in

Turning the handle toward the back of the stove so no one bumps it.

thermometer

A tool that measures how hot or cold something is.

CORE IDEAS

The story. Thomas Jefferson, who wrote the Declaration of Independence, loved good food. In the 1780s he lived in France and traveled in Europe. He tasted macaroni and wanted to make it at home in America. So he drew a careful picture of a macaroni machine, with notes about how the dough was pushed through little holes to make long strings.

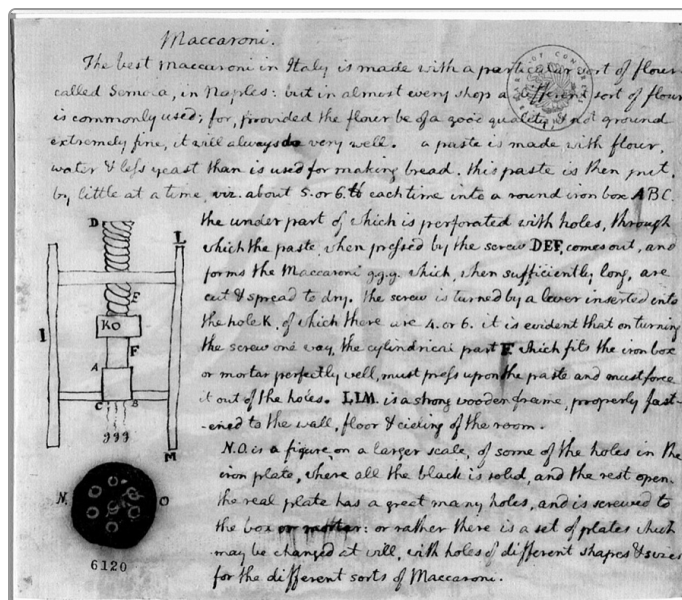
How they figured it out. Jefferson did not just eat the macaroni. He studied how it was made, wrote it down and drew it. Later he had macaroni sent to him, and guests at his dinners were served it. His drawing is still kept today at the Library of Congress. Good cooks are curious like that: they watch, ask questions and write things down.

The kitchen science. When water heats up, first tiny bubbles cling to the bottom of the pot. Then small bubbles rise: that is a simmer. At 212 °F (at sea level), big bubbles roll and pop all over the top. That is a boil. The bubbles are water turning into **steam**. Steam is invisible and very hot, hotter than it looks. Dry pasta soaks up the hot water and turns soft.

Stove rules. Grown-ups cook at the stove. Pot handles always turn in, toward the back. You stand back, at least an arm's length away, on the floor, not on a stool by the stove. Never reach over a pot. A grown-up drains the pasta into the sink, pouring away from the body, because the steam rushes up.

Let's cook! You will measure the pasta and butter, grate nothing and touch nothing hot. You will watch the water from a safe spot, call out each kind of bubble, and toss in the cheese at the table.

PICTURE STUDY



Drawing of a Macaroni Machine, Thomas Jefferson, about 1787 · Ink on paper · Library of Congress, Washington, D.C.

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

Thomas Jefferson drew this picture of a machine for making macaroni while he was in Europe. He wrote notes beside it to remember how it worked. It is like a page from a cook's notebook, more than two hundred years old!

Look closely

- Find the part of the machine where the dough is pushed.
- Find the little holes. What shape will the pasta be when it comes out?
- Look at Jefferson's handwriting. Why did he write notes on his drawing?
- Is this drawing neat or messy? Does it need to be beautiful to be useful?

Talk about it

1. How is Jefferson's drawing like the drawings in your cook's notebook?
2. Why is it helpful to draw and write down what you learn in the kitchen?
3. What would you like to draw the next time you watch a grown-up cook?

Safety first. Only a grown-up uses the stove, carries the pot and drains the pasta. Turn pot handles in. Stand back at least an arm's length, on the floor, and never reach over a pot. Steam burns: if you ever get a small burn, hold it under cool running water and tell a grown-up.

KITCHEN PROJECT

Watch the Water Boil, and Butter-and-Parmesan Pasta

You will be the watcher and the reporter. A grown-up heats the water and reads the thermometer; you call out what you see. Then you help finish a simple pasta dinner.

You will need

- A large pot with a lid, a colander and oven mitts (for the grown-up)
- An instant-read thermometer (optional)
- A timer
- Measuring cups, a large serving bowl and two big spoons
- Paper and pencil for a bubble chart

BUTTER-AND-PARMESAN PASTA WITH PEAS

Serves 4–6 • Prep 5 min • Cook (grown-up) 20 min

Ingredients

- 1 pound small pasta (elbows, shells or bow ties)
- 4 quarts water and 1 tablespoon salt for the pot
- 1½ cups frozen peas
- 4 tablespoons butter, cut into pieces
- ¾ cup grated parmesan cheese, plus more for the table
- ¼ teaspoon black pepper (optional)

Method

1. Wash your hands. Measure the pasta, peas, butter and cheese, each into its own bowl. Put the butter pieces in the big serving bowl.
2. A grown-up fills the pot with water, adds the salt, covers it and heats it on high. Stand back and watch.
3. When the water boils hard, the grown-up stirs in the pasta and sets the timer for the time on the box (usually 8 to 11 minutes), stirring now and then.

4. For the last 2 minutes, the grown-up adds the frozen peas to the pot.
5. The grown-up sets the colander in the sink and pours the pasta in, away from the body. You stay back from the steam. The grown-up saves $\frac{1}{2}$ cup of the pasta water first.
6. The grown-up tips the hot pasta and peas into the serving bowl with the butter and tosses until the butter melts, adding a splash of the saved water.
7. When it has cooled a little, sprinkle in the parmesan and help toss with two big spoons. Serve with more cheese at the table.

Allergy check: Contains wheat and milk. Use a gluten-free pasta for a wheat-free dish, and olive oil and a dairy-free cheese for a milk-free dish. Some pastas contain eggs: read the label.

Steps

1. **Bubble chart.** While the water heats, call out what you see every 2 minutes from your safe spot: “still,” “tiny bubbles,” “simmer,” or “rolling boil.” Draw each one.
2. If you have a thermometer, the grown-up holds it in the water at each check and you read the number aloud. When it boils, what does it say? (About 212 °F.)
3. **Pasta test.** Before cooking, the grown-up saves one dry piece. After cooking, the grown-up cools one cooked piece. Compare them: color, size, how they bend.
4. **Taste test.** Rate the pasta with one, two or three smiles. Is it soft, or firm in the middle?
5. **Clean up.** When the pot is cool, help wash the colander and bowls and wipe the table.
6. **Improve it.** Next time, what would you add: more peas, broccoli, or a little lemon?

Tips

- Cooked pasta is about twice as big as dry pasta, because it soaks up water.
- If you live high in the mountains, water boils at a lower temperature, so pasta takes a little longer.

Check your work

- ☐ I can say the stove rules and stood back the whole time.
- ☐ I can tell that water boils at 212 °F and turns to steam.
- ☐ I watched, reported and helped finish the pasta.

COOK'S NOTEBOOK

1. Draw your bubble chart: still, tiny bubbles, simmer and rolling boil.
2. Draw a dry noodle and a cooked noodle side by side.
3. Draw a stove with the pot handle turned in and yourself standing back.

From history. Pasta is made from flour (usually from durum wheat, a very hard wheat) and water, sometimes with eggs. It is pressed or rolled into hundreds of shapes, from tiny stars to long spaghetti, and dried so it keeps a long time in the pantry.

COMMON MISTAKES

- Standing on a stool next to the stove to see better. Stand back on the floor.
- Thinking steam is harmless because you cannot see it. Steam burns.
- Leaving a pot handle sticking out where someone can bump it.

Make it a game • Spot the Stove Mistakes. With the stove turned off, your grown-up sets up a pretend scene with three mistakes: a pot handle sticking out, a towel near a burner, and a child standing right at the stove. Spot and fix every mistake. Then say the stove rules, and tell what water does as it heats up and boils.

4.2 BAKING IN THE OVEN

OBJECTIVES

- Tell how Abraham and Sarah quickly baked cakes for their guests.
- Explain that an oven bakes food with hot air all around it, and that bubbles make muffins rise.
- Measure, mash and stir oatmeal muffin batter while a grown-up runs the oven.

Warm-up. Look through the oven window (with the oven off and cold). What is inside? Where does the heat come from? Then ask a grown-up to show you the oven mitts and where they are kept.

WATCH

Baking a Cake with Science!

SciShow Kids · 4:19

<https://www.youtube.com/watch?v=KrikPxd-NXs>

WHEN TO WATCH

After the kitchen science paragraph, while the oven heats.

BACKUP VIDEO

Science behind fluffy muffins

Iridescent, now Technovation · 4:14

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

For curious bakers: what makes muffins fluffy.

KEY TERMS

bake

To cook food in the hot, dry air of an oven.

batter

A runny mix of flour, liquid and other ingredients that becomes muffins, pancakes or cake.

rise

To puff up and get taller, from bubbles of gas growing in the heat.

preheat

To turn the oven on early so it is hot before the food goes in.

CORE IDEAS

The story. One hot day, Abraham was sitting at the door of his tent when three visitors came walking by. Abraham ran to meet them and asked them to rest. Then he hurried into the tent and said to Sarah, “Make ready quickly three measures of fine meal, knead it, and make cakes upon the hearth.” Sarah baked flat cakes on the hot stones of the fire, and Abraham served his guests a feast.

How they figured it out. Long ago, people baked on hot stones, in the ashes of a fire, or in clay ovens heated with burning wood. They learned that dough baked on hot stones cooked fast, and that a closed oven baked bread evenly on every side. Many families shared one big bread oven in their village. Today our ovens are heated by electricity or gas, but they work the same way: a hot box of air.

The kitchen science. An oven is a box full of hot air. The hot air touches the food on every side: top, bottom and all around. That is why muffins bake evenly. Baking powder in the batter makes tiny bubbles of gas. In the heat, the bubbles grow bigger, and the batter rises. Then the heat sets the batter so it stays puffy. The outside turns golden brown.

Let’s cook! You will mash bananas and measure and stir oatmeal muffin batter. A grown-up preheats the oven, puts the muffins in and takes them out with oven mitts. You watch them rise through the oven window.

PICTURE STUDY



Woman Baking Bread, Jean-François Millet, 1854 · Oil on canvas · Kröller-Müller Museum, Otterlo, Netherlands

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

In French farm villages, families baked many loaves at once in a big stone oven, enough for a week or more. Millet grew up on a farm and painted country people at their work. This woman is putting loaves into the hot oven.

Look closely

- Find the oven door. What shape is it?
- Find the long wooden paddle, called a peel. Why is it so long?
- Look at the woman's arms and face. Is this hard work?
- Can you see the light of the fire? Where is the heat?

Talk about it

1. Why would a baker use a long paddle instead of her hands?
2. How is her oven like your oven at home? How is it different?
3. Why did families long ago bake many loaves at once?

Safety first. Only a grown-up opens the hot oven and handles the pan, always with oven mitts. Stay out of the way when the oven door opens; a wave of hot air rushes out. Do not taste the raw batter. Let the muffins cool before eating.

KITCHEN PROJECT

Watch Them Rise: Banana Oatmeal Muffins

You will mix muffin batter and watch through the oven window as it rises and turns golden. You will learn the toothpick test to tell when baking is done.

You will need

- A 12-cup muffin tin and paper liners
- Two mixing bowls, a fork or potato masher, a whisk and a rubber spatula
- Measuring cups and spoons
- Oven mitts, a wooden toothpick and a cooling rack (for the grown-up)
- A timer

BANANA OATMEAL MUFFINS

Serves 12 muffins · Prep 15 min · Bake (grown-up) 18–22 min

Ingredients

- 1 cup old-fashioned rolled oats
- 1 cup whole-wheat or all-purpose flour
- 2 teaspoons baking powder
- ½ teaspoon baking soda
- ½ teaspoon salt
- 1 teaspoon cinnamon
- 2 ripe bananas (the spottier the better)
- 1 large egg
- ⅓ cup brown sugar
- ⅔ cup milk
- ⅓ cup vegetable oil or melted butter
- 1 teaspoon vanilla extract
- ½ cup raisins or blueberries (optional)

Method

1. A grown-up preheats the oven to 375 °F. Wash your hands and put paper liners in the muffin tin.
2. In one bowl, stir together the oats, flour, baking powder, baking soda, salt and cinnamon.
3. In the other bowl, peel the bananas and mash them with a fork until mostly smooth. Crack in the egg, then wash your hands. Whisk in the brown sugar, milk, oil and vanilla.
4. Pour the wet mixture into the dry mixture. Stir gently with the spatula just until no dry flour shows. Fold in the raisins or blueberries. Do not taste the batter.
5. Spoon the batter into the 12 cups, about three-quarters full.
6. A grown-up puts the tin in the oven. Bake 18 to 22 minutes. Watch through the window: when do they start to rise? When do they turn golden?
7. The grown-up pokes a toothpick into the middle of one muffin. If it comes out clean, they are done. The grown-up takes them out with oven mitts and sets them on a rack. Cool 10 minutes before eating.

Allergy check: Contains wheat, eggs and milk. For milk-free muffins, use oat or soy milk (soy is a major allergen) and oil. For egg-free muffins, add a third banana instead of the egg. Use a gluten-free flour blend and certified gluten-free oats for wheat-free muffins.

Steps

1. **Before.** Look at the batter in the cups. Draw how high it comes up.
2. **Oven window watch.** Every 5 minutes, look through the oven window (do not open the door). Draw what you see: flat, rising, puffed, golden.
3. **After.** Compare a baked muffin with your “before” drawing. How much did it rise?
4. **Taste test.** When cool, break one open. Do you see tiny holes inside? Those were the bubbles! Rate the muffin with one, two or three smiles.
5. **Clean up.** Wash the bowls, whisk and spatula. Wipe the counter. Store muffins in a covered container.
6. **Improve it.** Next time, try blueberries instead of raisins, or a sprinkle of oats on top.

Tips

- Spotty brown bananas are sweeter and mash more easily.
- Opening the oven door lets the heat out. Watch through the window instead.

Check your work

- ☐ I can tell how an oven bakes with hot air all around.
- ☐ I can tell why muffins rise.
- ☐ I mixed the batter, did not taste it raw, and stayed back from the hot oven.

COOK'S NOTEBOOK

1. Draw your oven window watch: four pictures of the muffins rising.
2. Draw Sarah baking cakes on the hearth for Abraham's guests.
3. Draw a muffin cut in half and its tiny bubble holes.

COMMON MISTAKES

- Opening the oven door again and again to check. The heat escapes and the muffins may sink.
- Tasting raw batter. Wait until the muffins are baked.
- Stirring too much. Stir just until the flour disappears.

Make it a game • Muffin Steps Hop. Draw five step cards: preheat, stir the batter, pour it into the pan, bake, cool. Shuffle them and lay them in a line on the floor. Hop along and put them in the right order. Turn them face down and say the steps from memory. Why do bubbles make muffins rise?

Scripture. “Make ready quickly three measures of fine meal, knead it, and make cakes upon the hearth.” (Genesis 18:6, KJV)

Abraham and Sarah baked for strangers and served them gladly. Baking for others is a way to show hospitality.

4.3 KEEPING FOOD COLD LONG AGO

OBJECTIVES

- Tell how families kept food cold before refrigerators, with ice from ponds and the iceman.
- Explain that cold slows down germs and that the refrigerator should stay at 40 °F or below.
- Make ice cream in a bag and see how salt makes ice even colder.

Warm-up. Open the refrigerator with a grown-up. Feel the cold air. What foods live in there? Why do you think they need to stay cold? Then imagine your house with no refrigerator at all. Where would you keep the milk?

WATCH

Make Your Own Ice Cream! - #sciencegoals

SciShow Kids · 4:09

https://www.youtube.com/watch?v=5ub_5_b6yOQ

WHEN TO WATCH

Before you make your ice cream. Watch how the ice and salt work.

BACKUP VIDEO

Ice Harvest Process

Hanford Mills Museum · 4:20

<https://www.youtube.com/watch?v=aAtS3hAMBBA>

After the story: watch how ice was cut from a frozen pond and stored, just as it was long ago.

KEY TERMS

icebox

A wooden box lined with metal that kept food cold with a big block of ice, before electric refrigerators.

iceman

A man who brought blocks of ice to homes in a wagon or truck.

refrigerator

An electric cold box that keeps food at 40 °F or below.

freeze

To get so cold that a liquid turns solid, like water turning into ice.

CORE IDEAS

The story. Long ago, before electric refrigerators, families kept food cold with ice. In winter, men went out on frozen ponds and lakes and cut the ice into big blocks with saws. They packed the blocks in sawdust in thick-walled icehouses, where the ice could last all summer.

How they figured it out. In towns, the **iceman** drove a wagon of ice blocks through the streets. Families put a card in the window to show how many pounds of ice they needed. The iceman carried the block inside with big tongs and set it in the top of the **icebox**. Cold air from the ice sank down over the milk, butter and meat. As the ice melted, the water dripped into a pan that someone had to empty every day! Farm families also used springhouses, little stone houses built over a cold spring, where crocks of milk sat in the cold running water. In the 1930s, electric refrigerators became common, and the iceman's visits came to an end.

The kitchen science. Germs grow fast when food is warm. Cold slows them way down. That is why milk, meat, eggs and leftovers go in the refrigerator. A refrigerator should stay at 40 °F or below, and a freezer at 0 °F. Food that should be cold goes back in the refrigerator within 2 hours.

Salt and ice. When you sprinkle salt on ice, the ice melts faster, and the icy salt water gets colder than plain ice, well below the freezing point of water. That is cold enough to freeze sweet cream into ice cream!

Let's cook! You will make ice cream in a bag. No stove, no oven, just ice, salt and a lot of shaking.

PICTURE STUDY



Iceman and Helper with an Ice Wagon, Boston, Unknown photographer, about 1900–1920 · Photograph · Library of Congress, Washington, D.C.

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

This old photograph shows an iceman and his helper with their wagon in Boston. Their ice came from Jamaica Pond, a pond in the city that froze solid every winter.

Look closely

- Find the name painted on the wagon. Where did the ice come from?
- Find the horse. What job did the horse do?
- Look for tools the iceman used to carry ice.
- Look at the men's clothes. Would the work be cold? Would it be heavy?

Talk about it

1. Why did families need the iceman to come so often?
2. What would happen to the milk in an icebox if the iceman did not come?
3. How is your refrigerator easier than an icebox?

Safety first. Ice and salt get cold enough to hurt bare skin. Hold the bag with gloves or wrapped in a thick towel, and take breaks. Make sure the small bag is sealed tight so salty water does not get into the ice cream.

KITCHEN PROJECT

Ice Cream in a Bag

You will test plain ice and salted ice with a thermometer, then shake a bag of cream inside a bag of salted ice until it turns into ice cream.

You will need

- 2 sandwich-size zipper bags and 2 gallon-size zipper bags (heavy freezer bags work best)
- Gloves or a thick towel
- Two cups and a thermometer (optional)
- Measuring cups and spoons
- A timer

ICE CREAM IN A BAG

Serves 2 (make one bag per child) · Prep 5 min · Shake 5–10 min

Ingredients

- 1 cup half-and-half (or $\frac{1}{2}$ cup milk and $\frac{1}{2}$ cup heavy cream), divided
- 2 tablespoons sugar, divided
- $\frac{1}{2}$ teaspoon vanilla extract, divided
- About 6 cups ice cubes, divided
- $\frac{2}{3}$ cup coarse salt (rock salt or kosher salt), divided
- Berries or a little cocoa powder for topping (optional)

Method

1. Wash your hands. For each child: in a small bag, put $\frac{1}{2}$ cup half-and-half, 1 tablespoon sugar and $\frac{1}{4}$ teaspoon vanilla. Squeeze out the air and seal it tight. Put it inside a second small bag and seal that too.
2. Fill a big bag halfway with ice (about 3 cups). Sprinkle in $\frac{1}{3}$ cup salt.
3. Put the small bag inside the big bag. Squeeze out some air and seal the big bag.

4. Wrap the big bag in a towel or put on gloves. Shake, squish and roll it for 5 to 10 minutes, until the cream feels firm.
5. Take out the small bag, wipe off the salty water, and open it. Scoop the ice cream into a cup and add berries.

Allergy check: Contains milk. For a milk-free version, use a canned coconut milk or a dairy-free creamer; it will be icier. No eggs, wheat or nuts.

Steps

1. **Salt test.** Fill two cups with ice and a little water. Stir 2 tablespoons of salt into one cup. Wait 3 minutes. Feel the outside of each cup (or use a thermometer). Which is colder?
2. Make the ice cream.
3. **Watch.** Every 2 minutes, feel the small bag. Is it liquid, slushy or firm? Record it.
4. **Taste test.** Rate your ice cream with one, two or three smiles. Is it smooth or icy?
5. **Fridge check.** If you have a refrigerator thermometer, read it. Is the refrigerator at 40 °F or below?
6. **Clean up.** Pour the salty ice water down the sink, throw away the used bags, and wipe the counter.

Tips

- Rock salt or kosher salt works best, but table salt works too.
- Shake with a partner and take turns when your hands get cold.

Check your work

- ☐ I can tell how people kept food cold long ago.
- ☐ I can tell why food goes back in the refrigerator, and that it should stay at 40 °F or below.
- ☐ I made ice cream and found out that salt makes ice colder.

COOK'S NOTEBOOK

1. Draw an icebox with the block of ice on top and the food below.
2. Draw the iceman carrying a block of ice with his tongs.
3. Draw your ice cream bag inside the ice bag and label each part.

From history. Ice harvesting was a big business in New England. Some ice was packed in sawdust and shipped by sailing ship to hot places far away, such as the Caribbean islands and India.

COMMON MISTAKES

- Shaking with bare hands for a long time. Use gloves or a towel.
- Not sealing the small bag well, so salty water leaks in.
- Leaving milk or leftovers out on the counter for hours. Put them back within 2 hours.

Make it a game • Ice Journey Pictionary. Draw one step of the ice story on a scrap of paper: cutting ice from the pond, the icehouse, the iceman's wagon, the icebox. Your grown-up guesses the step. Then put all four pictures in order. Say why the refrigerator replaced the icebox, and how cold slows down germs.

4.4 DRYING FOOD

OBJECTIVES

- Tell how families long ago dried fruit and meat to keep it for the winter.
- Explain that germs and mold need water, so dried food keeps a long time.
- Prepare apple slices for oven-drying and compare grapes and raisins.

Warm-up. Hold a grape in one hand and a raisin in the other. How are they alike? How are they different? Squeeze each gently. Which one has more water?

WATCH

How Are Raisins Made?

[SciShow Kids](#) · 4:00

<https://www.youtube.com/watch?v=QO0xws60qyw>

WHEN TO WATCH

After the story. Watch how grapes become raisins in the sun.

BACKUP VIDEO

Grapes to Raisins Time Lapse - 50 Days [4K]

[Photo Owl Time Lapse](#) · 2:01

<https://www.youtube.com/watch?v=ffZPK3kulsY>

A two-minute time-lapse of grapes drying into raisins over 50 days.

KEY TERMS

dry

To take the water out of food so it keeps longer.

raisin

A grape that has been dried.

pemmican

A food made long ago by Native Americans of dried meat pounded with fat and sometimes berries.

preserve

To keep food from spoiling so it can be eaten later.

CORE IDEAS

The story. Long ago there were no refrigerators and no grocery stores. When fruit was ripe in summer, families had more than they could eat. If they did nothing, it

would spoil. So they dried it. Grapes were laid in the hot sun until they became raisins. Apples were cut into rings, threaded on strings and hung near the fire or in the attic to dry.

How they figured it out. People noticed that dry foods, like grains and beans, kept for a long time, but wet foods spoiled fast. On the Great Plains, Native American families cut bison meat into thin strips and dried it in the sun and wind. Then they pounded it with melted fat and sometimes dried berries to make pemmican. Pemmican was light to carry and could last for months, so hunters, travelers and fur traders carried it on long journeys. In the Bible, a hungry, tired man was given “a piece of a cake of figs, and two clusters of raisins,” and he felt strong again (1 Samuel 30:12).

The kitchen science. Germs and mold need water to grow. When you take most of the water out of food, they cannot grow, so the food keeps for a long time. A grape is mostly water. As it dries, the water goes into the air, and the grape shrinks and wrinkles. The sugar stays behind, so a raisin tastes sweeter than a grape.

Let's cook! A grown-up slices apples very thin with a sharp knife. You dip them in lemon water, lay them in rows and sprinkle them with cinnamon. Then the grown-up dries them slowly in a low oven for about 2 hours.

PICTURE STUDY



Pomegranates, Apples, Haws and Grapes in a Landscape, Luis Meléndez, 1771 · Oil on canvas · Museo del Prado, Madrid

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

Luis Meléndez painted a heap of autumn fruit outdoors: grapes, pomegranates and small apples. In Spain, many grapes like these were laid in the hot sun to dry into raisins, and apples were sliced and dried for winter.

Look closely

- Find the grapes. Are they plump or wrinkled? What would they look like after weeks in the sun?
- Find the pomegranates that have split open. What is inside?
- Find the small apples. How could a family keep apples for the winter?
- Look at the sky. What season do you think it is?

Talk about it

1. Which of these fruits could be dried? How?
2. Why would a family want to dry fruit in autumn?
3. How is drying grapes in the sun like drying your apple chips in the oven?

Safety first. A grown-up slices the apples with a sharp knife or slicer and runs the oven. Let the apple chips cool before tasting. Raisins and dried fruit can cause choking in children under 4; cut them up for little ones.

KITCHEN PROJECT

Oven-Dried Apple Chips and the Raisin Soak

You will help make crispy apple chips, and you will do an experiment to put water back into a raisin.

You will need

- 2 large rimmed baking sheets lined with parchment paper
- A medium bowl, measuring spoons and a clean towel
- A clear glass, a few raisins and a few grapes
- Oven mitts and a timer (for the grown-up)

OVEN-DRIED CINNAMON APPLE CHIPS

Serves 4 (about 3 cups) · Prep 15 min · Dry (grown-up oven) 2–2½ hr

Ingredients

- 3 crisp apples, such as Honeycrisp, Gala or Fuji
- 4 cups cold water
- 2 tablespoons lemon juice
- 1 teaspoon ground cinnamon
- 1 tablespoon sugar (optional)

Method

1. A grown-up heats the oven to 200 °F. Wash your hands. Wash the apples under running water.
2. Stir the lemon juice into the cold water in the bowl.
3. A grown-up cores the apples and slices them into very thin rounds, about 1/8 inch thick, with a sharp knife or slicer.
4. Dip each slice in the lemon water (this keeps it from turning brown), then pat it dry on the towel.
5. Lay the slices on the baking sheets in a single layer, not touching. Mix the cinnamon and sugar and sprinkle it over them.

6. A grown-up bakes them 1 hour, flips each slice, and bakes 1 to 1½ hours more, until they look dry and the edges curl. The grown-up turns off the oven and leaves them inside for 1 hour to crisp.

7. Cool completely. Store in a jar with a tight lid.

Allergy check: Contains none of the nine major allergens.

Steps

1. **Raisin soak.** Put 5 raisins in a glass of water. Leave them overnight. In the morning, compare them with dry raisins and with grapes. What happened? (They soaked water back up and got plump!)
2. **Weigh or count.** Count your apple slices before drying. After drying, put them all in one cup. How much smaller is the pile?
3. Make the apple chips.
4. **Taste test.** Taste a fresh apple slice and an apple chip. Which is sweeter? Which is crunchier? Rate the chips with one, two or three smiles.
5. **Clean up.** Wash the bowl and wipe the counter. Recycle or throw away the parchment.
6. **Improve it.** Next time, try pears, or leave off the sugar and use only cinnamon.

Tips

- The thinner the slices, the crispier the chips.
- If some chips are still bendy, the grown-up can dry them 15 to 30 minutes longer.

Check your work

- ☐ I can tell how people dried food to keep it long ago.
- ☐ I can tell why dried food does not spoil quickly.
- ☐ I helped make apple chips and did the raisin soak test.

COOK'S NOTEBOOK

1. Draw a grape, a raisin, and a raisin after its overnight soak.
2. Draw apple rings hanging on a string to dry by the fire, long ago.
3. Draw your apple chips and give them a smile rating.

COMMON MISTAKES

- Slicing the apples thick. Thick slices stay chewy instead of crisp.
- Storing chips before they are completely cool. They get soft and sticky.
- Thinking dried fruit has no sugar. The sugar stays; only the water leaves.

Make it a game • Winter Pantry Pairs. Long ago families dried food for winter. Your grown-up names two foods, like a grape and a raisin, or fresh apple and apple chips. You say which will keep longer and why: germs and mold need water. Play ten rounds, one point for each right answer. Then tell what pemmican was.

Scripture. “And they gave him a piece of a cake of figs, and two clusters of raisins: and when he had eaten, his spirit came again to him” (1 Samuel 30:12, KJV)

Dried fruit was food for travelers and for the hungry. God provides good food that keeps.

UNIT 4

HEAT & COLD

Heat changes food. Hard pasta turns soft in boiling water. Runny batter turns into fluffy muffins in the oven. Cold changes food too: cream turns into ice cream, and the refrigerator keeps milk fresh. Taking the water out of food changes it again: juicy grapes become chewy raisins.

In this unit you will watch a grown-up boil water and read the thermometer, hear how Abraham and Sarah baked cakes for guests, learn how the iceman brought ice to kitchens long ago, and find out how families dried fruit to keep it all winter. The grown-up does every hot job; you measure, mix, shake and watch from a safe spot. Stoves and ovens are a grown-up's tools at your age, and watching carefully is how good cooks begin.

PREREQUISITES

- Knows the kitchen rules and that the stove and oven are grown-up jobs (Unit 1)
- Can measure with cups and spoons (Units 1–3)
- Knows that cold slows down germs and mold (Lesson 1.2)

MASTERY CHECKLIST

- ☐ I can tell why pot handles are turned in and why I stand back from the stove.
- ☐ I can tell that water boils at 212 °F and turns into steam, and that steam can burn.
- ☐ I can tell how an oven bakes food with hot air all around it.
- ☐ I can tell how people kept food cold before refrigerators, and I made ice cream with ice and salt.
- ☐ I can tell why dried food keeps a long time.

OPTIONAL BOOKS AND TOOLS FOR THIS UNIT

- **A refrigerator thermometer:** Inexpensive. Hang it in the refrigerator and let your child read it each week: it should say 40 °F or below. In the freezer it should say 0 °F.
- **National Center for Home Food Preservation: Drying:** Free. The University of Georgia's guide to drying fruit at home, for the grown-up, with more ideas for Lesson 4.4.
- **Heavy work gloves or a thick towel:** For holding the ice-cream bag in Lesson 4.3. Ice and salt get cold enough to hurt bare hands.

Not required. Every recipe in this unit works in an ordinary home kitchen.

School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

4.1 Hot Stove Safety and Boiling Water	2 sessions of 30–40 minutes
4.2 Baking in the Oven	2 sessions of 30–40 minutes
4.3 Keeping Food Cold Long Ago	2 sessions of 30–40 minutes
4.4 Drying Food	2 sessions of 30–40 minutes

UNIT 4 REVIEW

Ask each question aloud. Your child may answer by telling, pointing, drawing or showing. There are no points; note what your child knows well and what to review.

1. Show me where you stand when a grown-up is cooking at the stove. Which way does the pot handle point?
2. At what temperature does water boil? What are the bubbles made of?
3. Predict: what happens to muffin batter in a hot oven? Why?
4. How did families keep food cold before refrigerators?
5. Why does a refrigerator keep food fresh? How cold should it be?

6. Why do raisins and apple chips keep so long? What happened to the raisin you soaked?

ANSWER KEY

1. On the floor, at least an arm's length back, never reaching over a pot. The handle points in, toward the back of the stove.
2. 212 °F (at sea level). The bubbles are steam, water turned into a hot gas.
3. It rises and turns golden. Bubbles of gas from the baking powder grow in the heat, and then the heat sets the muffin. Hot air bakes it on all sides.
4. With ice cut from frozen ponds in winter, stored in icehouses, and brought by the iceman to the icebox; or in a springhouse over cold water.
5. Cold slows down germs. It should be 40 °F or below (the freezer 0 °F).
6. The water has been taken out, and germs and mold need water to grow. The soaked raisin got plump again because it soaked up water.

UNIT CHALLENGE: ONE APPLE, FOUR WAYS

Use apples to see what heat, cold and drying do to the same food. Make four plates: fresh apple slices; apple slices frozen in a bag overnight; your dried apple chips; and warm cinnamon apples cooked by a grown-up in a pan with a little butter and cinnamon until soft.

Taste each with your family. Make a chart with four boxes. In each box, draw the apple and write or tell one texture word (crunchy, soft, chewy, crisp, mushy) and one taste word (sweet, sour, plain). Circle the family favorite.

LOOK FOR	WHAT IT MEANS
Four ways	Your child helped prepare all four plates, with a grown-up doing the cutting and the stove.
Safe watching	Your child stayed back from the stove and oven and used gloves or mitts only when told.
Chart	The chart has a drawing and at least one word for each way, with help writing as needed.
Telling why	Your child can tell, in his or her own words, what heat, cold or drying did to the apple. Effort and curiosity count most.

UNIT 5

FOOD CHEMISTRY

Every kitchen is a little science laboratory. In this unit you will find out what is happening inside your food when it changes. You will wash white **starch** out of a potato, shake cream until the **fat** turns into butter, watch a **protein** called gelatin turn juice into a wiggly dessert, and see living **yeast** blow up a balloon.

You will hear how potatoes came from the mountains of South America, how farm children churned butter, how a carpenter in a small New York town invented Jell-O, and the old story of the pretzel. Jesus said the kingdom of heaven is like leaven, a little yeast that works quietly through a whole batch of dough (Matthew 13:33). By the end of this unit you will have seen it work.

PREREQUISITES

- Knows the stove and oven are grown-up jobs and stands back (Unit 4)
- Can measure with cups and spoons and stir carefully (Units 1–4)
- Never tastes unbaked dough or batter (Lessons 2.3 and 4.2)

MASTERY CHECKLIST

- ☐ I can show where potato starch comes from and tell what cooking does to it.
- ☐ I can tell how shaking cream traps air to make whipped cream, and how more shaking makes butter.
- ☐ I can tell how gelatin, a protein, makes a net that holds juice in a wiggly shape.
- ☐ I can tell that yeast is alive and makes gas bubbles that make bread rise.
- ☐ I helped make mashed potatoes, butter, gelatin cups and soft pretzels.

OPTIONAL BOOKS AND TOOLS FOR THIS UNIT

- **A clean pint jar with a tight lid:** For shaking cream into whipped cream and butter in Lesson 5.2. A clean peanut butter or jam jar works well.
- **A packet of active dry or instant yeast and a balloon:** For the yeast balloon test in Lesson 5.4. One packet is about 2¼ teaspoons.
- **King Arthur Baking: Learn to bake guides:** Free step-by-step baking guides with photographs from the King Arthur Baking Company, helpful for the grown-up in Lesson 5.4.

Not required. Every recipe in this unit works in an ordinary home kitchen.

School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

5.1 Starch in Potatoes	2 sessions of 30–40 minutes
5.2 Shake Cream into Butter	2 sessions of 30–40 minutes
5.3 Jell-O and the Protein Net	2 sessions of 30–40 minutes
5.4 Yeast Makes Bread Rise	2 sessions of 60–90 minutes

UNIT 5 REVIEW

Ask each question aloud. Your child may answer by telling, pointing, drawing or showing. There are no points; note what your child knows well and what to review.

1. Where did potatoes first come from? What white food did we wash out of a potato?
2. Show me how you shook the cream. What came first, and what came next?
3. How does gelatin turn juice into a wiggly dessert?
4. Predict: what will happen if you put fresh kiwi in gelatin?
5. What is yeast? How does it make bread rise?
6. Why do we never taste unbaked dough or batter?

ANSWER KEY

1. The Andes Mountains of South America (Peru and Bolivia). Starch.
2. First whipped cream (air bubbles trapped by the fat), then butter and buttermilk (the fat drops stuck together).
3. Gelatin is a protein with long strands. As it cools, the strands tangle into a net that traps the juice.
4. It will not set; it stays runny, because fresh kiwi has a natural helper that cuts the protein strands.
5. A tiny living fungus. It eats sugar and makes carbon dioxide gas bubbles that puff up the dough.
6. Raw flour and uncooked eggs can carry germs that make people sick. Wait until it is baked.

UNIT CHALLENGE: OUR KITCHEN SCIENCE SHOW

Put on a kitchen science show for your family. Show four experiments from this unit: the potato starch in the bowl, cream shaken into butter, the kiwi gelatin test (or a gelatin cup that sets), and the yeast balloon. For each one, tell your family what you did, what happened, and why.

Then serve a snack you made during the unit, such as soft pretzels with your homemade butter, or gelatin cups with whipped cream. Have a grown-up take a photo or draw a picture of your show for your folder.

LOOK FOR	WHAT IT MEANS
Set up safely	Your child set out the experiments with clean hands and let a grown-up do any hot or sharp steps.
Told what happened	Your child described each experiment in order: what we did, what happened.
Told why	Your child explained at least two of the experiments in his or her own words (starch, fat, protein net, yeast gas).
Served and cleaned up	Your child served a snack to the family and helped clean up. Cheerful effort counts most.

5.1 STARCH IN POTATOES

OBJECTIVES

- Tell where potatoes first came from and how they traveled to the rest of the world.
- Wash starch out of a grated potato and tell what starch does when it is cooked.
- Mash cooked potatoes into fluffy mashed potatoes after a grown-up boils them.

Warm-up. Hold a raw potato. Is it heavy or light, hard or soft? A potato is a storehouse of food for a new potato plant. What do you think the food inside is made of?

WATCH

Grow Your Own Potatoes!

[SciShow Kids](#) · 4:48

<https://www.youtube.com/watch?v=5spUhmGneGw>

WHEN TO WATCH

After the story. Watch how one potato can grow many new ones.

BACKUP VIDEO

Earthy Potatoes: how do potatoes grow?

[Eat Happy Project](#) · 1:57

<https://www.youtube.com/watch?v=lyBuY-DnCJc>

A short look at how potatoes grow underground.

KEY TERMS

starch

A white food that plants store in seeds and roots, like potatoes, rice and wheat. It gives us energy.

tuber

A fat underground stem that stores food for a plant. A potato is a tuber.

Andes

Tall mountains in South America where potatoes were first grown.

mash

To press soft food until it is smooth.

CORE IDEAS

The story. Potatoes were first grown long ago by farmers high in the Andes Mountains of South America, in what are now Peru and Bolivia. The mountains are

cold, and not many plants grow there. But potatoes did! Farmers there grew many kinds: yellow, purple, red, long and round. They even learned to freeze-dry potatoes in the cold mountain nights so they would keep for years.

How they figured it out. In the 1500s, Spanish sailors brought potatoes back across the ocean to Europe. At first many people did not trust this strange lumpy root. But farmers found that potatoes grew well in poor soil and fed many people. Little by little, potatoes became one of the most important foods in the world.

The kitchen science. A potato stores food for a new plant as **starch**. Starch is packed in tiny grains, too small to see. When a raw potato is grated, the grains wash out into the water as white powder. When a potato is cooked in hot water, the starch grains soak up water and swell and soften. That is why a cooked potato is soft and fluffy instead of hard and crunchy.

Gentle mashing. Mash potatoes by hand, just until smooth. If they are whipped too hard in a blender, too many starch grains burst, and the potatoes turn sticky and gluey.

Let's cook! A grown-up peels, cuts and boils the potatoes and drains them. When they are in a bowl on the counter, you mash them and stir in milk, butter and salt.

PICTURE STUDY



The Potato Eaters, Vincent van Gogh, 1885 · Oil on canvas · Van Gogh Museum, Amsterdam

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

Vincent van Gogh painted a poor farm family in the Netherlands eating their supper of potatoes after a long day of work in the fields. He said he wanted to show that these hands, which dug the earth, had honestly earned their food.

Look closely

- Find the plate of potatoes in the middle of the table. Is everyone eating from one plate?
- Find the hanging lamp. Is the room bright or dim?
- Look at the people's hands. What work do you think they do?
- Find someone pouring a drink and someone passing a potato.

Talk about it

1. Why might potatoes be a good supper for a farm family?
2. What do you think the family is talking about?
3. How is this supper like your family's supper? How is it different?

Safety first. A grown-up peels and cuts the potatoes, grates the raw potato, boils them, and drains the hot pot. Wait until the potatoes are in a bowl on the counter and the grown-up says they are ready before you mash.

Wash Out the Starch, Then Mash the Potatoes

You will see real potato starch with your own eyes. Then you will mash cooked potatoes into a fluffy side dish for dinner.

You will need

- A grater and a vegetable peeler (for the grown-up)
- A clear glass bowl and a clean thin towel or cheesecloth
- A large pot and a colander (for the grown-up)
- A large bowl and a potato masher
- Measuring cups and spoons

HAND-MASHED POTATOES

Serves 6 • Prep 15 min • Cook (grown-up) 20 min

Ingredients

- 2½ pounds Yukon Gold or russet potatoes (about 6 medium)
- 1 teaspoon salt for the cooking water
- ¾ cup milk
- 4 tablespoons butter
- ½ teaspoon salt, or to taste
- A pinch of black pepper (optional)

Method

1. Wash your hands. Scrub the potatoes under running water with a vegetable brush.
2. A grown-up peels the potatoes and cuts them into chunks about 2 inches big, puts them in the pot, covers them with cold water, adds 1 teaspoon salt, and boils them about 15 to 20 minutes, until a fork slides in easily.
3. A grown-up warms the milk and butter in the microwave or a small pot until the butter melts.

4. A grown-up drains the potatoes in the colander, away from the steam, and tips them into the large bowl.
5. When the grown-up says it is safe, mash the potatoes with the masher: press down, turn the bowl, press again.
6. Pour in the warm milk and butter a little at a time and mash or stir until smooth and fluffy. Stir in $\frac{1}{2}$ teaspoon salt and pepper. Taste and add more salt if needed.
7. Serve warm. Refrigerate leftovers within 2 hours.

Allergy check: Contains milk. For milk-free mashed potatoes, use unsweetened oat milk or some of the potato cooking water and olive oil instead of butter.

Steps

1. **Starch test.** A grown-up grates one raw potato into a bowl of cold water. Swish it with your hand. Pour it through the towel into the clear bowl and squeeze out the potato shreds (a grown-up helps). Let the cloudy water sit for 20 minutes.
2. **Look.** Gently pour off the water. What is left on the bottom? (A layer of white potato starch!) Touch it. How does it feel?
3. Make the mashed potatoes.
4. **Compare.** Look at a raw potato chunk and a cooked one. Press each with a fork. What did heat and water do to the starch?
5. **Taste test.** Rate the mashed potatoes with one, two or three smiles. Smooth or lumpy?
6. **Clean up.** Rinse the starch down the drain with plenty of water, wash the masher and bowls, and wipe the counter.

Tips

- Russet potatoes make the fluffiest mash. Yukon Golds make the creamiest.
- A few small lumps are fine. Some people call them “homemade” potatoes!

Check your work

- ☐ I can tell where potatoes first came from.
- ☐ I saw real potato starch and can tell what cooking does to it.
- ☐ I mashed the potatoes after a grown-up did the boiling.

COOK'S NOTEBOOK

1. Draw a potato plant with potatoes growing underground.
2. Draw the glass bowl with the white starch on the bottom.
3. Draw your bowl of mashed potatoes and give it a smile rating.

From history. Potatoes have even been grown in space! In 1995 potato plants were grown on the Space Shuttle *Columbia*, the first food plants grown in space.

COMMON MISTAKES

- Mashing potatoes in a blender. They turn gluey. Mash by hand.
- Mashing before the potatoes are soft all the way through. Lumps!
- Eating green parts of a potato. Green spots should be cut away by a grown-up.

Make it a game • The Potato Journey. Mark three spots in your home: the Andes, Europe and your kitchen. Carry a potato, or a rolled sock, from the first spot to the next. At each stop, tell one fact about where potatoes came from or how they traveled. At the end, say what starch does when it is cooked.

5.2 SHAKE CREAM INTO BUTTER

OBJECTIVES

- Tell how families churned butter long ago.
- Explain how shaking cream traps air (whipped cream) and then makes the fat stick together (butter).
- Shake cream in a jar into whipped cream and butter, and serve them with berries and bread.

Warm-up. Pour a little heavy cream and a little milk into two clear cups. Look at them. Tilt them. Which one is thicker? Cream has more fat. What do you think will happen if we shake it hard for a long time?

WATCH

Let's Make Butter! - #sciencegoals

SciShow Kids · 2:56

<https://www.youtube.com/watch?v=e1LYWF8T8g0>

WHEN TO WATCH

Before you start shaking. Then shake along!

BACKUP VIDEO

How to Make Butter in Jar - Yummy Kitchen Science for Homeschool or the Classroom

STEAM Powered Family · 1:44

<https://www.youtube.com/watch?v=QdmzhYM3RII>

Another short look at butter in a jar.

KEY TERMS

cream

The rich, fatty part of milk that rises to the top.

whipped cream

Cream beaten until it fills with tiny air bubbles and turns fluffy.

churn

To shake or beat cream until it turns into butter. Also the tool used to do it.

buttermilk

The thin liquid left over after butter is churned.

CORE IDEAS

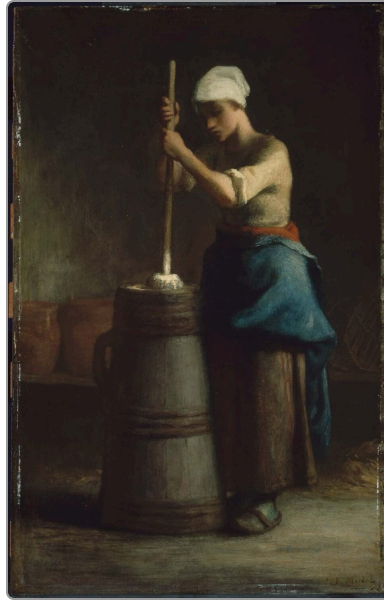
The story. Long ago, farm families had cows and lots of milk. They let the milk sit in pans until the thick cream rose to the top. Then they skimmed off the cream and poured it into a tall wooden churn. Someone pushed a stick called a dasher up and down, up and down, often for half an hour or more. Children took turns churning. The Bible says, “Surely the churning of milk bringeth forth butter.”

How they figured it out. Churners knew to listen. At first the cream sloshed. Then it got thick and quiet. Then, all at once, it sloshed again, and yellow lumps of butter appeared, floating in thin buttermilk! The butter was gathered, rinsed in cold water, pressed and salted. Nothing was wasted: the buttermilk was drunk or used for baking.

The kitchen science. Cream is full of tiny drops of fat, each with a thin skin around it. When you shake or whip cream, you push air bubbles into it, and the fat drops hold the bubbles in place. That is **whipped cream**. If you keep shaking, the fat drops bump so hard that their skins break, and they stick together into clumps. That is **butter**! The liquid left behind is buttermilk. Cold cream works best.

Let's cook! No stove today. You will be the churner: shake cream in a jar until it turns into whipped cream, then keep going until you make butter.

PICTURE STUDY



Young Woman Churning Butter, Jean-François Millet, about 1870 · Pastel on paper · Museum of Fine Arts, Boston

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

Millet grew up on a farm in Normandy, France, famous for its butter and cream. Here a young woman is churning butter, pushing the dasher up and down in a tall wooden churn.

Look closely

- Find the tall churn and the stick (the dasher). Which way is she pushing?
- Find the white foam at the top of the churn. What is it?
- Look at her arms and back. Is churning easy or hard work?
- Look at the light. Where is it coming from?

Talk about it

1. How long do you think she will have to churn?
2. How is her churn like your shaking jar?
3. What would her family eat with the fresh butter?

Safety first. Use a jar with a tight lid, and keep a hand on the lid while you shake. Wash your hands before handling the butter. Check for milk allergies before tasting.

KITCHEN PROJECT

From Cream to Whipped Cream to Butter

You will shake cream in a jar and watch it change three times: liquid, whipped cream, and butter with buttermilk. You will stop one jar early for whipped cream to eat on berries.

You will need

- Two clean pint jars with tight lids
- A timer
- A fine strainer and a small bowl
- A wooden spoon or spatula
- A small dish for the butter

JAR-SHAKEN WHIPPED CREAM AND FRESH BUTTER, WITH BERRIES

Serves 4–6 • Prep 5 min • Shake 5–15 min

Ingredients

- 2 cups very cold heavy whipping cream, divided
- 1 tablespoon powdered sugar and ½ teaspoon vanilla extract (for the whipped cream)
- ¼ teaspoon salt (for the butter, optional)
- 2 cups strawberries and blueberries
- Crackers or slices of bread for the butter

Method

1. Wash your hands. Wash the berries and pull the tops off the strawberries. Cut them in halves with your kid knife.
2. **Whipped cream jar:** Pour 1 cup cold cream, the powdered sugar and the vanilla into one jar. Screw the lid on tight. Shake hard for 2 to 4 minutes, until the cream stops sloshing and feels thick. Open it and look: fluffy whipped cream! Spoon it over the berries.

3. **Butter jar:** Pour the other 1 cup cold cream into the second jar. Shake, shake, shake. After a few minutes it turns into whipped cream. Keep going! After 8 to 15 minutes you will hear it slosh again. Look: a yellow lump and thin liquid.
4. Pour the liquid (buttermilk) through the strainer into a bowl. Save it for pancakes.
5. Put the butter lump in a bowl of very cold water and press it with the spoon to rinse out the last buttermilk. Pour off the water. Do this two or three times, until the water stays clear.
6. Press the butter into a small dish. Stir in the salt if you like. Spread it on crackers or bread. Keep it covered in the refrigerator and use it within a week.

Allergy check: Contains milk. This lesson cannot be made milk-free; a child with a milk allergy can watch a grown-up shake the jars and enjoy berries with a dairy-free whipped topping.

Steps

1. **Predict.** How many minutes will it take to make butter? Write your guess.
2. Take turns shaking with your family. Every 2 minutes, stop and look through the jar. Draw what you see: liquid, thick, fluffy, lumps.
3. Make the whipped cream and the butter.
4. **Taste test.** Taste whipped cream on a berry and butter on a cracker. Which one do you like better? Rate each with one, two or three smiles.
5. **Clean up.** Wash the jars in hot, soapy water (butter is greasy). Wipe the counter.
6. **Improve it.** Next time, try stirring a little honey or cinnamon into your butter.

Tips

- Cold cream whips faster. Keep it in the refrigerator until the moment you start.
- Fill the jar only half full. The cream needs room to slosh.

Check your work

- ☐ I can tell how families churned butter long ago.

- ☐ I can tell how shaking makes whipped cream and then butter.
- ☐ I shook my own butter and helped clean up.

COOK'S NOTEBOOK

1. Draw your jar four times: liquid cream, thick cream, whipped cream, butter and buttermilk.
2. Draw a tall wooden churn with its dasher.
3. Write how many minutes it took to make butter. Was your guess close?

COMMON MISTAKES

- Using warm cream. It takes much longer, and may not turn to butter at all.
- Filling the jar too full. Leave room to slosh.
- Not rinsing the butter. Leftover buttermilk makes it spoil sooner.

Make it a game • Shake and Freeze. Shake a closed jar like a churn. Your grown-up calls, Freeze! and asks what stage of cream is happening: liquid cream, whipped cream with trapped air, or butter with buttermilk. Answer, then shake again. Add one new stage to your answer each round. How many rounds can you answer before time is up?

Scripture. “Surely the churning of milk bringeth forth butter” (Proverbs 30:33, KJV)

Solomon noticed that shaking cream always makes butter. God made the world to work in orderly ways we can learn.

5.3 JELL-O AND THE PROTEIN NET

OBJECTIVES

- Tell how Pearle and May Wait made Jell-O in LeRoy, New York, in 1897.
- Explain that gelatin is a protein that makes a net to hold juice in a wiggly shape.
- Make fruit juice gelatin cups and test why fresh kiwi or pineapple keeps gelatin from setting.

Warm-up. Poke a bowl of gelatin dessert (or remember one you have eaten). It wiggles but does not spill. How can a dessert made mostly of juice or water hold its shape?

WATCH

Wiggly Gelatin Treats! | The Science of Food! | SciShow Kids

SciShow Kids · 5:54

<https://www.youtube.com/watch?v=xChjmw7KfNw>

WHEN TO WATCH

After the kitchen science paragraph.

BACKUP VIDEO

Why Do Pineapple and Kiwi Ruin Gelatin?

SciShow · 2:45

https://www.youtube.com/watch?v=3_kVp-5XKiM

For curious children and grown-ups: why fresh pineapple and kiwi ruin gelatin. Watch it before your kiwi test.

KEY TERMS

gelatin

A powder made of protein that turns liquids into a wiggly solid when it cools.

set

To turn from a liquid into a soft solid as it cools.

protein

A food part made of long, chain-like pieces. Protein helps our bodies grow.

dissolve

To mix into a liquid so completely that you cannot see it anymore.

CORE IDEAS

The story. In 1897, in the little town of LeRoy, New York, a carpenter named Pearle Wait was trying to invent something to sell. He and his wife, May, mixed plain gelatin powder with sugar and fruit flavors: strawberry, raspberry, orange and lemon. May named it **Jell-O**.

How they figured it out. The Waits did not have money to sell it far and wide. In 1899 they sold their idea to a neighbor, Orator Woodward, for \$450. At first it sold so slowly that he almost gave it away! But he kept trying. He gave out free cookbooks full of Jell-O recipes and sent salesmen around the country. Soon Jell-O was one of the best-known desserts in America.

The kitchen science. Gelatin is a **protein**. It is made of long, thin strands, like tiny pieces of string all balled up. In hot liquid, the strands loosen and spread out. As the liquid cools in the refrigerator, the strands tangle and link together into a net. The net traps the juice in its holes, and the liquid becomes a wiggly solid. If you warm it up again, the net lets go, and it melts!

The kiwi surprise. Fresh kiwi and fresh pineapple have a natural helper inside that cuts protein strands like scissors. If you put them in gelatin, the net cannot form, and the gelatin stays runny. Canned pineapple has been heated, which stops the scissors, so it works fine.

Let's cook! You will make real fruit juice gelatin cups. A grown-up heats the juice. You sprinkle the gelatin, add the fruit and do the kiwi test.

PICTURE STUDY



No Dessert More Attractive, Genesee Pure Food Company (advertisement), 1904 · Newspaper advertisement · Published in American newspapers

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

This is a newspaper advertisement for Jell-O from 1904, only seven years after it was invented. In those days, making a gelatin dessert from plain gelatin took a long time. The advertisement promised that Jell-O would make it quick and easy.

Look closely

- Find the Jell-O box. What flavor is it?
- Read (or have a grown-up read) the words. How long does the ad say Jell-O takes to make?
- Find the four fruit flavors. Which would you choose?
- Find the price. How much did a box cost?

Talk about it

1. Why would a company pay to put an advertisement in the newspaper?
2. The ad says “Simply add hot water and set to cool.” What happens to the gelatin while it cools?
3. If you made an advertisement for your gelatin cups, what would you draw and write?

Safety first. A grown-up heats the juice and pours the hot liquid. Let it cool to warm before you pour it into the cups. Gelatin is made from animals; families who do not eat it can use agar, a seaweed gelatin, with the package directions.

Fruit Juice Gelatin Cups and the Kiwi Test

You will make wiggly gelatin cups from real fruit juice and test what fresh kiwi does to the protein net.

You will need

- A medium heat-proof bowl and a whisk
- A small pot or a microwave-safe pitcher (for the grown-up)
- Measuring cups
- 6 to 8 small clear cups, plus 2 extra cups for the kiwi test
- A spoon and a ladle or a measuring cup with a spout

FRUIT JUICE GELATIN CUPS

Serves 6–8 • Prep 15 min • Chill 3–4 hr

Ingredients

- 2 packets (about 4½ teaspoons) unflavored gelatin
- 1 cup cold 100% fruit juice (white grape, apple or cranberry blend)
- 3 cups 100% fruit juice, heated by a grown-up until steaming
- 1 to 2 tablespoons honey or sugar (optional)
- 1½ cups fruit: berries, grapes cut in half, mandarin orange sections, or canned pineapple
- 1 kiwi (for the test)

Method

1. Wash your hands. Pour the 1 cup of cold juice into the heat-proof bowl.
2. Sprinkle the gelatin evenly over the top. Wait 5 minutes and watch: the gelatin soaks up juice and looks wrinkly. This is called blooming.
3. A grown-up heats the 3 cups of juice until steaming, pours it into the bowl and whisks for 2 minutes, until all the gelatin dissolves. Stir in honey if you like.
4. Put a few pieces of fruit in each cup.

5. When the juice has cooled to just warm, pour or ladle it over the fruit.
6. Chill in the refrigerator 3 to 4 hours, until set and wiggly. Keep covered in the refrigerator up to 4 days.

Allergy check: Contains none of the nine major allergens. Gelatin comes from animals. Honey is never given to babies under one year old. Whole grapes and blueberries should be cut for children under 4.

Steps

1. **Kiwi test.** A grown-up peels a kiwi. Cut it into pieces with your kid knife. Put fresh kiwi pieces in one test cup and canned pineapple (or berries) in the other. Pour gelatin over both.
2. **Predict.** Which cup will set? Draw your guess.
3. Chill all the cups. After 4 hours, poke each test cup. Which one set? Which stayed runny? Why?
4. **Melt test.** Put a spoonful of set gelatin on a plate in a sunny window or warm spot. What happens after 20 minutes?
5. **Taste test.** Rate your gelatin cups with one, two or three smiles. Which fruit is best inside?
6. **Clean up.** Rinse the bowl and whisk right away with warm water before the gelatin sets on them.

Tips

- If the fruit floats to the top, chill the gelatin 1 hour first, then push the fruit in.
- Clear juices like white grape and apple let you see the fruit inside best.

Check your work

- ☐ I can tell the story of how Jell-O began.
- ☐ I can tell how a protein net turns juice into a wiggly solid.
- ☐ I did the kiwi test and can tell what happened.

COOK'S NOTEBOOK

1. Draw gelatin strands three ways: balled up (dry), loose in hot juice, and tangled in a net (set).
2. Draw your two kiwi test cups after 4 hours.
3. Draw your own advertisement for your gelatin cups.

From history. Today there is a Jell-O Gallery museum in LeRoy, New York, where the dessert was invented.

COMMON MISTAKES

- Dumping gelatin into hot liquid without blooming it first. It makes clumps.
- Adding fresh kiwi or pineapple. The gelatin will not set.
- Pouring hot liquid yourself. Let the grown-up pour, and wait until it is just warm.

Make it a game • Jell-O Teach-Back. Be the teacher. Tell your grown-up the story of Pearle and May Wait and Jell-O, then explain how gelatin makes a protein net that holds juice. Your grown-up sneaks in one wrong fact, such as Jell-O being invented in 1997. Catch the mistake, and the teacher gets a point.

5.4 YEAST MAKES BREAD RISE

OBJECTIVES

- Tell that yeast is a tiny living thing that eats sugar and makes gas bubbles.
- Do the yeast balloon test and watch dough rise.
- Knead, roll and twist soft pretzels while a grown-up does the hot steps.

Warm-up. Smell a packet of yeast. Look closely at the tiny grains. They look like dust, but they are alive! They are sleeping. What do you think will wake them up?

WATCH

Fermentation of Yeast & Sugar - The Sci Guys: Science at Home

The Sci Guys • 4:18

<https://www.youtube.com/watch?v=FYCICHVT00M>

WHEN TO WATCH

Before you set up your own yeast balloon. Watch the balloon grow.

BACKUP VIDEO

Why Does Bread Have Holes In It? | The Science of Cooking | SciShow Kids

SciShow Kids • 5:34

<https://www.youtube.com/watch?v=JlDlZr7Ljrw>

After you bake: find out why bread has holes in it.

KEY TERMS

yeast

A tiny living thing, a kind of fungus, that eats sugar and makes gas bubbles. It makes bread rise.

leaven

An old word for yeast or a bit of risen dough that makes bread puff up.

knead

To push, fold and turn dough with your hands to make it stretchy.

carbon dioxide

The gas that yeast makes. Its bubbles make dough rise.

CORE IDEAS

The story. An old story says that long ago, a monk in Europe was baking bread. He had a little dough left over. He rolled it into a rope and twisted it into the shape of a

child's arms crossed in prayer, with three holes for the Father, the Son and the Holy Spirit. He gave these twisted breads to children who learned their prayers. We call them **pretzels**. No one knows for sure if the story is true, but bakers have twisted pretzels for hundreds of years.

How they figured it out. For thousands of years, bakers saved a little risen dough from one batch to mix into the next. They knew it made bread rise, but they did not know why. About 160 years ago, the French scientist Louis Pasteur looked through a microscope and saw that yeast is *alive*. The tiny yeast cells were eating and growing. Later, people learned to dry yeast and sell it in packets.

The kitchen science. Yeast is a tiny living fungus, so small that thousands could fit on the head of a pin. When it gets warm water and sugar, it wakes up, eats the sugar, and gives off a gas called **carbon dioxide**. In dough, the gas makes thousands of bubbles, and the dough puffs up. Kneading makes the dough stretchy, like a balloon, so it can hold the bubbles. In the hot oven, the bubbles grow once more, and then the heat sets the bread.

Let's cook! You will make soft pretzels. You measure, stir, knead, roll and twist. A grown-up checks the water temperature, dips the pretzels in a hot baking soda bath and bakes them. Do not taste the unbaked dough.

PICTURE STUDY



Mrs. Gillie Treadway Taking Bread from the Oven, Russell Lee, 1946 · Photograph · National Archives, College Park, Maryland

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

This photograph was taken in 1946 in Bell County, Kentucky, by Russell Lee, a photographer working for the U.S. government. Mrs. Gillie Treadway, whose husband worked in a coal mine, is taking fresh bread out of her wood-burning stove. Many American families baked their bread at home like this.

Look closely

- Find the pan of bread. What is she holding it with, and why?
- Find the oven door. Where would the fire have been in a stove like this?
- Count the pots and kettles on top of the stove. What might be cooking in them?
- Look at the bread's top. Does it look puffed up or flat?

Talk about it

1. Why must you always use a cloth or oven mitts to take a pan out of the oven?
2. What made her bread dough puff up before it baked?
3. How is her stove different from the one in your kitchen? How is it the same?

Safety first. Do not taste unbaked dough; uncooked flour can carry germs. A grown-up checks the water temperature, boils the baking soda bath, dips the pretzels and runs the oven. Baking soda water is very hot and can splatter; stand well back.

KITCHEN PROJECT

The Yeast Balloon and Soft Pretzels

You will watch yeast blow up a balloon. Then you will make soft pretzels and watch the dough rise.

You will need

- A small plastic bottle, a balloon and a funnel (for the balloon test)
- A large mixing bowl, a wooden spoon and measuring cups and spoons
- A clean towel and a clean counter for kneading
- Two baking sheets lined with parchment paper
- A wide pot and a slotted spatula (for the grown-up)
- A piece of tape and a marker

SOFT PRETZELS

Serves 8 pretzels · Prep 30 min · Rise 45–60 min · Bake (grown-up) 12–14 min

Ingredients

- 1½ cups warm water, about 110 °F (a grown-up checks it)
- 1 packet (2¼ teaspoons) active dry or instant yeast
- 1 tablespoon sugar
- 1 teaspoon salt
- 2 tablespoons butter, softened, or vegetable oil
- 4 to 4½ cups all-purpose flour
- **Baking soda bath (for the grown-up):** 8 cups water and ⅓ cup baking soda
- Coarse salt for sprinkling

Method

1. Wash your hands. A grown-up runs the warm water and checks it: it should feel warm, like bath water, not hot (about 110 °F).
2. Pour the water into the big bowl. Sprinkle in the yeast and sugar. Wait 5 minutes. Do you see foam? The yeast is awake!

3. Add the salt, butter and 4 cups of flour. Stir with the wooden spoon until a shaggy dough forms.
4. Dust the counter with flour. Knead the dough for 5 minutes: push it away with the heels of your hands, fold it over, turn it, and push again. Add a little more flour if it is sticky. It should be smooth and stretchy.
5. Put the dough back in the bowl, cover with a towel, and let it rise in a warm spot 45 to 60 minutes, until doubled.
6. A grown-up heats the oven to 425 °F and brings the water and baking soda to a boil in the wide pot.
7. Divide the dough into 8 pieces. Roll each into a rope about 20 inches long. Make a U, cross the ends twice, and press them onto the bottom of the U. Lay the pretzels on the parchment.
8. A grown-up dips each pretzel in the boiling baking soda bath for 30 seconds with a slotted spatula and puts it back on the pan. You sprinkle each with coarse salt.
9. A grown-up bakes them 12 to 14 minutes, until deep golden brown. Cool 10 minutes before eating.

Allergy check: Contains wheat and milk (butter). Use vegetable oil instead of butter for milk-free pretzels. No eggs, nuts, soy or sesame.

Steps

1. **Yeast balloon.** Put 1 cup of warm water, 1 tablespoon of sugar and 1 packet of yeast in the bottle (use the funnel). Stretch the balloon over the top. Set it in a warm spot. Check it every 10 minutes. What happens? Why?
2. **Rise mark.** After you put the dough in the bowl, stick a piece of tape on the outside of the bowl at the top of the dough. Check every 15 minutes. How high does it grow?
3. Make and shape the pretzels.
4. **Taste test.** Break a cooled pretzel open. Can you see the bubble holes the yeast made? Rate the pretzels with one, two or three smiles.
5. **Clean up.** Scrape the counter, wash the bowl and spoon, and wipe up the flour. The grown-up pours out the cooled baking soda water.

6. **Improve it.** Next time, try a different shape: a letter of your name, a heart or little bites.

Tips

- Water that is too hot can harm the yeast; water that is too cold makes it slow. Warm like bath water is just right.
- If the dough ropes keep shrinking back, let them rest 5 minutes and try again.

Check your work

- ☐ I can tell that yeast is alive and makes gas bubbles.
- ☐ I did the yeast balloon test and marked how high the dough rose.
- ☐ I kneaded and twisted pretzels and did not taste unbaked dough.

COOK'S NOTEBOOK

1. Draw the yeast balloon test at the start and after 30 minutes.
2. Draw your dough bowl with the tape mark, before and after rising.
3. Draw how to twist a pretzel in three steps.

COMMON MISTAKES

- Using very hot water. It can harm the yeast. Warm, not hot.
- Tasting the unbaked dough. Wait until the pretzels are baked.
- Rushing the rise. Give the yeast time to work.

Make it a game • Yeast Charades. Act out what yeast does without talking: shrink very small, nibble sugar, puff out gas bubbles, then grow big as the dough rises. Your grown-up guesses each step and says the word, like leaven or carbon dioxide. Then knead an imaginary dough with a steady beat. Swap and do it again.

Scripture. “The kingdom of heaven is like unto leaven, which a woman took, and hid in three measures of meal, till the whole was leavened.” (Matthew 13:33, KJV)

A little yeast, hidden in the dough, quietly changes the whole batch. Jesus said God’s kingdom grows like that.

UNIT 5

FOOD CHEMISTRY

Every kitchen is a little science laboratory. In this unit you will find out what is happening inside your food when it changes. You will wash white **starch** out of a potato, shake cream until the **fat** turns into butter, watch a **protein** called gelatin turn juice into a wiggly dessert, and see living **yeast** blow up a balloon.

You will hear how potatoes came from the mountains of South America, how farm children churned butter, how a carpenter in a small New York town invented Jell-O, and the old story of the pretzel. Jesus said the kingdom of heaven is like leaven, a little yeast that works quietly through a whole batch of dough (Matthew 13:33). By the end of this unit you will have seen it work.

PREREQUISITES

- Knows the stove and oven are grown-up jobs and stands back (Unit 4)
- Can measure with cups and spoons and stir carefully (Units 1–4)
- Never tastes unbaked dough or batter (Lessons 2.3 and 4.2)

MASTERY CHECKLIST

- ☐ I can show where potato starch comes from and tell what cooking does to it.
- ☐ I can tell how shaking cream traps air to make whipped cream, and how more shaking makes butter.
- ☐ I can tell how gelatin, a protein, makes a net that holds juice in a wiggly shape.
- ☐ I can tell that yeast is alive and makes gas bubbles that make bread rise.
- ☐ I helped make mashed potatoes, butter, gelatin cups and soft pretzels.

OPTIONAL BOOKS AND TOOLS FOR THIS UNIT

- **A clean pint jar with a tight lid:** For shaking cream into whipped cream and butter in Lesson 5.2. A clean peanut butter or jam jar works well.
- **A packet of active dry or instant yeast and a balloon:** For the yeast balloon test in Lesson 5.4. One packet is about 2¼ teaspoons.
- **King Arthur Baking: Learn to bake guides:** Free step-by-step baking guides with photographs from the King Arthur Baking Company, helpful for the grown-up in Lesson 5.4.

Not required. Every recipe in this unit works in an ordinary home kitchen.

School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

5.1 Starch in Potatoes	2 sessions of 30–40 minutes
5.2 Shake Cream into Butter	2 sessions of 30–40 minutes
5.3 Jell-O and the Protein Net	2 sessions of 30–40 minutes
5.4 Yeast Makes Bread Rise	2 sessions of 60–90 minutes

UNIT 5 REVIEW

Ask each question aloud. Your child may answer by telling, pointing, drawing or showing. There are no points; note what your child knows well and what to review.

1. Where did potatoes first come from? What white food did we wash out of a potato?
2. Show me how you shook the cream. What came first, and what came next?
3. How does gelatin turn juice into a wiggly dessert?
4. Predict: what will happen if you put fresh kiwi in gelatin?
5. What is yeast? How does it make bread rise?
6. Why do we never taste unbaked dough or batter?

ANSWER KEY

1. The Andes Mountains of South America (Peru and Bolivia). Starch.
2. First whipped cream (air bubbles trapped by the fat), then butter and buttermilk (the fat drops stuck together).
3. Gelatin is a protein with long strands. As it cools, the strands tangle into a net that traps the juice.
4. It will not set; it stays runny, because fresh kiwi has a natural helper that cuts the protein strands.
5. A tiny living fungus. It eats sugar and makes carbon dioxide gas bubbles that puff up the dough.
6. Raw flour and uncooked eggs can carry germs that make people sick. Wait until it is baked.

UNIT CHALLENGE: OUR KITCHEN SCIENCE SHOW

Put on a kitchen science show for your family. Show four experiments from this unit: the potato starch in the bowl, cream shaken into butter, the kiwi gelatin test (or a gelatin cup that sets), and the yeast balloon. For each one, tell your family what you did, what happened, and why.

Then serve a snack you made during the unit, such as soft pretzels with your homemade butter, or gelatin cups with whipped cream. Have a grown-up take a photo or draw a picture of your show for your folder.

LOOK FOR	WHAT IT MEANS
Set up safely	Your child set out the experiments with clean hands and let a grown-up do any hot or sharp steps.
Told what happened	Your child described each experiment in order: what we did, what happened.
Told why	Your child explained at least two of the experiments in his or her own words (starch, fat, protein net, yeast gas).
Served and cleaned up	Your child served a snack to the family and helped clean up. Cheerful effort counts most.

UNIT 6

CRAVINGS, REWARD & A BALANCED DIET

God made us able to enjoy sweet, salty and rich foods, and to want what nourishes us. That is a good gift! But some snack foods are made so that it is very easy to keep eating them even after our tummies are full. In this unit you will learn to listen to your tummy, to tell everyday foods from sometimes foods, to choose water when you are thirsty, and to enjoy treats in their place, especially on feast days and with others.

You will hear about a study that found big portions change how much children eat, about Laura Ingalls's Christmas treats on the prairie, about Jesus asking for a drink at a well, and about a great feast day in Jerusalem when God's people were told to celebrate and share. You will make a portioned snack mix, fruit and yogurt bark, cucumber-mint water and a fruit pizza to share.

PREREQUISITES

- Can name the five food groups (Unit 2)
- Knows the five tastes (Unit 3)
- Washes hands, cuts soft food with a kid knife, and cleans up (Unit 1)

MASTERY CHECKLIST

- ☐ I can tell how my tummy feels when I am hungry, satisfied and too full.
- ☐ I can tell why some snacks are hard to stop eating, and I eat from a bowl, not the bag.
- ☐ I can sort foods into everyday foods and sometimes foods.
- ☐ I can tell why water is the best everyday drink.
- ☐ I can enjoy a treat in its place and share it with others.

OPTIONAL BOOKS AND TOOLS FOR THIS UNIT

- **A set of small bowls or snack cups:** For portioning snacks in Lesson 6.1 and the unit challenge. Any small bowls you already have will do.
- **A water bottle for your child:** A child's own refillable bottle makes water easy to reach all day (Lesson 6.3 and the unit challenge).

Not required. Every recipe in this unit works in an ordinary home kitchen.

School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

6.1 Why Some Foods Are Hard to Stop Eating	2 sessions of 30–40 minutes
6.2 Everyday Foods and Sometimes Foods	2 sessions of 30–40 minutes
6.3 Thirsty? Drink Water	2 sessions of 30–40 minutes
6.4 Treats in Their Place	2 sessions of 30–40 minutes

UNIT 6 REVIEW

Ask each question aloud. Your child may answer by telling, pointing, drawing or showing. There are no points; note what your child knows well and what to review.

1. Show me on your hunger scale: very hungry, satisfied, and too full. How does each one feel?
2. Why is it easy to keep eating some snacks? What can you do to help?
3. Sort these into everyday foods and sometimes foods: apple, cookie, carrots, soda, yogurt, candy.
4. What is the best everyday drink? About how many teaspoons of sugar are in a can of soda?
5. Tell me about Nehemiah's feast day. What did he tell the people to do?
6. Are treats bad? When is a good time for a treat?

ANSWER KEY

1. Any honest description, for example: growly and empty; comfortable and just right; stuffed and uncomfortable.
2. They are sweet, salty, crunchy or rich together, and the tummy takes about 20 minutes to say “full.” Put a portion in a bowl, put the bag away, sit down and eat slowly.
3. Everyday: apple, carrots, yogurt. Sometimes: cookie, soda, candy.
4. Water (and milk). About 9 or 10 teaspoons.
5. Not to cry but to celebrate with a feast, and to send portions to people who had nothing, because the joy of the LORD is your strength.
6. No. Treats are good gifts in their place: sometimes, in small portions, on special days, and shared with others.

UNIT CHALLENGE: MY WATER-AND-SNACK WEEK

For one week, keep a chart with two rows for each day. In the first row, color a drop for every glass of water or milk you drink. In the second row, draw your snack each day and color it green for an everyday food or yellow for a sometimes food. Try to choose water at meals and everyday snacks most days, with a sometimes food once or twice.

At the end of the week, tell your family how you felt and what your taste buds noticed. Did water start to taste better? Then make one everyday snack from this unit for the whole family.

LOOK FOR	WHAT IT MEANS
Chart kept	The chart was filled in each day, with help as needed.
Good choices	Your child often chose water and everyday snacks. Honest charting counts more than perfect days.
Telling about it	Your child told what he or she noticed about thirst, fullness or taste during the week.
Serving others	Your child made and served an everyday snack for the family and helped clean up.

6.1 WHY SOME FOODS ARE HARD TO STOP EATING

OBJECTIVES

- Tell how your tummy feels when you are hungry, satisfied and too full, using a hunger scale.
- Explain why snacks that are sweet, salty and crunchy are easy to keep eating, and why the tummy needs time to say “full.”
- Mix a homemade snack mix and portion it into small bowls.

Warm-up. Put your hand on your tummy. Right now, is it empty and growly, just right, or very full? Show it on your fingers: 1 finger for very hungry, 3 for just right, 5 for too full.

WATCH

KidQuest Lesson 1: My Plate and Portion Sizes

SDSU Extension · 3:54

<https://www.youtube.com/watch?v=kliC10pfWvU>

WHEN TO WATCH

After the story. Watch how much one portion really is.

KEY TERMS

hungry

When your body needs food. Your tummy may growl or feel empty.

satisfied

Comfortably full. You have had enough and feel good.

portion

The amount of food you serve yourself at one time.

craving

A strong wanting for one certain food.

CORE IDEAS

The story. About twenty-five years ago, scientists at Penn State University, Barbara Rolls and Leann Birch, did a careful study with young children. At lunch, they gave the children macaroni and cheese. Some days the children got a small plate. Some days they got a medium plate. Some days they got a big plate.

How they figured it out. The scientists measured how much each child ate. The three-year-olds ate about the same amount every day, no matter how big the plate was. They listened to their tummies! But the five-year-olds ate more when they were given more. As children grow, they start to eat what is in front of them, not just what their tummies need. The scientists learned that portion size matters.

The kitchen science. God made our brains to enjoy food and to want more of what tastes good. Sweet, salty, crunchy and rich tastes are some of the easiest to want. Many packaged snacks are made with all of these together, so it is easy to keep reaching into the bag, even after your tummy is full. Your tummy also takes about 20 minutes to send a “full” message to your brain. If you eat fast, you can eat past full before the message arrives.

Good habits. Put a portion in a bowl and put the bag away. Sit down to eat. Eat slowly and enjoy each bite. Stop and check your tummy halfway. Foods with fiber and protein, like fruit, vegetables, nuts, cheese and whole grains, plus a glass of water, help you feel satisfied.

Let’s cook! You will mix a homemade snack mix with crunchy, chewy, sweet and salty things, and then measure it into small portion cups, one for each snack time.

PICTURE STUDY



Girl Eating Soup, Albert Anker, 1898 · Oil on canvas · Private collection

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

Albert Anker was a Swiss painter who loved to paint children in their homes and schools. Here a little girl eats her soup, one spoonful at a time. Anker's pictures are quiet and kind.

Look closely

- Find the bowl and the spoon. How big is her portion?
- Is she eating fast or slowly? How can you tell?
- What else is on the table?
- Look at her face. What do you think she is thinking about?

Talk about it

1. How would she know when she has had enough soup?
2. Why is it good to sit down at a table to eat instead of eating while running around?
3. What is your favorite warm food on a cold day?

Safety first. Snack mixes may contain nuts, wheat, milk or soy. Check every label for allergies. Nuts, seeds and popcorn can cause choking in children under 4.

KITCHEN PROJECT

My Hunger Scale and a Portioned Snack Mix

You will make a hunger scale to hang on the refrigerator. Then you will mix a big batch of snack mix and measure it into small portions.

You will need

- Paper and crayons for the hunger scale
- A very large bowl and a big spoon
- Measuring cups
- Small bowls, cups or zipper bags for portions
- A large jar or container with a lid

CRUNCHY-CHEWY HOMEMADE SNACK MIX

Serves 12 portions (½ cup each) • Prep 10 min

Ingredients

- 2 cups whole-grain cereal squares (rice, corn or wheat)
- 1 cup small pretzels
- 1 cup plain toasted oat cereal rings
- ½ cup roasted sunflower seeds or roasted peanuts (if no one is allergic)
- ½ cup raisins
- ½ cup dried cranberries or chopped dried apricots
- ½ cup cheese crackers (optional)
- ¼ cup mini chocolate chips (optional, a sometimes food sprinkle)

Method

1. Wash your hands.
2. Measure each ingredient into the very large bowl.
3. Stir gently with the big spoon so the pretzels do not break, until everything is mixed.
4. Measure ½ cup of the mix into each small bowl or bag. That is one portion.

5. Put all but today's portion in the jar or bags and put them away in the pantry.

6. Keep the mix in a closed container for up to 2 weeks.

Allergy check: May contain wheat (cereal, pretzels, crackers), milk (cheese crackers, chocolate), peanuts, soy and tree nuts, depending on the brands. For an allergy-friendly mix, use rice or corn cereal, gluten-free pretzels, sunflower seeds and allergen-free chips, and read every label.

Steps

1. **Hunger scale.** Draw a scale with five faces: 1 very hungry (growly), 2 hungry, 3 satisfied (just right), 4 full, 5 too full (stuffed). Hang it on the refrigerator.
2. Make the snack mix and portion it.
3. **Slow snack.** Sit at the table with one portion. Eat it slowly, one piece at a time. Halfway, put your hand on your tummy and point to your number on the scale. At the end, check again.
4. **Bag or bowl?** Talk about it: which is easier to stop, eating from a bowl or from a big bag? Why?
5. **Clean up.** Wipe the table and wash the bowl and spoon.
6. **Improve it.** Which ingredient would you add or leave out next time?

Tips

- Use small cups or bowls for portions. A big bowl makes a small portion look tiny.
- Serve a snack with a glass of water.

Check your work

- ☐ I can show hungry, satisfied and too full on my hunger scale.
- ☐ I can tell why it helps to eat from a bowl, sit down and eat slowly.
- ☐ I mixed and portioned a snack mix.

COOK'S NOTEBOOK

1. Draw your hunger scale with its five faces.
2. Draw a small bowl of snack mix next to a big bag. Circle the better choice.
3. Draw what your tummy said halfway through your slow snack.

From history. God gave us feelings of hunger and fullness to help us take care of our bodies. Little children listen to them well. As we grow older, we can practice listening again.

COMMON MISTAKES

- Eating snacks straight from the bag. It is easy to eat past full.
- Eating very fast. Your tummy needs time to send its “full” message.
- Thinking you must finish everything on your plate even when full. Tell a grown-up, and save it for later.

Make it a game • Hunger Scale Fingers. Your grown-up reads short scenes: your stomach growling after a long walk, or too stuffed after seconds. Use fingers to show the hunger scale from one, very hungry, to five, too full. Then name two snacks that are sweet, salty and crunchy, and explain why they are hard to stop. Pour a portion of dry beans.

6.2 EVERYDAY FOODS AND SOMETIMES FOODS

OBJECTIVES

- Tell how Laura Ingalls and her sister treasured their Christmas treats on the prairie.
- Sort foods into everyday foods and sometimes foods and tell why.
- Make frozen yogurt fruit bark as an everyday-food dessert.

Warm-up. If you could pick only one food to eat every day for a week, what would it be? Would that be good for your body? What would you be missing?

WATCH

Sometimes Foods Vs. Everyday Foods

Prevention1st • 6:30

<https://www.youtube.com/watch?v=g6OSXaVTimQ>

WHEN TO WATCH

After the story. Listen for which foods are everyday foods.

Note: A simple cartoon from Prevention First, a small nonprofit health-education group, chosen because it uses the same words this course does: everyday foods and sometimes foods.

KEY TERMS

everyday foods

Foods that give your body lots of what it needs: fruits, vegetables, whole grains, protein foods, dairy and water.

treat

A special food enjoyed once in a while, often at a celebration.

sometimes foods

Treats like candy, cookies, chips and soda, which are mostly sugar, salt or fat. They are fine sometimes, in small amounts.

nourish

To give the body what it needs to grow and stay strong.

CORE IDEAS

The story. Laura Ingalls Wilder grew up in a covered wagon and log cabins on the American prairie in the 1870s. When she was an old woman, she wrote books about

her childhood. In *Little House on the Prairie*, she tells about a Christmas when the creek was flooded, and the girls were afraid there would be no Christmas presents. But their kind neighbor, Mr. Edwards, swam across the icy creek to bring them presents!

How they figured it out. Laura and her sister Mary each got a shiny new tin cup, a long stick of peppermint candy, a little heart-shaped cake sprinkled with white sugar, and a penny. They were so happy! They did not gobble their treats. They looked at them and admired them, and they ate the cakes slowly. Sugar and candy were rare and costly on the prairie. Treats were special, and the girls treasured them.

The kitchen science. Everyday foods are fruits, vegetables, whole grains, protein foods, dairy and water. They give your body vitamins, protein, fiber and energy to grow. Sometimes foods are things like candy, cookies, cake, chips and soda. They are mostly sugar, salt or fat, with little else your body needs. They are not “bad.” They are treats, and treats are best sometimes, in small amounts, often shared with others.

Let’s cook! You will make a dessert from everyday foods: frozen yogurt bark with fruit. You spread, slice soft fruit, sprinkle and freeze it.

PICTURE STUDY



Basket of Wild Strawberries, Jean-Siméon Chardin, about 1760 · Oil on canvas

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

Chardin was a French painter who made ordinary things look beautiful. Here he painted a tall heap of tiny wild strawberries in a basket. Wild strawberries were a summer treat, sweet and fragrant, picked by hand.

Look closely

- Find the strawberries. What shape do they make all piled up?
- Find the glass of water. What do you see through it?
- Find the peach, the cherry and the white flowers.
- Look at the light on the strawberries. Do they look juicy?

Talk about it

1. Are strawberries an everyday food or a sometimes food? Why?
2. Why might a basket of fresh berries feel like a special treat?
3. What sweet everyday food is your favorite?

Safety first. Check the yogurt and toppings for allergies. Cut only soft fruit with your kid knife. Keep the bark in the freezer until just before eating.

KITCHEN PROJECT

The Everyday-or-Sometimes Sort and Yogurt Fruit Bark

You will play a sorting game with real foods or pictures. Then you will make frozen yogurt bark, a sweet dessert made mostly of everyday foods.

You will need

- Food packages, real foods or pictures cut from grocery ads, and two baskets or boxes
- A rimmed baking sheet that fits in your freezer, lined with parchment paper
- A medium bowl, a rubber spatula and measuring cups and spoons
- A cutting board on a damp towel and a kid knife

FROZEN YOGURT FRUIT BARK

Serves 6 • Prep 15 min • Freeze 2–3 hr

Ingredients

- 2 cups plain Greek yogurt
- 2 tablespoons honey or maple syrup
- ½ teaspoon vanilla extract
- 1 cup strawberries
- ½ cup blueberries
- 1 banana
- 2 tablespoons unsweetened flaked coconut or granola (optional)
- 1 tablespoon mini chocolate chips (optional)

Method

1. Wash your hands and wash the berries.
2. In the bowl, stir the yogurt, honey and vanilla together.
3. Spread the yogurt on the parchment paper with the spatula, into a rectangle about ½ inch thick.

4. Pull the tops off the strawberries and slice them with your kid knife. Slice the banana into coins.
5. Press the strawberries, blueberries and bananas into the yogurt. Sprinkle with coconut and chocolate chips.
6. Freeze 2 to 3 hours, until hard. Break the bark into pieces with your hands. Eat right away, and keep the rest in a freezer bag.

Allergy check: Contains milk. Chocolate chips may contain milk and soy; coconut is listed as a tree nut on some labels; granola may contain wheat and nuts. For a milk-free bark, use a thick dairy-free yogurt. Honey is never given to babies under one year old.

Steps

1. **Sort game.** Make two baskets: “Everyday” and “Sometimes.” Sort 12 foods or pictures. Talk about any that are hard to decide.
2. Make the yogurt bark.
3. **Count the groups.** Which food groups are in your bark? (Dairy and fruit.) Is it an everyday food or a sometimes food? (Mostly everyday, with a sometimes sprinkle!)
4. **Taste test.** Rate the bark with one, two or three smiles. Which fruit was best?
5. **Clean up.** Wash the bowl and spatula, put away the sort game, and wipe the counter.
6. **Improve it.** Next time, try mango, raspberries or kiwi.

Tips

- Greek yogurt makes a creamier, less icy bark than regular yogurt.
- Let the bark sit out for 2 minutes before eating so it is easier to bite.

Check your work

- ☐ I can sort foods into everyday foods and sometimes foods.
- ☐ I can tell why treats are best sometimes and in small amounts.
- ☐ I made a dessert from everyday foods.

COOK’S NOTEBOOK

1. Draw two baskets: everyday foods and sometimes foods. Draw three foods in each.

2. Draw Laura's Christmas treats: the tin cup, the candy stick, the heart cake and the penny.
3. Draw your yogurt bark and give it a smile rating.

From history. Laura Ingalls Wilder's first book, *Little House in the Big Woods*, came out in 1932, when she was 65 years old. Her books tell how her family grew, hunted, gathered, churned and stored their own food.

COMMON MISTAKES

- Calling foods "good" or "bad." We say everyday foods and sometimes foods.
- Thinking treats are wrong. Treats are good gifts when enjoyed sometimes, in their place.
- Thinking every sweet food is a sometimes food. Fruit is sweet, and it is an everyday food!

Make it a game • Sort and Defend. Your grown-up holds up food pictures or real foods. Call each one an everyday food or a sometimes food. Then give one reason. Your grown-up may challenge you with, Are you sure? Defend your answer. Get six right to win. Tell how Laura Ingalls treasured her Christmas treats on the prairie.

6.3 THIRSTY? DRINK WATER

OBJECTIVES

- Tell the story of Jesus asking for a drink at the well.
- Explain why water is the best everyday drink and how much sugar is in some sweet drinks.
- Make a pitcher of cucumber-mint water and a pitcher of strawberry water.

Warm-up. When do you feel thirsty? After running and playing? On a hot day? When you wake up? Look at your skin, your eyes and your mouth. Water helps all of them. Can you guess how much of your body is made of water?

WATCH

Why Do We Drink Water? | Importance Of Water | Stay Hydrated | The Dr Binocs Show | Peekaboo Kidz

Peekaboo Kidz · 6:09

<https://www.youtube.com/watch?v=31F0laJjy8>

WHEN TO WATCH

After the story. Listen for the ways your body uses water.

KEY TERMS

thirsty

When your body needs water. Your mouth feels dry.

well

A deep hole dug down to water under the ground.

sugary drink

A drink with a lot of added sugar, like soda, sweet tea or fruit punch. A sometimes drink.

infused water

Water with fruit, vegetables or herbs soaking in it for flavor.

CORE IDEAS

The story. One hot day, Jesus and His disciples were walking through Samaria. Jesus was tired from the long walk, so He sat down by an old well called Jacob's well. It was about noon. A woman came to draw water, and Jesus said to her, "Give me to drink." Then He told her about a living water that only He could give.

How they figured it out. In Bible times, there were no faucets. Families walked to a well or a spring every day and carried water home in big clay jars. Water was precious. Everyone knew that people and animals could not live long without it. Jesus, the Son of God, became a real man who got tired and thirsty, just like us.

The kitchen science. More than half of your body is water! You lose water every day when you sweat, when you breathe out, and when you go to the bathroom. Thirst is your body saying, “Please send more water.” Water is the best everyday drink, and milk is a good everyday drink too. Sugary drinks, like soda and fruit punch, are sometimes drinks. One can of regular soda can have about 9 or 10 teaspoons of sugar!

Let’s cook! You will make flavored water with no added sugar. A grown-up slices the cucumber and lemon. You tear the mint, drop in the berries and fill the pitchers.

PICTURE STUDY



Woman at the Well, Carl Heinrich Bloch, between 1865 and 1879 · Oil on copper · Frederiksborg Castle chapel, Hillerød, Denmark

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

Carl Bloch was a Danish painter who made many pictures of the life of Jesus for a church in a castle in Denmark. Here he painted Jesus talking with the woman at Jacob's well.

Look closely

- Find the well. What is it made of?
- Find the water jar. How would the woman carry it home when it is full?
- Look at Jesus' face and hands. What do you think He is saying?
- Look at the light. What time of day might it be?

Talk about it

1. Why did Jesus ask for a drink?
2. How is getting water from a well different from getting water at your sink?
3. Why should we thank God for clean water?

Safety first. A grown-up slices the cucumber and lemon with a sharp knife. Wash all fruit, vegetables and herbs under running water. Keep flavored water in the refrigerator and drink it within 1 to 2 days.

KITCHEN PROJECT

The Sugar Spoon Display and Two Flavored Waters

You will see how much sugar hides in some sweet drinks. Then you will make two pitchers of flavored water with no added sugar.

You will need

- A soda can or juice drink bottle (empty is fine) and a bowl of sugar
- A teaspoon and a clear plate
- Two pitchers or large jars
- A wooden spoon and a colander

CUCUMBER-MINT WATER AND STRAWBERRY-LEMON WATER

Serves 8 cups each pitcher · Prep 10 min · Chill 1–2 hr

Ingredients

- **Cucumber-mint water:** ½ cucumber (a grown-up slices it thin)
- 8 to 10 fresh mint leaves
- 8 cups cold water and ice
- **Strawberry-lemon water:** 1 cup strawberries
- 1 lemon (a grown-up slices it)
- 8 cups cold water and ice

Method

1. Wash your hands. Rinse the cucumber, mint, strawberries and lemon under running water.
2. **Cucumber-mint:** A grown-up slices the cucumber. Put the slices in the first pitcher. Tear the mint leaves in half and gently squeeze them in your hand to wake up the smell. Drop them in.
3. **Strawberry-lemon:** Pull the tops off the strawberries and cut them in half with your kid knife. A grown-up slices the lemon. Put the strawberries and lemon in the second pitcher. Press them gently with the wooden spoon.
4. Fill each pitcher with cold water and ice. Stir.

5. Chill 1 to 2 hours so the flavors soak in. Pour into glasses and enjoy.
Keep in the refrigerator and drink within 2 days.

Allergy check: Contains none of the nine major allergens.

Steps

1. **Sugar spoons.** A grown-up reads the soda label: “Sugars 39 g” (or similar). Every 4 grams is about 1 teaspoon. Scoop that many teaspoons of sugar onto the plate (about 9 or 10). Look at the pile! Then scoop the sugar in a glass of water: zero.
2. Make the two flavored waters.
3. **Taste test.** Taste plain water, cucumber-mint water and strawberry-lemon water. Rate each with one, two or three smiles. Which will you drink tomorrow?
4. **Water chart.** For three days, color a drop on a chart every time you drink a glass of water.
5. **Clean up.** Pour the sugar back in its container, rinse the colander, and wipe the counter.
6. **Improve it.** Next time, try orange slices and a few blueberries, or watermelon and basil.

Tips

- Squeezing mint leaves in your hand before adding them makes the water smell and taste stronger.
- Keep a pitcher in the refrigerator where you can see it, so water is the easy choice.

Check your work

- ☐ I can tell the story of Jesus at the well.
- ☐ I can tell why water is the best everyday drink.
- ☐ I made flavored water with no added sugar.

COOK'S NOTEBOOK

1. Draw the sugar pile from the soda next to an empty spoon for water.
2. Draw your two pitchers of flavored water.
3. Draw Jesus and the woman at the well.

COMMON MISTAKES

- Waiting until you are very thirsty to drink. Drink water through the day.
- Thinking fruit drinks are the same as fruit. Many fruit drinks are mostly sugar and water.
- Leaving fruit water out on the counter all day. Keep it cold.

Make it a game • Well Bucket Relay. Jesus asked for a drink at the well. Put a bowl of water at one end of the room and an empty jar at the other. Carry water in a spoon without spilling. Each trip, say a reason water is best, or name a drink with sugar. How full can you get the jar in three minutes?

Scripture. “There cometh a woman of Samaria to draw water: Jesus saith unto her, Give me to drink.” (John 4:7, KJV)

Jesus was thirsty, just as we are. He made our bodies, and He knows what they need.

6.4 TREATS IN THEIR PLACE

OBJECTIVES

- Tell how Nehemiah told God's people to celebrate a feast day and share with those who had nothing.
- Explain that treats are good gifts in their place, and that self-control is a fruit of the Spirit.
- Make a fruit pizza for a celebration and share portions with someone else.

Warm-up. Think of a celebration in your family: a birthday, Christmas, Easter, Thanksgiving. What special foods do you eat? Who do you eat them with? Why do special days have special foods?

WATCH

Kids in the Kitchen | Segment | Fruit Pizza

Milwaukee PBS • 3:35

<https://www.youtube.com/watch?v=9AS984GrIT8>

WHEN TO WATCH

Before you build your fruit pizza. Watch how the fruit is arranged.

BACKUP VIDEO

Mini Fruit Pizzas! | Stephanie from Millennial Moms

Millennial Moms • 2:32

https://www.youtube.com/watch?v=GSn_mr3gxxl

Another idea: mini fruit pizzas to give away.

KEY TERMS

feast

A special, joyful meal for a celebration.

self-control

Choosing to stop or wait even when you want more. The Bible calls it temperance, a fruit of the Spirit.

portion

A share of food. In the Bible, sending portions means giving food to others.

celebrate

To be glad together on a special day.

CORE IDEAS

The story. Long ago, after God's people came home to Jerusalem and rebuilt its walls, they gathered in a great crowd. Ezra the priest stood on a tall wooden stand and read God's law to them from morning until noon. When the people heard it, they began to cry, because they saw how far they had wandered from God.

How they figured it out. But Nehemiah, the governor, told them: Do not cry today! This is a holy day, a happy day. Go home and have a feast, and "send portions unto them for whom nothing is prepared." In other words, share your good food with people who have none. "For the joy of the LORD is your strength." So the people went home and celebrated with great joy.

The kitchen science. Treats and feasts are good gifts from God. Sweet foods taste wonderful, and God made us to enjoy them. But the Bible also says, "Hast thou found honey? eat so much as is sufficient for thee" (Proverbs 25:16). That means: enjoy it, but stop when you have had enough. Treats are best on special days, in small portions, and shared with others. Self-control is a fruit of the Spirit (Galatians 5:22-23).

Let's cook! You will make a fruit pizza for a celebration. A grown-up bakes the big cookie crust. You stir the creamy frosting, spread it, cut soft fruit and arrange a pattern. Then you will send a portion to someone else.

PICTURE STUDY



The Harvesters, Pieter Bruegel the Elder, 1565 · Oil on wood · Metropolitan Museum of Art, New York

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

Bruegel painted a summer harvest in Flanders. It is noon, and the hard-working harvesters have stopped to eat together in the shade of a tree. After long work, a shared meal is a small feast.

Look closely

- Find the people eating under the tree. What foods can you see?
- Find the man asleep. Why is he so tired?
- Find people still working. What are they doing?
- Look far away. What else is happening in the village?

Talk about it

1. Why does food taste extra good after hard work?
2. How are the harvesters enjoying their meal together?
3. Who could you share a portion of your fruit pizza with?

Safety first. A grown-up bakes the cookie crust and cuts the pizza into wedges with a pizza cutter or sharp knife. Do not taste the unbaked cookie dough. Let the crust cool completely before frosting it. Keep the fruit pizza in the refrigerator.

KITCHEN PROJECT

A Fruit Pizza to Celebrate and Share

You will make a big, colorful fruit pizza for a family celebration and plan who will receive a shared portion.

You will need

- A 12-inch pizza pan or a large baking sheet, lined with parchment paper
- Two mixing bowls, a wooden spoon and a rubber spatula
- Measuring cups and spoons
- A cutting board on a damp towel and a kid knife
- Oven mitts and a pizza cutter (for the grown-up)
- A paper plate and a note card for the shared portion

CELEBRATION FRUIT PIZZA

Serves 10–12 wedges · Prep 30 min · Bake (grown-up) 12–15 min · Cool 30 min

Ingredients

- **Cookie crust:** ½ cup (1 stick) butter, softened
- ½ cup sugar
- 1 large egg
- 1 teaspoon vanilla extract
- 1½ cups all-purpose flour
- ½ teaspoon baking powder
- ¼ teaspoon salt
- **Frosting:** 8 ounces cream cheese, softened
- ⅓ cup powdered sugar
- 1 teaspoon vanilla extract
- **Fruit:** 1 cup strawberries, 2 kiwis (peeled by a grown-up), 1 banana, ½ cup blueberries, 1 can (11 ounces) mandarin oranges, drained

Method

1. A grown-up heats the oven to 350 °F. Wash your hands.

2. In a bowl, stir the soft butter and sugar together with the wooden spoon until creamy. Crack in the egg, add the vanilla, and stir. Wash your hands.
3. Stir in the flour, baking powder and salt until a soft dough forms. Do not taste the unbaked dough.
4. Press the dough evenly onto the parchment-lined pan in a big circle, about ¼ inch thick, with clean hands.
5. A grown-up bakes it 12 to 15 minutes, until the edges are light golden, then lets it cool completely, about 30 minutes.
6. In the other bowl, stir the cream cheese, powdered sugar and vanilla until smooth. Spread it over the cooled crust.
7. Slice the strawberries, kiwis and banana with your kid knife. Arrange all the fruit in circles or a pattern on top.
8. A grown-up cuts it into wedges. Serve, and refrigerate leftovers within 2 hours.

Allergy check: Contains wheat, eggs and milk. For an easier version, a grown-up can bake a store-bought sugar cookie dough (check its label). For milk-free, use a plant-based butter and a dairy-free cream cheese.

Steps

1. **Plan a celebration.** Choose a reason to celebrate this week: a birthday, a finished project, or simply the Lord's Day. Decide who will be at the table.
2. Make the fruit pizza. Make a pattern with the fruit: circles, a sun or a flower.
3. **Send a portion.** Put one wedge on a paper plate, cover it, and add a note: "For you, with joy." Give it to a neighbor, a grandparent or someone who could use a kindness (check for allergies first).
4. **Taste test.** Enjoy one wedge slowly. Check your hunger scale. Rate the pizza with one, two or three smiles.
5. **Clean up.** Wash the bowls, spatula and board, and wipe the counter and table.
6. **Improve it.** Next time, which fruits would make the prettiest pattern?

Tips

- Pat the fruit dry with a paper towel so the frosting stays creamy, not watery.

- Add the bananas just before serving so they do not turn brown.

Check your work

- ☐ I can tell the story of Nehemiah's feast day.
- ☐ I can tell why treats are good gifts in their place.
- ☐ I made a fruit pizza and shared a portion with someone.

COOK'S NOTEBOOK

1. Draw your fruit pizza from the top, showing your pattern.
2. Draw the person you shared a portion with.
3. Draw a family celebration table with one special treat.

COMMON MISTAKES

- Eating treats every day. Keep them for special times so they stay special.
- Keeping all the treats for yourself. Feasts are meant to be shared.
- Frosting a warm crust. The frosting melts and slides. Wait until it is cool.

Make it a game • Portion and Share. Use twelve buttons as pretend treats. Divide a fair portion for each stuffed animal at the table. Save two for those who have nothing, as Nehemiah told God's people to share. Count what is left. Explain why a treat is a good gift when it has its place, and tell what self-control means.

Scripture. “send portions unto them for whom nothing is prepared: for this day is holy unto our Lord: neither be ye sorry; for the joy of the LORD is your strength.” (Nehemiah 8:10, KJV)

God's people were told to celebrate with joy and to share their feast with people who had nothing.

UNIT 6

CRAVINGS, REWARD & A BALANCED DIET

God made us able to enjoy sweet, salty and rich foods, and to want what nourishes us. That is a good gift! But some snack foods are made so that it is very easy to keep eating them even after our tummies are full. In this unit you will learn to listen to your tummy, to tell everyday foods from sometimes foods, to choose water when you are thirsty, and to enjoy treats in their place, especially on feast days and with others.

You will hear about a study that found big portions change how much children eat, about Laura Ingalls's Christmas treats on the prairie, about Jesus asking for a drink at a well, and about a great feast day in Jerusalem when God's people were told to celebrate and share. You will make a portioned snack mix, fruit and yogurt bark, cucumber-mint water and a fruit pizza to share.

PREREQUISITES

- Can name the five food groups (Unit 2)
- Knows the five tastes (Unit 3)
- Washes hands, cuts soft food with a kid knife, and cleans up (Unit 1)

MASTERY CHECKLIST

- ☐ I can tell how my tummy feels when I am hungry, satisfied and too full.
- ☐ I can tell why some snacks are hard to stop eating, and I eat from a bowl, not the bag.
- ☐ I can sort foods into everyday foods and sometimes foods.
- ☐ I can tell why water is the best everyday drink.
- ☐ I can enjoy a treat in its place and share it with others.

OPTIONAL BOOKS AND TOOLS FOR THIS UNIT

- **A set of small bowls or snack cups:** For portioning snacks in Lesson 6.1 and the unit challenge. Any small bowls you already have will do.
- **A water bottle for your child:** A child's own refillable bottle makes water easy to reach all day (Lesson 6.3 and the unit challenge).

Not required. Every recipe in this unit works in an ordinary home kitchen.

School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

6.1 Why Some Foods Are Hard to Stop Eating	2 sessions of 30–40 minutes
6.2 Everyday Foods and Sometimes Foods	2 sessions of 30–40 minutes
6.3 Thirsty? Drink Water	2 sessions of 30–40 minutes
6.4 Treats in Their Place	2 sessions of 30–40 minutes

UNIT 6 REVIEW

Ask each question aloud. Your child may answer by telling, pointing, drawing or showing. There are no points; note what your child knows well and what to review.

1. Show me on your hunger scale: very hungry, satisfied, and too full. How does each one feel?
2. Why is it easy to keep eating some snacks? What can you do to help?
3. Sort these into everyday foods and sometimes foods: apple, cookie, carrots, soda, yogurt, candy.
4. What is the best everyday drink? About how many teaspoons of sugar are in a can of soda?
5. Tell me about Nehemiah's feast day. What did he tell the people to do?
6. Are treats bad? When is a good time for a treat?

ANSWER KEY

1. Any honest description, for example: growly and empty; comfortable and just right; stuffed and uncomfortable.
2. They are sweet, salty, crunchy or rich together, and the tummy takes about 20 minutes to say “full.” Put a portion in a bowl, put the bag away, sit down and eat slowly.
3. Everyday: apple, carrots, yogurt. Sometimes: cookie, soda, candy.
4. Water (and milk). About 9 or 10 teaspoons.
5. Not to cry but to celebrate with a feast, and to send portions to people who had nothing, because the joy of the LORD is your strength.
6. No. Treats are good gifts in their place: sometimes, in small portions, on special days, and shared with others.

UNIT CHALLENGE: MY WATER-AND-SNACK WEEK

For one week, keep a chart with two rows for each day. In the first row, color a drop for every glass of water or milk you drink. In the second row, draw your snack each day and color it green for an everyday food or yellow for a sometimes food. Try to choose water at meals and everyday snacks most days, with a sometimes food once or twice.

At the end of the week, tell your family how you felt and what your taste buds noticed. Did water start to taste better? Then make one everyday snack from this unit for the whole family.

LOOK FOR	WHAT IT MEANS
Chart kept	The chart was filled in each day, with help as needed.
Good choices	Your child often chose water and everyday snacks. Honest charting counts more than perfect days.
Telling about it	Your child told what he or she noticed about thirst, fullness or taste during the week.
Serving others	Your child made and served an everyday snack for the family and helped clean up.

UNIT 7

FIRE, THE GRILL & SPICE

This is the fun unit! You will learn about fire, the grill and the spice cabinet. Fire is a helper that cooks our food and keeps us warm, but it is never a toy. At your age, grown-ups light and run the grill and the campfire, and you are the helper who preps the food and watches from 3 feet back.

You will meet Smokey Bear, smell spices that come from seeds, bark, roots and flowers, hear how the Queen of Sheba brought spices to King Solomon, visit a salt mine with a church carved out of salt, and discover flavors that are friends, like apples and cheese. You will make foil-packet potatoes, cinnamon apples, a salted tomato salad, and grilled cheese with apples. Every grill recipe has an indoor way too.

PREREQUISITES

- Knows the stove and oven rules and stands back (Unit 4)
- Knows the five tastes and that smell is most of flavor (Unit 3)
- Cuts soft foods with a kid knife (Unit 1)

MASTERY CHECKLIST

- ☐ I can tell Smokey Bear's rules and the grill rules, and I stay 3 feet back from a grill or campfire.
- ☐ I can tell the three things a fire needs and how a lid puts out a fire.
- ☐ I can tell which part of a plant each spice comes from.
- ☐ I can tell what a little salt does to the taste of food.
- ☐ I can name flavors that go together and make a flavor-friends plate.

OPTIONAL BOOKS AND TOOLS FOR THIS UNIT

- **Smokey Bear: Campfire Safety**: Free. The U.S. Forest Service's Smokey Bear site, with campfire rules and pictures to read together in Lesson 7.1.
- **Long-handled grill tongs and a chimney starter (for the grown-up)**: Long tongs keep hands away from the heat. A chimney starter lights charcoal without any charcoal starter fluid. Neither is needed if you use the oven or broiler instead.
- **Small spice jars from your own cupboard**: For the smell-and-sort tray in Lesson 7.2. Whole spices (a cinnamon stick, peppercorns, whole cloves, a piece of fresh ginger) are the most fun to look at.

Not required. Every recipe in this unit works in an ordinary home kitchen.

School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

7.1 A Campfire and a Grill Are Not Toys	2 sessions of 30–40 minutes
7.2 Where Spices Come From	2 sessions of 30–40 minutes
7.3 Salt Makes Food Taste Better	2 sessions of 30–40 minutes
7.4 Flavors That Go Together	2 sessions of 30–40 minutes

UNIT 7 REVIEW

Ask each question aloud. Your child may answer by telling, pointing, drawing or showing. There are no points; note what your child knows well and what to review.

1. Tell me the true story of Smokey Bear.
2. Show me where you stand when a grown-up grills. Who lights the grill? What do you never touch?
3. What three things does a fire need? Predict: what happens when the grown-up closes the grill lid on a flare-up?
4. Which part of a plant does each come from: cinnamon, ginger, cloves, black pepper?

5. What does a little salt do to food? What happened to the salted cucumber slice?
6. Name a pair of flavor friends and tell why they go together.

ANSWER KEY

1. In 1950 firefighters found a bear cub with burned paws after a forest fire in New Mexico. He was cared for, named Smokey, and lived at the National Zoo. He helped teach people to be careful with fire.
2. At least 3 feet back. Only a grown-up lights and runs it. Never touch charcoal starter fluid, matches or lighters.
3. Heat, fuel and air. Closing the lid takes away the air, so the flames die down.
4. Cinnamon: bark. Ginger: root. Cloves: flower buds. Black pepper: a dried berry (fruit).
5. It makes food taste more like itself and less bitter. Salt pulled water out of the cucumber, so drops of water appeared.
6. For example: apple and cheese (sweet and salty, crunchy and soft); strawberries and yogurt (sour and creamy).

UNIT CHALLENGE: OUR FAMILY GRILL NIGHT (OR BROILER NIGHT)

Help plan a family cookout. Prepare the foil-pocket potatoes, mix a little spice shaker of your own (salt, pepper, garlic powder, paprika and herbs), and make a flavor-friends plate for dessert. A grown-up grills chicken, burgers or vegetables and the potato packets outdoors, or cooks them in the oven or under the broiler indoors. You watch from 3 feet back and help set the table.

Draw a picture of the meal and of your spice shaker, and make a chart of the flavor friends your family liked best. Give thanks together before you eat.

LOOK FOR	WHAT IT MEANS
Safe helper	Your child stayed 3 feet back from the grill or oven, never touched matches or charcoal starter fluid, and followed every grill rule.
Prep work	Your child scrubbed, measured, tossed and mixed with clean hands and helped with the table.
Spice and flavor	Your child mixed a spice shaker and can tell which plant parts the spices come from, and made a flavor-friends plate.
Record and thanks	Your child drew the meal and the flavor chart, and joined in giving thanks. Cheerful help counts most.

7.1 A CAMPFIRE AND A GRILL ARE NOT TOYS

OBJECTIVES

- Tell the true story of the bear cub named Smokey.
- Tell the three things a fire needs and the grill rules for children.
- Prepare foil-packet potatoes for a grown-up to cook on the grill or in the oven.

Warm-up. Look at a picture of a campfire or a candle flame (with a grown-up, never on your own). What does a fire need to keep burning? Make three guesses. Then think: what is the safest way to put a fire out?

WATCH

Smokey's Lessons on Fire Safety

WIDNRTV • 6:21

https://www.youtube.com/watch?v=_qurol3P3_E

WHEN TO WATCH

After the story of Smokey. Say Smokey's rules out loud with the video.

BACKUP VIDEO

Smokey Bear Campfire Safety Steps

Forest Service • 0:41

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

A short video of the campfire safety steps from the Forest Service.

KEY TERMS

fire triangle

The three things a fire needs: heat, fuel (something to burn) and air.

grill

A cooker with a metal grate over hot coals or gas flames, used outdoors.

kid-free zone

The space at least 3 feet around a grill or campfire where children do not go.

tongs

A long tool for picking up and turning food, so hands stay away from the heat.

CORE IDEAS

The story. In the spring of 1950, a big forest fire burned in the Capitan Mountains of New Mexico. When the firefighters finished, they found a little black bear cub

clinging to a burned tree. His paws were burned, and he was alone. The firefighters carried him out, and a ranger's family and a veterinarian cared for him until he was well. They named him Smokey.

How they figured it out. The U.S. Forest Service already had a cartoon bear named Smokey Bear, made in 1944 to teach people to be careful with fire. Now there was a real Smokey! The little bear was flown to the National Zoo in Washington, D.C., where he lived for many years. Children all over America wrote him letters. His message was simple: be careful with fire, and always put campfires all the way out.

The kitchen science. A fire needs three things: *heat*, *fuel* (like wood or charcoal) and *air*. This is the fire triangle. Take away any one, and the fire goes out. That is why closing a grill lid smothers a flare-up: it takes away the air. A campfire is put out by drowning it with water, stirring the ashes, and drowning it again until it is cold.

Grill rules. Only grown-ups light and run a grill. Grills are used outdoors only, on flat ground, far from the house and dry leaves. Children stay in the kid-free zone, at least 3 feet back. Never touch charcoal starter fluid; our recipes do not use it. Grown-ups use long tongs, keep a hose or fire extinguisher nearby, and never leave a lit grill alone. Coals stay hot for a day or more.

Let's cook! You will scrub potatoes, toss them with oil and seasoning, and pile them on foil. A grown-up seals the packets and cooks them on the grill or in the oven.

PICTURE STUDY



Camp Fire, Winslow Homer, 1880 · Oil on canvas · Metropolitan Museum of Art, New York

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

Winslow Homer loved the mountains and woods of New York's Adirondacks. He painted two woodsmen resting by their campfire at night. Look at the sparks flying up into the dark!

Look closely

- Find the fire. What is it burning?
- Find the sparks. Where are they going? Why could sparks be dangerous in a dry forest?
- Find the two men. How far are they sitting from the fire?
- Find the shelter behind them. What is it made of?

Talk about it

1. What would the men need to do before they go to sleep?
2. How is cooking over a campfire like cooking on a grill?
3. What would Smokey Bear say to these campers?

Safety first. Only a grown-up lights, runs and cleans the grill or campfire. Stay at least 3 feet back. Never touch charcoal starter fluid, matches or a lighter. The grown-up opens the hot foil packets, away from faces, because the steam inside can burn.

KITCHEN PROJECT

Smokey's Rules Poster and Foil-Packet Potatoes

You will make a Smokey Bear rules poster for grill night. Then you will prepare potato packets for a grown-up to cook outdoors on the grill or indoors in the oven.

You will need

- Paper and crayons for a poster
- A vegetable brush and a colander
- A large bowl and measuring spoons
- Heavy-duty aluminum foil
- Long tongs, oven mitts and a grill or oven (for the grown-up)

FOIL-PACKET HERB POTATOES

Serves 4–6 · Prep 15 min · Cook (grown-up) 25–35 min

Ingredients

- 1½ pounds baby potatoes (red or yellow)
- 1 small onion (a grown-up slices it), optional
- 2 tablespoons olive oil
- ¾ teaspoon salt
- ¼ teaspoon black pepper
- 1 teaspoon dried rosemary or Italian herbs
- ½ teaspoon garlic powder
- 1 tablespoon butter, cut into small pieces

Method

1. Wash your hands. Scrub the potatoes under running water with a vegetable brush.
2. A grown-up cuts the potatoes in halves or quarters (about 1-inch pieces) and slices the onion.

3. Put the potatoes and onion in the bowl. Measure in the oil, salt, pepper, herbs and garlic powder. Toss with clean hands until every piece is shiny.
4. Tear off 4 large sheets of foil. Pile the potatoes in the middle of each. Dot with butter.
5. A grown-up folds and seals each packet tightly, leaving a little room inside for steam.
6. **Grill:** A grown-up cooks the packets on a medium-hot grill with the lid closed for 25 to 30 minutes, turning once with long tongs. You watch from 3 feet back.
7. **Indoor way:** A grown-up bakes the packets on a baking sheet in a 400 °F oven for 30 to 35 minutes.
8. The grown-up opens one packet carefully, away from faces, and pokes a potato with a fork. If it is soft, they are done. Let them cool a few minutes before eating.

Allergy check: Contains milk (butter). Use extra olive oil for a milk-free version. Contains no wheat, eggs, nuts or soy.

Steps

1. **Rules poster.** Draw Smokey Bear and write or draw the grill rules: grown-ups light it; stay 3 feet back; no charcoal starter fluid for kids; long tongs; water nearby; never leave it alone.
2. **Measure the zone.** With a yardstick or by taking three big steps, mark 3 feet from the grill (or from the oven door). That is your watching spot.
3. Make the potato packets.
4. **Taste test.** Rate the potatoes with one, two or three smiles. Are they soft inside? Is there any golden crust?
5. **Clean up.** Wash the bowl and brush, throw away the used foil, and wipe the counter. The grown-up cleans the grill after it cools.
6. **Improve it.** Next time, add carrots, green beans or a different herb.

Tips

- Cut potatoes the same size so they all cook at the same time.

- Use heavy-duty foil, or two layers of regular foil, so it does not tear.

Check your work

- ☐ I can tell the true story of Smokey Bear.
- ☐ I can name the three parts of the fire triangle and the grill rules.
- ☐ I prepared foil packets and watched from 3 feet back.

COOK'S NOTEBOOK

1. Draw the fire triangle with heat, fuel and air on its three sides.
2. Draw yourself standing 3 feet back while a grown-up grills.
3. Draw a foil packet open, with the potatoes inside.

From history. Smokey Bear has his own ZIP code, 20252, because he gets so much mail. The real Smokey lived at the National Zoo for about twenty-five years. Today visitors can learn his story at Smokey Bear Historical Park in Capitan, New Mexico.

COMMON MISTAKES

- Thinking a grill is safe once the food is off. Coals stay hot for a day or more.
- Pouring water on a grease flare-up. The grown-up closes the lid instead.
- Opening a foil packet toward your face. Steam rushes out and burns.

Make it a game • Smokey Poster Pictionary. Draw one grill rule as a picture in twenty seconds: the three-foot kid-free zone, tongs, or no playing near fire. Your grown-up guesses the rule. Draw all four. Then measure three feet with your own big steps and mark it with string. Then name the three things a fire needs, as Smokey the bear cub's story teaches.

7.2 WHERE SPICES COME FROM

OBJECTIVES

- Tell how the Queen of Sheba brought spices to King Solomon.
- Sort spices by the part of the plant they come from: seed, bark, root, flower or fruit.
- Help make warm cinnamon apples while a grown-up does the cooking.

Warm-up. Open three spice jars with a grown-up: cinnamon, ginger and black pepper. Smell each one. Which smell is sweet? Which is sharp? Which makes you want to sneeze? Where do you think each one came from?

WATCH

What Is Pumpkin Spice?

[SciShow Kids](#) · 4:41

<https://www.youtube.com/watch?v=eg-dhl1ebEU>

WHEN TO WATCH

After the kitchen science paragraph. Listen for which plant part each spice comes from.

BACKUP VIDEO

Did you know cinnamon is actually the bark of a tree? See it's fascinating farm to fork journey

[Eat Happy Project](#) · 4:06

https://www.youtube.com/watch?v=DPCsk_fn1S4

To see how cinnamon is peeled from the bark of a tree.

KEY TERMS

spice

A dried seed, bark, root, flower or fruit used to flavor food.

bark

The outside skin of a tree trunk or branch. Cinnamon is bark.

herb

The leaves of a plant used to flavor food, like basil and parsley.

aroma

A pleasant smell.

CORE IDEAS

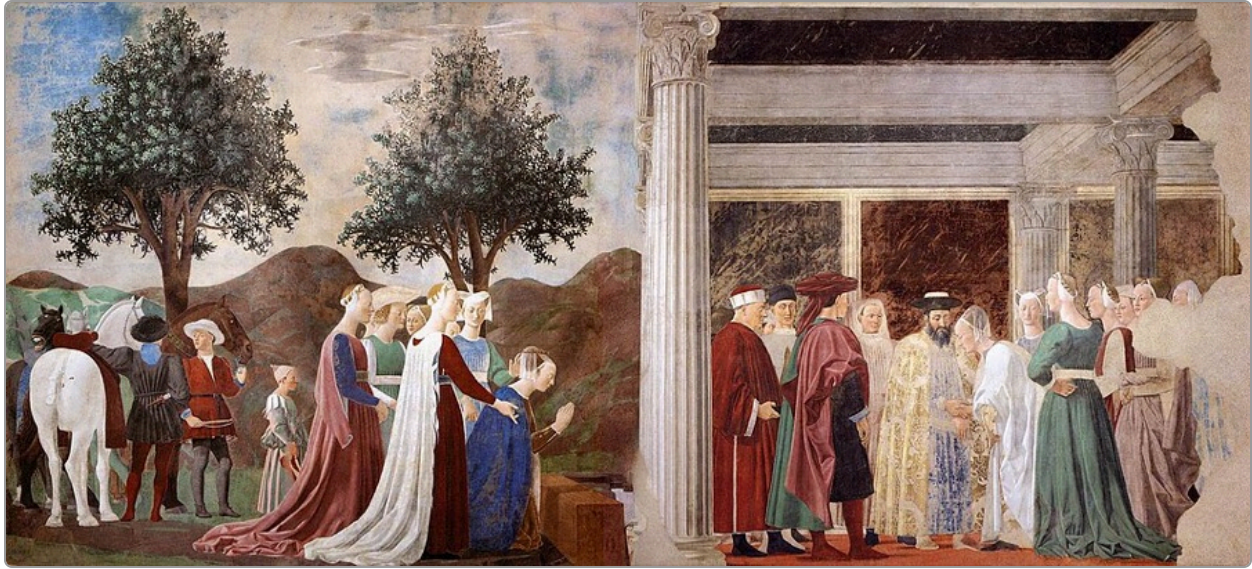
The story. Long ago, King Solomon was so wise that people came from far away to hear him. The Queen of Sheba traveled a long way with a great line of camels to visit him. She asked him hard questions, and he answered them all. Then she gave him gifts: gold, precious stones, and “of spices very great store.” The Bible says there never came again such an abundance of spices as the queen gave to King Solomon.

How they figured it out. Why were spices such a fine gift? Many spices grow only in hot, faraway places. Long ago, traders carried them for months on camels and ships. They were rare, they smelled wonderful, and they kept for a long time, so they cost a great deal. A gift of spices was a gift fit for a king.

The kitchen science. Spices come from different parts of plants. *Seeds:* cumin, mustard and nutmeg. Black pepper is a dried berry. *Bark:* cinnamon is rolled-up tree bark. *Roots:* ginger and turmeric grow underground. *Flowers:* cloves are dried flower buds. *Fruits:* paprika is dried, ground peppers, and allspice is a dried berry. Herbs, like basil and mint, are leaves. Spices smell strong because they are full of fragrant oils, and warming them wakes up the smell.

Let's cook! You will make a smell-and-sort spice tray. Then you will help make warm cinnamon apples. A grown-up slices the apples and cooks them in a pan.

PICTURE STUDY



The Meeting of Solomon and the Queen of Sheba, Piero della Francesca, about 1452–1466 · Fresco (paint on wet plaster) · Basilica of San Francesco, Arezzo, Italy

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

Piero della Francesca painted the story of the Queen of Sheba on the walls of a church in Italy more than 550 years ago. He painted on wet plaster, so the colors became part of the wall.

Look closely

- Find the Queen of Sheba. How do you know which one she is?
- Find King Solomon in the hall with columns.
- Find the horses and the grooms. How did the queen travel?
- Look at the clothes. What colors did Piero use most?

Talk about it

1. If you were the Queen of Sheba, which spice would you bring as a gift?
2. Why were spices such a special gift long ago?
3. Why do you think Piero painted this story on a church wall?

Safety first. A grown-up slices the apples and cooks them on the stove; you watch from a safe spot. Smell spices gently by waving the smell toward your nose. Do not sniff spice powder up close or taste spoonfuls of spice: it can make you cough or sting your eyes.

KITCHEN PROJECT

A Smell-and-Sort Spice Tray and Warm Cinnamon Apples

You will smell spices and sort them by the plant part they come from. Then you will help make warm cinnamon apples.

You will need

- A muffin tin or small cups, and 6 to 8 spices from your cupboard (whole ones if you have them)
- Five cards labeled Seed, Bark, Root, Flower and Fruit
- A large bowl, measuring spoons and a spoon
- A large skillet and a spatula (for the grown-up)

WARM CINNAMON APPLES

Serves 4–6 • Prep 10 min • Cook (grown-up) 10 min

Ingredients

- 4 apples (Gala, Fuji or Honeycrisp)
- 1 tablespoon lemon juice
- 2 tablespoons brown sugar or maple syrup
- 1 teaspoon ground cinnamon
- A pinch of ground nutmeg or ginger
- A pinch of salt
- 2 tablespoons butter
- 2 tablespoons water
- Plain or vanilla yogurt for serving (optional)

Method

1. Wash your hands. Wash the apples.
2. A grown-up peels (if you like), cores and slices the apples about ¼ inch thick.
3. Put the slices in the big bowl. Measure in the lemon juice, brown sugar, cinnamon, nutmeg and salt. Toss with a spoon until every slice is

coated. Smell it!

4. A grown-up melts the butter in the skillet over medium heat, adds the apples and water, and cooks them 8 to 10 minutes, stirring now and then, until soft and glossy. You watch from your safe spot.
5. Let them cool a few minutes. Serve warm, plain or spooned over yogurt.

Allergy check: Contains milk (butter, yogurt). Use coconut oil or another plant oil and a dairy-free yogurt for a milk-free version. No wheat, eggs or nuts.

Steps

1. **Smell-and-sort tray.** Put a little of each spice in its own cup. Wave the smell toward your nose. Then put each cup on the right card: Seed, Bark, Root, Flower or Fruit. (A grown-up can read the answers from the kitchen science paragraph.)
2. **Guess the spice.** Close your eyes. A grown-up holds up one cup. Can you name it by smell?
3. Make the cinnamon apples.
4. **Taste test.** Taste a raw apple slice and a warm cinnamon apple. Which smells stronger? Rate the cinnamon apples with one, two or three smiles.
5. **Clean up.** Put the spices back in their jars, wash the bowl and wipe the counter.
6. **Improve it.** Next time, try pears, or add a pinch of ginger.

Tips

- A whole cinnamon stick shows the rolled-up bark. A whole nutmeg shows the seed.
- Spices lose their smell after a year or two. Smell an old jar and a new jar and compare.

Check your work

- ☐ I can tell the story of the Queen of Sheba's spices.
- ☐ I can sort spices by seed, bark, root, flower and fruit.
- ☐ I helped make cinnamon apples and watched from a safe spot.

COOK'S NOTEBOOK

1. Draw a plant and label where each spice comes from: seed, bark, root, flower, fruit.
2. Draw the Queen of Sheba's camels carrying spices.
3. Draw your spice tray and circle your favorite smell.

COMMON MISTAKES

- Sniffing spice powder right up the nose. Wave the smell toward you instead.
- Thinking herbs and spices are the same. Herbs are leaves; spices are seeds, bark, roots, flowers and fruits.
- Using a lot of a strong spice. A pinch goes a long way.

Make it a game · Spice Plant Part Sort. Mark five spots on the floor: seed, bark, root, flower and fruit. Your grown-up calls a spice, like cinnamon, ginger, cloves or pepper. Run to the plant part it comes from and say it out loud. Ten right answers wins a pretend gold coin. Say what the Queen of Sheba brought to Solomon.

Scripture. “there came no more such abundance of spices as these which the queen of Sheba gave to king Solomon.” (1 Kings 10:10, KJV)

Spices were among the finest gifts in the world. God filled His creation with good smells and flavors.

7.3 SALT MAKES FOOD TASTE BETTER

OBJECTIVES

- Tell where salt comes from: the sea and the ground, and the great salt mine at Wieliczka.
- Explain that a little salt makes food taste more like itself and that salt draws water out of vegetables.
- Make a tomato and cucumber salad and taste it with and without salt.

Warm-up. Lick your finger and touch it to a few grains of salt. Taste. Now look at salt grains closely with a magnifying glass. What shape are they? (Little cubes!)

WATCH

Where does salt come from?

Mystery Science · 6:14

<https://www.youtube.com/watch?v=WR8GovUng2A>

WHEN TO WATCH

After the story. Watch how salt is taken from the sea and from under the ground.

BACKUP VIDEO

Salt's Secret Powers!

SciShow Kids · 3:23

<https://www.youtube.com/watch?v=BaBRoGc4gOM>

To learn some of the other jobs salt does.

KEY TERMS

salt

A mineral that tastes salty. It comes from seawater and from rock under the ground.

crystal

A solid with a regular shape. Salt crystals are tiny cubes.

mine

A place deep underground where people dig out rock, salt or metal.

season

To add salt, herbs or spices to food to bring out its flavor.

CORE IDEAS

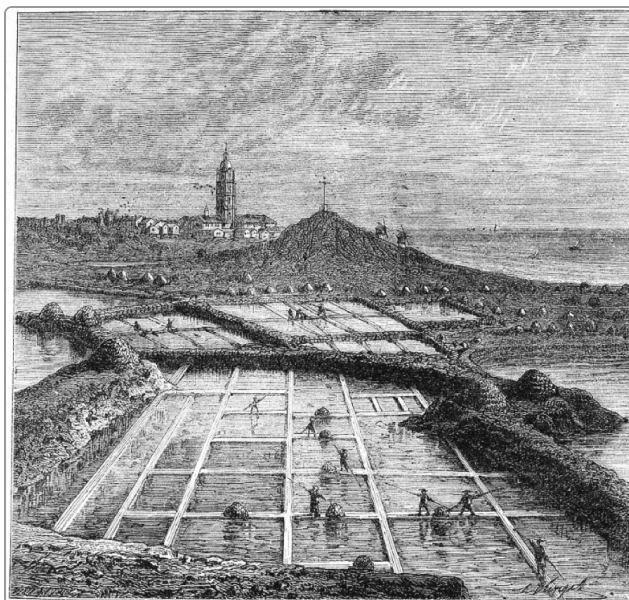
The story. Near the city of Kraków in Poland is a salt mine called Wieliczka (say it “vee-ell-EECH-kah”). Miners began digging salt there more than 700 years ago, deep under the ground. They dug for so long that the mine has more than 150 miles of tunnels.

How they figured it out. The miners worked far underground, and they wanted a place to pray. So, with their own hands, they carved chapels out of the salt rock! The biggest is the Chapel of Saint Kinga. The walls, the floor, the statues, even the sparkling chandeliers are made of salt. Miners carved it little by little for more than sixty years. Today many visitors go deep underground to see it.

The kitchen science. Salt comes from the sea, where seawater is dried in shallow pans by the sun, and from the ground, where old dried-up seas left thick layers of rock salt. A little salt makes food taste more like itself: tomatoes taste more like tomatoes, and bitter vegetables taste less bitter. Too much makes food just taste salty. Salt also pulls water out of vegetables. Sprinkle salt on cucumber slices, and little drops of water appear!

Let’s cook! You will make a tomato and cucumber salad. A grown-up cuts the vegetables. You tear the basil, measure the dressing and do a salted-or-not taste test.

PICTURE STUDY



Salt Pans on the Coast of Brittany, Unknown engraver, about 1880 · Engraving · Printed in a French book
Image: [Wikimedia Commons](#), public domain

On the coast of Brittany, in France, salt makers let seawater flow into shallow, flat pans at high tide. The sun and wind dried the water away, little by little, and the salt makers raked up the salt crystals left behind. Salt has been made this way there for hundreds of years.

Look closely

- Find the flat, square pans. What is in them?
- Find the workers. What tools are they using?
- Find the piles of salt. Where did the salt come from?
- Where is the sea? How does the seawater get into the pans?

Talk about it

1. Why do the salt makers need sunny, windy days?
2. How is this like your salt crystal plate on the windowsill?
3. How is sea salt different from the mine salt of Wieliczka?

Safety first. A grown-up cuts the tomatoes and cucumber. Taste only tiny pinches of salt. Too much salt is not good for your body, so we use a little, wisely.

Salt Crystals, the Water Drop Test and a Salted Tomato Salad

You will grow salt crystals, see salt pull water out of a cucumber, and taste a salad with and without salt.

You will need

- A magnifying glass, a dark plate or pie pan, and warm water
- A small bowl and measuring spoons
- A cutting board and a large bowl
- Two small plates for the taste test

TOMATO AND CUCUMBER SALAD WITH BASIL

Serves 4–6 · Prep 15 min

Ingredients

- 3 ripe tomatoes, or 2 cups cherry tomatoes (a grown-up cuts them)
- 1 cucumber (a grown-up slices it)
- 6 to 8 fresh basil leaves
- 2 tablespoons olive oil
- 1 tablespoon lemon juice or apple cider vinegar
- ½ teaspoon salt (for the salad) and a pinch more for the test
- A pinch of black pepper

Method

1. Wash your hands. Wash the tomatoes, cucumber and basil under running water.
2. A grown-up cuts the tomatoes into wedges (or cherry tomatoes in half) and slices the cucumber.
3. Before adding salt, put 2 tomato pieces on a small plate for the taste test.
4. Put the rest in the large bowl. Tear the basil leaves into small pieces with your fingers and drop them in.

5. Measure in the olive oil, vinegar, salt and pepper. Toss gently with two spoons.
6. Let the salad sit 10 minutes. Then serve. Refrigerate leftovers within 2 hours.

Allergy check: Contains none of the nine major allergens.

Steps

1. **Salt crystals.** Stir 2 tablespoons of salt into $\frac{1}{2}$ cup of warm water until it disappears. Pour a thin layer onto the dark plate and set it on a sunny windowsill. Check every day for a few days. When the water dries up, look with the magnifying glass. Tiny cubes!
2. **Water drop test.** Put 3 cucumber slices on a plate. Sprinkle one with a pinch of salt. Wait 10 minutes. What do you see on the salted slice? (Drops of water!)
3. Make the salad.
4. **Taste test.** Taste an unsalted tomato piece. Then taste a piece with a tiny pinch of salt. Which tastes more like tomato? Rate the salad with one, two or three smiles.
5. **Clean up.** Wash the bowl and board, wipe the counter, and put the salt away.
6. **Improve it.** Next time, try adding cubes of mozzarella or a few olives.

Tips

- Salt the salad just before serving, or the vegetables will make a puddle of juice. (Some people like to dip bread in that juice!)
- Kosher salt has bigger flakes that are easy to pinch.

Check your work

- ☐ I can tell where salt comes from and the story of the salt mine.
- ☐ I can tell what a little salt does to flavor and what it does to a cucumber.
- ☐ I made a salad and did the salted-or-not taste test.

COOK'S NOTEBOOK

1. Draw your salt crystals as you saw them through the magnifying glass.
2. Draw the salted and unsalted cucumber slices after 10 minutes.

3. Draw the miners carving a salt chandelier.

COMMON MISTAKES

- Thinking more salt is always better. A little brings out flavor; too much covers it up.
- Salting a salad long before dinner. It gets watery.
- Eating salty snacks all day. Our taste buds get used to less salt when we eat less of it.

Make it a game · Salt Look-Alikes. Put salt, sugar and flour in three saucers while you look away. Without tasting, use your eyes, fingers and ears to tell which is which. Salt crystals look like tiny cubes. Say your clues. Then tell where salt comes from, like the great salt mine at Wieliczka, and why a little salt makes food taste more like itself.

Scripture. “Can that which is unsavoury be eaten without salt?” (Job 6:6, KJV)

Job knew that a little salt makes plain food good to eat. Jesus said His followers are “the salt of the earth” (Matthew 5:13).

7.4 FLAVORS THAT GO TOGETHER

OBJECTIVES

- Tell how cheddar cheese and apples both came from Somerset, England.
- Name flavor friends: sweet and salty, sour and creamy, crunchy and soft.
- Make a flavor-friends plate and build apple grilled cheese sandwiches for a grown-up to cook.

Warm-up. Taste a slice of apple. Then taste a little cube of cheese. Now taste them together in one bite. What happened? Did they taste better together or apart?

WATCH

The Science of the Perfect Grilled Cheese Sandwich

Reactions • 3:15

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

WHEN TO WATCH

After the kitchen science paragraph, before the grown-up cooks the sandwiches.

Note: From the American Chemical Society's Reactions channel. It is made for older students; enjoy the pictures of melting cheese and pause to explain.

BACKUP VIDEO

Science: Love Grilled Cheese or Mac & Cheese? Learn Why Young Cheese Melts Better Than Aged Cheese

America's Test Kitchen • 3:31

<https://www.youtube.com/watch?v=uAk8lnX-R2A>

For the grown-up: why some cheeses melt better than others.

KEY TERMS

flavor friends

Two flavors that taste even better together, like apples and cheese.

cheddar

A firm cheese first made in the village of Cheddar in England.

contrast

Two things that are very different, like sweet and salty or crunchy and soft.

balance

When no one flavor is too strong, and they all work together.

CORE IDEAS

The story. In the west of England, in a part called Somerset, there is a village named Cheddar. Beside the village is a deep, rocky valley full of cool caves. For hundreds of years, farmers there made cheese from their cows' milk and let it age slowly in the cool, damp caves. That cheese was named after the village: **cheddar**.

How they figured it out. Somerset is also apple country, with orchards all around. Farm families there ate what they had: bread, cheese and apples. They found that crisp, sweet apples and rich, salty cheese tasted wonderful together. Today, people all over the world still put apples and cheddar together, on plates, in pies and in sandwiches.

The kitchen science. Some flavors are friends because they are different. *Sweet and salty*: apple and cheese, or watermelon with a tiny pinch of salt. *Sour and creamy*: lemon on yogurt, or tart strawberries with cream. *Crunchy and soft*: crisp apple with soft, melty cheese. When a cook puts flavor friends together, each one makes the other taste better. That is called **balance**.

Let's cook! You will make a flavor-friends plate and build grilled cheese sandwiches with thin apple slices inside. A grown-up slices the apples and cooks the sandwiches in a skillet or on the grill.

PICTURE STUDY



Still Life with Apples and Pears, Paul Cézanne, about 1891–1892 · Oil on canvas · Metropolitan Museum of Art, New York

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

Paul Cézanne was a French painter who painted apples again and again. He looked at each fruit so long and so carefully that he painted it a little differently every time. Here apples and pears share a plain wooden table.

Look closely

- Count the apples and the pears. How can you tell them apart?
- Find the two white plates.
- Does the table look flat, or does it seem to tilt?
- Look at the brushstrokes. Can you see where Cézanne's brush moved?

Talk about it

1. What food would be a good flavor friend for these apples and pears?
2. How would an apple and a pear feel different when you bite them?
3. Why do you think Cézanne liked painting fruit so much?

Safety first. A grown-up slices the apples and cooks the sandwiches on the stove or grill. Stay back while the skillet is hot. Melted cheese is very hot; let the sandwiches cool a few minutes before biting. Check for milk and wheat allergies.

A Flavor-Friends Plate and Apple Grilled Cheese

You will taste flavor friends on a plate and pick your favorite pair. Then you will build apple grilled cheese sandwiches.

You will need

- A large plate and small toothpicks or forks
- A cutting board on a damp towel and a kid knife
- A butter knife for spreading
- A large skillet or griddle and a spatula (for the grown-up)

APPLE-CHEDDAR GRILLED CHEESE

Serves 4 · Prep 10 min · Cook (grown-up) 8–10 min

Ingredients

- 8 slices whole-wheat or sandwich bread
- 3 tablespoons butter, softened
- 8 slices mild cheddar cheese (about 6 ounces)
- 1 crisp apple (a grown-up slices it very thin)
- **Flavor-friends plate:** apple slices and small cheese cubes; watermelon or cantaloupe pieces and a tiny pinch of salt; strawberries and a spoonful of plain yogurt

Method

1. Wash your hands. Spread butter on one side of each bread slice with a butter knife, all the way to the edges.
2. Lay 4 slices butter side down on the board. On each, put 1 slice of cheese, a layer of thin apple slices, and another slice of cheese.
3. Top with the other bread slices, butter side up.
4. A grown-up heats the skillet over medium-low heat and cooks the sandwiches 3 to 4 minutes per side, pressing gently with the spatula, until golden and the cheese melts. (Or a grown-up cooks them on a grill pan or on the grill.)

5. The grown-up cuts each sandwich in half. Let it cool 2 minutes before eating.

Allergy check: Contains wheat and milk. Use gluten-free bread for a wheat-free sandwich. For milk-free, use a dairy-free cheese and a plant-based butter.

Steps

1. **Flavor-friends plate.** Make three pairs on a plate: apple and cheese, melon and a tiny pinch of salt, strawberry and yogurt. Taste each food alone, then the pair together.
2. Make a chart: for each pair, draw a smile if it tasted better together.
3. Build the sandwiches.
4. **Taste test.** Taste the grilled cheese. Can you find sweet, salty, crunchy and soft in one bite? Rate it with one, two or three smiles.
5. **Clean up.** Wash the board and plates, wipe up crumbs, and put the cheese and butter away.
6. **Improve it.** Invent a new flavor-friends pair and test it on your family.

Tips

- Medium-low heat lets the cheese melt before the bread burns.
- Very thin apple slices fit nicely and warm through.

Check your work

- ☐ I can tell how cheddar cheese and apples became friends.
- ☐ I can name flavor friends: sweet and salty, sour and creamy, crunchy and soft.
- ☐ I built sandwiches and stayed back while a grown-up cooked them.

COOK'S NOTEBOOK

1. Draw your flavor-friends chart with smiles.
2. Draw your apple grilled cheese cut in half, showing the layers.
3. Draw a new flavor-friends pair you would like to try.

From history. Records show that in 1170, King Henry II of England bought a large amount of cheddar cheese. It was already famous more than 850 years ago.

COMMON MISTAKES

- Thinking every food should taste only sweet or only salty. Mixing tastes can make food better.
- Cooking grilled cheese on high heat. The bread burns before the cheese melts.
- Biting a sandwich right out of the pan. Melted cheese is very hot.

Make it a game • Partner Hunt. Your grown-up names a food, like apple. You have sixty seconds to find three flavor friends for it in the kitchen, such as cheddar cheese for apples. Say what kind of friend each is: sweet and salty, sour and creamy, or crunchy and soft. Score a point for each friend, then switch.

UNIT 7

FIRE, THE GRILL & SPICE

This is the fun unit! You will learn about fire, the grill and the spice cabinet. Fire is a helper that cooks our food and keeps us warm, but it is never a toy. At your age, grown-ups light and run the grill and the campfire, and you are the helper who preps the food and watches from 3 feet back.

You will meet Smokey Bear, smell spices that come from seeds, bark, roots and flowers, hear how the Queen of Sheba brought spices to King Solomon, visit a salt mine with a church carved out of salt, and discover flavors that are friends, like apples and cheese. You will make foil-packet potatoes, cinnamon apples, a salted tomato salad, and grilled cheese with apples. Every grill recipe has an indoor way too.

PREREQUISITES

- Knows the stove and oven rules and stands back (Unit 4)
- Knows the five tastes and that smell is most of flavor (Unit 3)
- Cuts soft foods with a kid knife (Unit 1)

MASTERY CHECKLIST

- ☐ I can tell Smokey Bear's rules and the grill rules, and I stay 3 feet back from a grill or campfire.
- ☐ I can tell the three things a fire needs and how a lid puts out a fire.
- ☐ I can tell which part of a plant each spice comes from.
- ☐ I can tell what a little salt does to the taste of food.
- ☐ I can name flavors that go together and make a flavor-friends plate.

OPTIONAL BOOKS AND TOOLS FOR THIS UNIT

- **Smokey Bear: Campfire Safety**: Free. The U.S. Forest Service's Smokey Bear site, with campfire rules and pictures to read together in Lesson 7.1.
- **Long-handled grill tongs and a chimney starter (for the grown-up)**: Long tongs keep hands away from the heat. A chimney starter lights charcoal without any charcoal starter fluid. Neither is needed if you use the oven or broiler instead.
- **Small spice jars from your own cupboard**: For the smell-and-sort tray in Lesson 7.2. Whole spices (a cinnamon stick, peppercorns, whole cloves, a piece of fresh ginger) are the most fun to look at.

Not required. Every recipe in this unit works in an ordinary home kitchen.

School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

7.1 A Campfire and a Grill Are Not Toys	2 sessions of 30–40 minutes
7.2 Where Spices Come From	2 sessions of 30–40 minutes
7.3 Salt Makes Food Taste Better	2 sessions of 30–40 minutes
7.4 Flavors That Go Together	2 sessions of 30–40 minutes

UNIT 7 REVIEW

Ask each question aloud. Your child may answer by telling, pointing, drawing or showing. There are no points; note what your child knows well and what to review.

1. Tell me the true story of Smokey Bear.
2. Show me where you stand when a grown-up grills. Who lights the grill? What do you never touch?
3. What three things does a fire need? Predict: what happens when the grown-up closes the grill lid on a flare-up?
4. Which part of a plant does each come from: cinnamon, ginger, cloves, black pepper?

5. What does a little salt do to food? What happened to the salted cucumber slice?
6. Name a pair of flavor friends and tell why they go together.

ANSWER KEY

1. In 1950 firefighters found a bear cub with burned paws after a forest fire in New Mexico. He was cared for, named Smokey, and lived at the National Zoo. He helped teach people to be careful with fire.
2. At least 3 feet back. Only a grown-up lights and runs it. Never touch charcoal starter fluid, matches or lighters.
3. Heat, fuel and air. Closing the lid takes away the air, so the flames die down.
4. Cinnamon: bark. Ginger: root. Cloves: flower buds. Black pepper: a dried berry (fruit).
5. It makes food taste more like itself and less bitter. Salt pulled water out of the cucumber, so drops of water appeared.
6. For example: apple and cheese (sweet and salty, crunchy and soft); strawberries and yogurt (sour and creamy).

UNIT CHALLENGE: OUR FAMILY GRILL NIGHT (OR BROILER NIGHT)

Help plan a family cookout. Prepare the foil-pocket potatoes, mix a little spice shaker of your own (salt, pepper, garlic powder, paprika and herbs), and make a flavor-friends plate for dessert. A grown-up grills chicken, burgers or vegetables and the potato packets outdoors, or cooks them in the oven or under the broiler indoors. You watch from 3 feet back and help set the table.

Draw a picture of the meal and of your spice shaker, and make a chart of the flavor friends your family liked best. Give thanks together before you eat.

LOOK FOR	WHAT IT MEANS
Safe helper	Your child stayed 3 feet back from the grill or oven, never touched matches or charcoal starter fluid, and followed every grill rule.
Prep work	Your child scrubbed, measured, tossed and mixed with clean hands and helped with the table.
Spice and flavor	Your child mixed a spice shaker and can tell which plant parts the spices come from, and made a flavor-friends plate.
Record and thanks	Your child drew the meal and the flavor chart, and joined in giving thanks. Cheerful help counts most.

UNIT 8

MEAL PLANNING & THE FAMILY TABLE

A good meal begins long before anyone sits down. Someone plans it, makes a list, shops, measures, cooks and sets the table. In this last unit you will learn to measure like a real cook, hear about the Pilgrims' harvest feast in 1621, make a grocery list and shop with a grown-up, and then put it all together for a family feast.

You will meet Fannie Farmer, who taught America to level the measuring cup, and Clarence Saunders, who opened the first store where shoppers picked their own groceries. At the end, you will make two dishes, set the table, welcome your family and lead grace, just as Jesus gave thanks before He fed the five thousand. "Better is a dinner of herbs where love is" (Proverbs 15:17).

PREREQUISITES

- Can measure with cups and spoons (all units)
- Knows the five food groups and a balanced plate (Unit 2)
- Knows the kitchen rules and grown-up jobs (Units 1 and 4)

MASTERY CHECKLIST

- ☐ I can measure dry and liquid ingredients and level off a cup or spoon.
- ☐ I can tell the story of the 1621 harvest feast at Plymouth.
- ☐ I can help make a grocery list from a menu and check the pantry first.
- ☐ I can set the table for a family meal.
- ☐ I can help plan and serve a family feast and lead grace.

OPTIONAL BOOKS AND TOOLS FOR THIS UNIT

- ***The Boston Cooking-School Cook Book* by Fannie Merritt Farmer (1896), free at Project Gutenberg:** Free to read online. Look together at her page on how to measure for Lesson 8.1. Some old recipes use ingredients this course leaves out, so read it with a grown-up.
- ***America's Test Kitchen Kids*:** Recipes, experiments and cookbooks for young cooks, such as *The Complete Cookbook for Young Chefs*, from America's Test Kitchen. A good next step after this course.
- **Place mats and a simple tablecloth:** For practicing table setting in Lesson 8.4. A drawn paper place mat works just as well.

Not required. Every recipe in this unit works in an ordinary home kitchen.

School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

8.1	Measuring Cups and Spoons	2 sessions of 30–40 minutes
8.2	The First Thanksgiving Meal	2 sessions of 30–40 minutes
8.3	Making a Grocery List	2 sessions of 30–40 minutes
8.4	The Family Feast	2 sessions of 60–90 minutes

UNIT 8 REVIEW

Ask each question aloud. Your child may answer by telling, pointing, drawing or showing. There are no points; note what your child knows well and what to review.

1. Show me how to measure a cup of oats and a cup of water.
2. Who was Fannie Farmer, and what did she teach cooks?
3. Tell me about the harvest feast at Plymouth in 1621. What did they probably eat?
4. What are the steps to make a grocery list?
5. Show me how to set one place at the table.

6. What did Jesus do before He fed the five thousand, and what did He say after?

ANSWER KEY

1. Oats: spoon into a dry cup and level the top with the back of a butter knife.
Water: pour into a clear liquid cup on the counter and read the line at eye level.
2. A Boston cooking teacher who wrote a famous cookbook in 1896. She taught cooks to use real measuring cups and spoons and to fill them level.
3. The Pilgrims and about ninety Wampanoag men celebrated the harvest for three days. They had wild birds, deer meat, corn, fish and shellfish, and squash or pumpkins (no potatoes or pumpkin pie).
4. Choose the menu, read each recipe, check the pantry and refrigerator, then write down what is missing, grouped by store section.
5. Plate in the middle, fork on the left, knife (blade facing the plate) and spoon on the right, glass above the knife, napkin under the fork or on the plate.
6. He gave thanks. Afterward He said, “Gather up the fragments that remain, that nothing be lost,” and they filled twelve baskets.

UNIT CHALLENGE: OUR FAMILY FEAST

Your family feast is your unit challenge and the end of your cooking year. Put these pages in your folder: the menu card, the grocery list, a drawing or photo of the table you set, the grace you prayed, and your family's ratings for your two dishes.

Then write or dictate a short thank-you note to someone who helped you cook this year. Look back through your cook's notebook and choose your favorite recipe to make again this summer.

LOOK FOR	WHAT IT MEANS
Planning	Your child helped plan a balanced menu and a grocery list, and went shopping with you.
Cooking	Your child made two dishes with clean hands, careful measuring and every safety rule, while you did the hot and sharp jobs.
Hospitality	Your child set the table, welcomed the family, led grace and served others first.
Finishing well	Your child helped put away leftovers and clean up, and wrote or told a thank-you. Warmth, effort and growth over the year count most.

8.1 MEASURING CUPS AND SPOONS

OBJECTIVES

- Tell how Fannie Farmer taught cooks to use level measurements.
- Measure dry ingredients by spooning and leveling, and liquid ingredients at eye level.
- Measure and mix no-bake granola bites and roll them into balls.

Warm-up. Scoop a measuring cup of flour or oats two ways: once heaped up high, and once leveled off flat with the back of a butter knife. Pour each into a separate bowl. Are they the same amount?

WATCH

How to Measure - for Kids!

Cooking with Kids, Inc. · 2:32

<https://www.youtube.com/watch?v=D5YsCyWHufE>

WHEN TO WATCH

Before you measure. Practice along with the video using your own cups and spoons.

BACKUP VIDEO

How to Measure Ingredients

ChopChopMag · 1:45

<https://www.youtube.com/watch?v=97Yqz5UzpPI>

Another short lesson on measuring.

KEY TERMS

measure

To find out exactly how much of something you have.

dry measuring cup

A cup filled to the top and leveled off, for flour, sugar and oats.

level

Flat across the top, with no heap and no dip.

liquid measuring cup

A clear cup with lines on the side and a spout, for water, milk and oil.

recipe

Directions for making a food: what you need and what to do.

CORE IDEAS

The story. Long ago, recipes were not very exact. They said things like “butter the size of an egg,” “a teacup of flour,” or “a handful of sugar.” Whose egg? Whose handful? Every cook’s food came out a little different. Fannie Farmer, who taught at the Boston Cooking School, thought cooking should be done more carefully.

How they figured it out. In 1896 Fannie Farmer wrote a cookbook called *The Boston Cooking-School Cook Book*. In it she said to use real measuring cups and spoons and to fill them **level**, not heaped. Then anyone who followed the recipe would get the same good result. People loved her book. It sold millions of copies, and she is sometimes called “the mother of level measurements.”

The kitchen science. A heaped cup holds more than a level cup, so the recipe changes. For dry foods, spoon the ingredient into the dry measuring cup until it is heaped, then scrape the extra off with the straight back of a butter knife. For liquids, set the clear cup on the counter, bend down so your eyes are level with the line, and pour until the liquid touches it. Measuring spoons work the same way: fill and level.

Let’s cook! You will measure every ingredient yourself and make no-bake granola bites. Then you will roll them into balls with clean hands.

PICTURE STUDY



Fannie Farmer, Unknown photographer, about 1900 · Photograph · Boston Public Library, Boston, Massachusetts

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

This is Fannie Farmer, the cooking teacher who wrote one of the most famous cookbooks in America. As a teenager she became sick and could not walk for a while, but she learned to cook at home and went on to run a cooking school.

Look closely

- Look at her clothes and hair. How do they show the time when she lived?
- Is she smiling? What do you think she was like as a teacher?
- This is a photograph, not a painting. How can you tell?

Talk about it

1. Why do you think exact measuring made cooking easier for her students?
2. If you wrote a cookbook, what would you name it?
3. What recipe from this year would you put in your own cookbook?

Safety first. This recipe needs no heat. Wash your hands before rolling the bites. If anyone is allergic to peanuts or tree nuts, use sunflower seed butter. Do not give honey to babies under one year old.

The Level-Cup Test and No-Bake Granola Bites

You will test heaped and level cups on a kitchen scale (or by counting spoonfuls). Then you will measure carefully to make granola bites.

You will need

- Dry measuring cups, a liquid measuring cup and measuring spoons
- A butter knife for leveling
- A kitchen scale (optional) and two bowls
- A large mixing bowl and a sturdy spoon
- A baking sheet or plate lined with wax paper

NO-BAKE GRANOLA BITES

Serves about 20 bites • Prep 15 min • Chill 30 min

Ingredients

- 1 cup old-fashioned rolled oats
- ½ cup peanut butter, almond butter or sunflower seed butter
- ⅓ cup honey or maple syrup
- ¼ cup ground flaxseed or wheat germ (optional)
- ½ cup mini chocolate chips or raisins
- 1 teaspoon vanilla extract
- A pinch of salt

Method

1. Wash your hands. Measure the oats into a dry measuring cup: spoon them in, then level the top with the back of a butter knife. Pour them into the large bowl.
2. Measure the flaxseed and salt (level each spoon) and add them.
3. Measure the nut or seed butter in a dry measuring cup, pressing it in and leveling the top. Scrape it into the bowl with a spatula.

4. Measure the honey (oil the cup first, and it slides right out) and the vanilla. Add them.
5. Stir until everything is mixed. Stir in the chocolate chips or raisins.
6. Chill the bowl 15 minutes so the mixture is easier to roll.
7. With clean hands, roll the mixture into 1-inch balls and set them on the wax paper. Chill 15 minutes more. Keep in a covered container in the refrigerator for up to 1 week.

Allergy check: Contains peanuts or tree nuts (if using peanut or almond butter); use sunflower seed butter instead. Chocolate chips may contain milk and soy; wheat germ contains wheat; oats may be processed with wheat. Honey is never given to babies under one year old.

Steps

1. **Level-cup test.** Fill one cup of oats heaped up high and one cup leveled. Weigh each on a scale, or count how many spoonfuls each holds. Which is more? How much more?
2. **Liquid test.** Pour $\frac{1}{2}$ cup of water into the liquid cup while standing up straight. Then bend down to look at eye level. Was it right?
3. Make the granola bites, measuring every ingredient yourself.
4. **Taste test.** Rate the bites with one, two or three smiles. Too sticky? Too dry? Just right?
5. **Clean up.** Wash the cups and spoons in warm, soapy water (nut butter is sticky). Wipe the counter.
6. **Improve it.** Next time, add 1 tablespoon less honey, or try dried cranberries.

Tips

- Wet your hands a little before rolling, and the mixture will not stick to them.
- Spray or wipe the cup with a little oil before measuring honey or nut butter.

Check your work

- ☐ I can tell how Fannie Farmer changed recipes.
- ☐ I can level a dry cup and read a liquid cup at eye level.
- ☐ I measured every ingredient for my granola bites.

COOK'S NOTEBOOK

1. Draw a heaped cup and a level cup. Put a check mark by the right one.

2. Draw yourself reading a liquid cup at eye level.
3. Copy the granola bites recipe in your own words or pictures.

From history. Fannie Farmer later opened her own school, Miss Farmer's School of Cookery, in Boston. She also taught nurses and doctors how to cook for sick people.

COMMON MISTAKES

- Scooping flour straight from the bag. It packs down and you get too much. Spoon it in and level it.
- Reading a liquid cup from above. Bend down to eye level.
- Using a regular drinking cup or a soup spoon to measure. Use real measuring cups and spoons.

Make it a game • Level Cup Challenge. Fannie Farmer taught cooks to measure level. Spoon dry beans into a measuring cup and level the top with a straight spoon handle. Pour out and count the beans. Do this three times. Whose counts are closest together? Then measure water at eye level.

8.2 THE FIRST THANKSGIVING MEAL

OBJECTIVES

- Tell the story of the harvest feast at Plymouth in 1621 and what was probably eaten.
- Tell why the Pilgrims gave thanks, and give thanks for our own food.
- Help make a corn succotash and a pumpkin dip, with a grown-up doing the stove work.

Warm-up. What foods does your family eat on Thanksgiving Day? Make a list. Now guess: which of those foods do you think the Pilgrims ate in 1621? Circle your guesses, and check them after the story.

WATCH

The First Thanksgiving | THE PILGRIMS | American Experience | PBS

American Experience | PBS • 2:59

<https://www.youtube.com/watch?v=ItrKU0KaoPo>

WHEN TO WATCH

After the story. Listen for Edward Winslow's letter and the five deer.

Note: From PBS American Experience. Written for older viewers; it is short and calm, and it reads from the 1621 letter quoted in the lesson.

KEY TERMS

Pilgrims

English Christians who sailed on the Mayflower in 1620 so they could worship God as they believed was right.

harvest

Gathering in the crops when they are ripe.

Wampanoag

The Native American people who lived near Plymouth. Say it "WAHM-puh-noh-ag."

succotash

A dish of corn and beans cooked together. The name comes from a Native American word.

CORE IDEAS

The story. In 1620 a ship called the Mayflower sailed from England across the stormy Atlantic Ocean. On board were the Pilgrims, who wanted to worship God freely. They landed at Plymouth, in what is now Massachusetts, as winter began. That first winter was very hard. Many were sick, and food was scarce.

How they figured it out. In the spring, a Native American man named Tisquantum, called Squanto, who spoke English, came to help. He showed the Pilgrims how to plant corn in little hills with a fish buried beside it to feed the soil, and where to fish and gather food. The Wampanoag leader Massasoit made a promise of peace with them. By autumn 1621, the harvest was good. The Pilgrims held a celebration that lasted three days. Massasoit came with about ninety of his men, who brought five deer to share.

What did they eat? One Pilgrim, Edward Winslow, wrote a letter about the feast. We know they had wild birds (ducks, geese, maybe turkeys) and deer meat. They probably also had corn made into bread or porridge, fish and shellfish from the sea, and squash and pumpkins from the garden. There were no potatoes and no pumpkin pie: they had no ovens for pies yet, and very little sugar.

The kitchen science. Corn and beans, grown together in the Three Sisters gardens (Lesson 2.2), make a filling dish together. Pumpkins and squash are a kind of fruit with seeds inside, full of vitamin A for healthy eyes. They keep for months in a cool place, so they were good winter food.

Let's cook! You will help make succotash, a corn and bean dish, and a no-cook pumpkin dip. A grown-up cooks the succotash on the stove. You measure, stir the dip and serve.

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 picture almost 300 years after the feast, so she had to imagine it. Some details are not exactly right: for example, the Wampanoag did not wear large feathered headdresses like the ones in the painting. But she shows the most important thing: giving thanks to God together.

Look closely

- Find the man giving thanks. What are the others doing?
- Find the foods on the table. Which ones do you think were really at the 1621 feast?
- Find the Wampanoag guests. Where are they?
- Look at the trees and the light. What season is it?

Talk about it

1. Why did the Pilgrims want to thank God after their first year?
2. Why is it good to share a feast with neighbors?
3. What will you thank God for at your family feast?

Safety first. A grown-up chops the onion and cooks the succotash on the stove; you watch from a safe spot. The pumpkin dip needs no heat. Check for milk allergies before serving.

What Did They Really Eat? Harvest Succotash and Pumpkin Dip

You will check your guesses about the 1621 menu. Then you will help make two harvest dishes from foods the Pilgrims and the Wampanoag knew: corn, beans and pumpkin.

You will need

- Your list from the warm-up
- A large skillet and a wooden spoon (for the grown-up)
- A medium bowl, a whisk or spoon, and measuring cups and spoons
- A colander and a can opener (for the grown-up)

HARVEST SUCCOTASH AND PUMPKIN DIP

Serves 6 • Prep 15 min • Cook (grown-up) 12 min

Ingredients

- **Succotash:** 2 tablespoons butter or olive oil
- 1 small onion (a grown-up chops it)
- 3 cups frozen corn
- 2 cups frozen lima beans or green beans
- 1 red bell pepper (a grown-up chops it), optional
- ½ teaspoon salt and a pinch of pepper
- 1 teaspoon dried thyme or 1 tablespoon chopped fresh parsley
- **Pumpkin dip:** 1 cup canned pure pumpkin (not pie filling)
- 4 ounces cream cheese, softened, or 1 cup vanilla Greek yogurt
- 2 tablespoons maple syrup
- 1 teaspoon cinnamon and a pinch of nutmeg
- Apple slices and whole-grain crackers for dipping

Method

1. Wash your hands. Measure the frozen corn and beans into a bowl. Measure the salt, pepper and thyme into a small dish.

2. A grown-up melts the butter in the skillet over medium heat and cooks the onion and pepper 3 to 4 minutes, until soft.
3. The grown-up adds the corn and beans and cooks 6 to 8 minutes, stirring, until hot. You hand over the seasoning dish when the grown-up asks. The grown-up stirs it in.
4. **Pumpkin dip:** A grown-up opens the can. Measure the pumpkin, cream cheese, maple syrup, cinnamon and nutmeg into the medium bowl. Stir or whisk until smooth and orange.
5. Serve the succotash warm and the dip with apple slices (cut by a grown-up) and crackers. Refrigerate leftovers within 2 hours.

Allergy check: Succotash contains milk if made with butter; use olive oil for a milk-free dish. Pumpkin dip contains milk; use a dairy-free yogurt for milk-free. Crackers usually contain wheat.

Steps

1. **Check your guesses.** Look at your warm-up list. Cross out foods the Pilgrims did not have (pumpkin pie, potatoes, cranberry sauce with sugar). Circle the ones they probably had.
2. Make the succotash and the pumpkin dip.
3. **Taste test.** Rate each dish with one, two or three smiles. Which do you think the Pilgrims would like best?
4. **Thank-you list.** Before you eat, have each person name one thing they are thankful for this year. Write or draw them on a list.
5. **Clean up.** Wash the bowls and spoons and wipe the table.
6. **Improve it.** Would you add anything to the succotash next time? Squash? Tomatoes?

Tips

- Frozen vegetables are picked and frozen when ripe, so they taste good all year.
- Be sure to buy pure canned pumpkin, not pumpkin pie filling, which has sugar and spices already in it.

Check your work

- ☐ I can tell the story of the 1621 harvest feast.

- ☐ I can name foods the Pilgrims probably ate and some they did not.
- ☐ I helped make two harvest dishes and gave thanks.

COOK'S NOTEBOOK

1. Draw the Mayflower on the ocean.
2. Draw a 1621 harvest table with the foods they probably ate.
3. Draw your family's thank-you list.

COMMON MISTAKES

- Thinking the Pilgrims had pumpkin pie and mashed potatoes. They did not.
- Using pumpkin pie filling instead of pure pumpkin.
- Forgetting to give thanks. The feast was a thanksgiving to God.

Make it a game • Was It on the Table?. Your grown-up names foods and asks if they were probably at the harvest feast at Plymouth in 1621. Some are right, like venison, corn, fish and beans. Some are tricks, like pizza or ice cream. Answer yes or no and give a reason. Then each name three foods you are thankful for today.

Scripture. "Enter into his gates with thanksgiving, and into his courts with praise: be thankful unto him, and bless his name." (Psalm 100:4, KJV)

The Pilgrims gave thanks to God for bringing them through a hard year. We give thanks for every meal.

8.3 MAKING A GROCERY LIST

OBJECTIVES

- Tell how Clarence Saunders opened the first self-service grocery store in 1916.
- Make a grocery list from a menu by checking the pantry first.
- Shop with a grown-up and make a rainbow pasta salad for the feast week.

Warm-up. Look in your pantry and refrigerator. Pretend you want to make pancakes. Do you have everything? What is missing? That missing list is the start of a grocery list!

WATCH

Anna Goes To The Supermarket - Educational Stories for Kids

Smile and Learn - English • 4:25

<https://www.youtube.com/watch?v=qi7JB4Cm-64>

WHEN TO WATCH

Before your shopping trip.

BACKUP VIDEO

Grocery Store Shopping - Life Skills Lesson - Transition Skills

Transition Abilities • 3:00

https://www.youtube.com/watch?v=_7dHUN2ORDk

For older children: a step-by-step look at shopping in a grocery store.

KEY TERMS

grocery list

A written list of foods to buy at the store.

menu

A list of the dishes that will be served at a meal.

aisle

A long walkway between shelves in a store.

price

How much money something costs.

CORE IDEAS

The story. A long time ago, grocery shopping was slow. You walked up to a counter and told the clerk what you wanted. The clerk walked around the store, took each item down from the shelves behind the counter, and brought it back to you. If many people were waiting, you waited a long time.

How they figured it out. In 1916, in Memphis, Tennessee, a man named Clarence Saunders had a new idea. In his store, called Piggly Wiggly, shoppers took a basket, walked through the aisles, and picked the food off the shelves themselves! Every item had its price marked on it. At the end, shoppers paid at the front. People liked it, and soon grocery stores all over the country worked the same way. That is how most stores work today.

The kitchen science. Good cooks plan before they shop. First, choose the menu. Second, read each recipe and write down every ingredient. Third, check the pantry and refrigerator, and cross off what you already have. Fourth, write the rest on the list, grouped by where it is in the store: fruits and vegetables, bread, dairy, meat, pantry, frozen. A list saves time and money and helps you not forget anything.

Let's cook! You will plan, list and shop. Then you will make a rainbow pasta salad from your groceries. A grown-up boils the pasta; you add the vegetables and shake the dressing.

PICTURE STUDY



Inside a Piggly Wiggly Store, Unknown photographer, about 1918 · Photograph · Library of Congress, Washington, D.C.

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

This photograph shows one of the first Piggly Wiggly stores, where shoppers walked the aisles and chose their own food. It was a new idea more than a hundred years ago.

Look closely

- Find the shelves. What kinds of foods can you see: cans, boxes, jars?
- Are the shelves neat or messy? Why would that help shoppers?
- Look for price tags or signs.
- What foods do you NOT see that our stores have today?

Talk about it

1. How is this store like the store where your family shops? How is it different?
2. Why is picking your own food faster than waiting for a clerk?
3. Where would you look in this store for flour? For beans?

Safety first. In the store, stay with your grown-up and hold the cart. Do not open packages. At home, a grown-up boils and drains the pasta and cuts the vegetables. Put cold foods in the refrigerator as soon as you get home.

KITCHEN PROJECT

Plan, List, Shop, and a Rainbow Pasta Salad

You will help plan your family feast menu, make the grocery list, shop with a grown-up, and make a pasta salad to enjoy during the week.

You will need

- Paper and a pencil for the menu and list
- Your recipes from this year (your cook's notebook)
- A large pot and colander (for the grown-up)
- A large bowl, a small jar with a lid, and measuring cups and spoons

RAINBOW PASTA SALAD

Serves 6 · Prep 15 min · Cook (grown-up) 12 min · Chill 30 min

Ingredients

- 8 ounces small pasta (rotini, shells or bow ties)
- 1 cup cherry tomatoes (a grown-up halves them)
- 1 cucumber (a grown-up chops it)
- 1 yellow or orange bell pepper (a grown-up chops it)
- 1 cup grated carrots
- ½ cup frozen peas, thawed
- 4 ounces mozzarella or cheddar, cut in small cubes (optional)
- **Dressing:** ¼ cup olive oil
- 2 tablespoons lemon juice or apple cider vinegar
- 1 teaspoon honey
- ½ teaspoon dried oregano or Italian herbs
- ½ teaspoon salt and a pinch of pepper

Method

1. A grown-up cooks the pasta in boiling salted water as the box says, drains it, rinses it with cold water until cool, and drains it again.
2. Wash your hands. Put the cool pasta in the large bowl.

3. Add the tomatoes, cucumber, pepper, carrots, peas and cheese.
4. Put all the dressing ingredients in the jar, close the lid tight, and shake hard for 20 seconds.
5. Pour the dressing over the salad and stir gently with a big spoon until everything is shiny.
6. Chill 30 minutes before serving. Keep leftovers in the refrigerator up to 3 days.

Allergy check: Contains wheat (pasta) and milk (cheese). Use gluten-free pasta for wheat-free and leave out the cheese for milk-free. Some pastas contain eggs: read the label. Honey is never given to babies under one year old.

Steps

1. **Plan the feast menu.** With your family, pick a main dish (a grown-up cooks it) and two dishes you will make from this year's recipes. Add a dessert. Make sure the menu has at least four food groups.
2. **Make the list.** Read each recipe. Check the pantry and refrigerator. Write (or draw) only what you need, grouped by store section. Add the pasta salad ingredients too.
3. **Shop.** Go to the store with your grown-up. Find each item and check it off. Compare two prices on one item, like two kinds of pasta: which costs less?
4. Make the rainbow pasta salad.
5. **Taste test.** Rate it with one, two or three smiles. Count the colors in it.
6. **Clean up.** Put away all the groceries in the right places: cold foods first! Wash the bowl and jar.

Tips

- Writing the list in the same order as the store's aisles saves steps.
- A list helps you buy what you need, and not extra things you don't.

Check your work

- ☐ I can tell how Piggly Wiggly changed grocery shopping.
- ☐ I helped make a menu and a grocery list.
- ☐ I shopped with a grown-up and checked off my list.

COOK'S NOTEBOOK

1. Draw or copy your feast menu.
2. Draw your grocery list with pictures of each item.
3. Draw yourself shopping with a basket like the first Piggly Wiggly shoppers.

From history. Clarence Saunders even got a patent for his self-serving store in 1917. The idea spread so quickly that by the early 1920s there were more than a thousand Piggly Wiggly stores.

COMMON MISTAKES

- Shopping without checking the pantry first, and buying something you already have.
- Forgetting one ingredient. Read every recipe all the way through.
- Leaving the milk and cheese in the car. Cold foods go in the refrigerator first.

Make it a game • List Detective. Your grown-up names a menu of two dishes. Check the pantry first and write only what is missing, in two minutes. Your grown-up secretly hides two items you thought you had. Do you notice? Sort your list by aisle. Score one point for each correct item and subtract one for anything you already own.

8.4 THE FAMILY FEAST

OBJECTIVES

- Tell how Jesus gave thanks before He fed the five thousand, and why we give thanks before meals.
- Set the table for a family meal.
- Make two dishes for a family feast, serve the family, and lead grace.

Warm-up. Think about all the people who helped bring one meal to your table: farmers, truck drivers, store workers, the cook. Count them on your fingers. Who will you thank at your feast?

WATCH

Basic Table Setting Skills for Kids.

In the Kitchens • 1:47

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

WHEN TO WATCH

Before you set the table. Then set yours the same way.

KEY TERMS

grace

A short prayer of thanks to God before a meal.

hospitality

Welcoming others warmly and giving them a share of what you have with them.

place setting

The plate, fork, knife, spoon, napkin and glass set at one person's seat.

host

The person who welcomes the guests and serves the meal.

CORE IDEAS

The story. One day a great crowd of about five thousand men, besides women and children, followed Jesus up a mountain by the Sea of Galilee. They were hungry. A boy had five barley loaves and two small fishes. Jesus told the people to sit down on the grass. Then He took the loaves and *gave thanks*, and He gave out the food until everyone had as much as they wanted.

How they figured it out. After everyone had eaten, Jesus said to His disciples, “Gather up the fragments that remain, that nothing be lost.” They filled twelve baskets with leftovers! Jesus gave thanks before the meal, and He did not waste what was left. That is why Christians pray before meals, and why good cooks save leftovers.

Setting the table. Put a plate in front of each chair. The fork goes on the left. The knife goes on the right, with its sharp edge facing the plate, and the spoon beside it. The glass goes above the knife. The napkin goes under the fork or on the plate. A simple flower or a candle (lit only by a grown-up) makes the table special.

Being a host. Welcome your family to the table. Wait until everyone is seated. Lead grace. Serve others first. Say “please” and “thank you.” After the meal, help clear the table and wash up together.

Let’s cook! This is your feast! A grown-up cooks the main dish, like roast chicken. You make two dishes from this year, set the table, and lead grace.

PICTURE STUDY



Saying Grace, Jean-Siméon Chardin, 1740 · Oil on canvas · Musée du Louvre, Paris

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

Chardin painted a mother serving soup to her two children. Before anyone eats, the littlest one is saying grace. The mother waits and listens. Chardin loved quiet moments of everyday family life.

Look closely

- Find the child saying grace. What is the child doing with his hands?
- Find the soup bowls and the pot. Who cooked the meal?
- Look at the mother's face. How does she feel as she listens?
- Find the small pan on the floor at the right. What do you think it was used for?

Talk about it

1. Why does the family wait to eat until grace is said?
2. What will you say when you lead grace at your feast?
3. How can you help the cook in your family after the meal?

Safety first. A grown-up cooks the main dish, checks the chicken with a thermometer (165 °F), carves it, and lights any candles. You make your two dishes with the safety steps you learned this year. Check every dish against every guest's allergies, and put leftovers in the refrigerator within 2 hours.

KITCHEN PROJECT

Plan, Cook and Serve the Family Feast

This is your final project. You will make two dishes, set the table, welcome your family, lead grace, serve, and help clean up. Use the menu and groceries from Lesson 8.3.

You will need

- Your feast menu and grocery list from Lesson 8.3
- Your cook's notebook with this year's recipes
- A roasting pan, instant-read thermometer and oven mitts (for the grown-up)
- A tablecloth or place mats, plates, forks, knives, spoons, glasses and napkins
- Paper and crayons for a menu card and place cards

MODEL FAMILY FEAST MENU: ROAST CHICKEN (GROWN-UP), HAND-MASHED POTATOES, RAINBOW FRUIT SALAD AND CINNAMON APPLES

Serves 6 • Prep 45 min • Cook about 1 hr 15 min (dishes overlap)

Ingredients

- **Roast chicken (grown-up):** 3½ to 4 pounds bone-in chicken thighs and drumsticks
- 2 tablespoons olive oil, 1 teaspoon salt, ½ teaspoon pepper, 1 teaspoon garlic powder and 1 teaspoon dried thyme
- **Hand-mashed potatoes:** the recipe from Lesson 5.1
- **Rainbow fruit salad:** the recipe from Lesson 1.3
- **Dessert:** warm cinnamon apples from Lesson 7.2, with yogurt or whipped cream from Lesson 5.2
- **Also:** a pitcher of cucumber-mint water from Lesson 6.3

Method

1. **The day before:** Shop with your grown-up. Make the cucumber-mint water. Draw a menu card and a place card for each person.
2. **2 hours before dinner:** Wash your hands. Make the rainbow fruit salad (add the bananas at the end), cover it, and put it in the refrigerator.
3. **1½ hours before:** A grown-up heats the oven to 425 °F, rubs the chicken with oil, salt, pepper, garlic powder and thyme, and roasts it 40 to 50 minutes, until the thickest piece reads 165 °F on a thermometer. Everyone washes hands after the grown-up handles raw chicken.
4. **1 hour before:** Set the table: plate, fork on the left, knife and spoon on the right, glass above the knife, napkin. Put out the place cards and menu card.
5. **45 minutes before:** A grown-up boils the potatoes. When they are drained and in the bowl, you mash them with the milk and butter.
6. **Just before dinner:** Put the food on the table. Pour the water. Welcome your family to their seats.
7. **At the table:** Lead grace. Serve your guests first. Enjoy the meal and the conversation.
8. **After dinner:** A grown-up cooks the cinnamon apples while you clear the plates. Serve dessert. Put leftovers in the refrigerator within 2 hours, and wash up together.

Allergy check: Roast chicken: none of the nine major allergens. Mashed potatoes, cinnamon apples and whipped cream contain milk (see each lesson for milk-free swaps). Fruit salad: honey is never given to babies under one year old. Check every dish against every guest's allergies.

Steps

1. **Menu card.** Draw a menu card listing every dish, with a small picture of each. Put it in the middle of the table.
2. **Set the table** for every person, just like the video.
3. Make your two dishes and help with the timeline.
4. **Grace.** Lead your family in grace. You may pray in your own words, or use an old table prayer: "Come, Lord Jesus, be our guest, and let these gifts to us be blessed. Amen."

5. **Family rating.** After dinner, ask each person to give your dishes one, two or three smiles and to say one thing they enjoyed.
6. **Gather the fragments.** Like Jesus' disciples, put away the leftovers so nothing is lost. Then wash up together.

Tips

- Make the cold dishes early so you are not rushed at the end.
- A grown-up can help you practice grace ahead of time if you feel shy.

Check your work

- ☐ I set the table correctly for my family.
- ☐ I made two dishes for the feast and served my family.
- ☐ I led grace and helped put away leftovers and clean up.

COOK'S NOTEBOOK

1. Draw your feast table from above, with every place setting.
2. Write or draw the grace you prayed.
3. Draw your favorite dish from the whole year and tell why it is your favorite.

COMMON MISTAKES

- Starting to eat before everyone is seated and grace is said.
- Doing everything at the last minute. Follow the timeline and make cold dishes early.
- Forgetting the leftovers on the table. Put them away within 2 hours.

Make it a game • Host and Grace. Your grown-up knocks, a guest at your door. You are the host. Welcome them, set the table for the family meal, seat the guest, and say a short grace as Jesus gave thanks before He fed the five thousand. Set a timer for three minutes. Try to do every job before it rings.

Scripture. “And Jesus took the loaves; and when he had given thanks, he distributed to the disciples, and the disciples to them that were set down” (John 6:11, KJV)

Jesus gave thanks before He fed the hungry crowd. We give thanks at our feast for every good gift.

UNIT 8

MEAL PLANNING & THE FAMILY TABLE

A good meal begins long before anyone sits down. Someone plans it, makes a list, shops, measures, cooks and sets the table. In this last unit you will learn to measure like a real cook, hear about the Pilgrims' harvest feast in 1621, make a grocery list and shop with a grown-up, and then put it all together for a family feast.

You will meet Fannie Farmer, who taught America to level the measuring cup, and Clarence Saunders, who opened the first store where shoppers picked their own groceries. At the end, you will make two dishes, set the table, welcome your family and lead grace, just as Jesus gave thanks before He fed the five thousand. "Better is a dinner of herbs where love is" (Proverbs 15:17).

PREREQUISITES

- Can measure with cups and spoons (all units)
- Knows the five food groups and a balanced plate (Unit 2)
- Knows the kitchen rules and grown-up jobs (Units 1 and 4)

MASTERY CHECKLIST

- ☐ I can measure dry and liquid ingredients and level off a cup or spoon.
- ☐ I can tell the story of the 1621 harvest feast at Plymouth.
- ☐ I can help make a grocery list from a menu and check the pantry first.
- ☐ I can set the table for a family meal.
- ☐ I can help plan and serve a family feast and lead grace.

OPTIONAL BOOKS AND TOOLS FOR THIS UNIT

- ***The Boston Cooking-School Cook Book* by Fannie Merritt Farmer (1896), free at Project Gutenberg:** Free to read online. Look together at her page on how to measure for Lesson 8.1. Some old recipes use ingredients this course leaves out, so read it with a grown-up.
- ***America's Test Kitchen Kids*:** Recipes, experiments and cookbooks for young cooks, such as *The Complete Cookbook for Young Chefs*, from America's Test Kitchen. A good next step after this course.
- **Place mats and a simple tablecloth:** For practicing table setting in Lesson 8.4. A drawn paper place mat works just as well.

Not required. Every recipe in this unit works in an ordinary home kitchen.

School Launch has no ties to these authors, publishers or companies.

LESSONS IN THIS UNIT

8.1	Measuring Cups and Spoons	2 sessions of 30–40 minutes
8.2	The First Thanksgiving Meal	2 sessions of 30–40 minutes
8.3	Making a Grocery List	2 sessions of 30–40 minutes
8.4	The Family Feast	2 sessions of 60–90 minutes

UNIT 8 REVIEW

Ask each question aloud. Your child may answer by telling, pointing, drawing or showing. There are no points; note what your child knows well and what to review.

1. Show me how to measure a cup of oats and a cup of water.
2. Who was Fannie Farmer, and what did she teach cooks?
3. Tell me about the harvest feast at Plymouth in 1621. What did they probably eat?
4. What are the steps to make a grocery list?
5. Show me how to set one place at the table.

6. What did Jesus do before He fed the five thousand, and what did He say after?

ANSWER KEY

1. Oats: spoon into a dry cup and level the top with the back of a butter knife.
Water: pour into a clear liquid cup on the counter and read the line at eye level.
2. A Boston cooking teacher who wrote a famous cookbook in 1896. She taught cooks to use real measuring cups and spoons and to fill them level.
3. The Pilgrims and about ninety Wampanoag men celebrated the harvest for three days. They had wild birds, deer meat, corn, fish and shellfish, and squash or pumpkins (no potatoes or pumpkin pie).
4. Choose the menu, read each recipe, check the pantry and refrigerator, then write down what is missing, grouped by store section.
5. Plate in the middle, fork on the left, knife (blade facing the plate) and spoon on the right, glass above the knife, napkin under the fork or on the plate.
6. He gave thanks. Afterward He said, “Gather up the fragments that remain, that nothing be lost,” and they filled twelve baskets.

UNIT CHALLENGE: OUR FAMILY FEAST

Your family feast is your unit challenge and the end of your cooking year. Put these pages in your folder: the menu card, the grocery list, a drawing or photo of the table you set, the grace you prayed, and your family’s ratings for your two dishes.

Then write or dictate a short thank-you note to someone who helped you cook this year. Look back through your cook’s notebook and choose your favorite recipe to make again this summer.

LOOK FOR	WHAT IT MEANS
Planning	Your child helped plan a balanced menu and a grocery list, and went shopping with you.
Cooking	Your child made two dishes with clean hands, careful measuring and every safety rule, while you did the hot and sharp jobs.
Hospitality	Your child set the table, welcomed the family, led grace and served others first.
Finishing well	Your child helped put away leftovers and clean up, and wrote or told a thank-you. Warmth, effort and growth over the year count most.