

SCHOOL LAUNCH · GEOGRAPHY K-12

KINDERGARTEN GEOGRAPHY: GOD MADE THE EARTH: MY FIRST MAPS

A first, happy year of looking at the world God made, starting with a bird's-eye map of the child's own bedroom and going out to the house, the street, the town and the round blue globe, with sand-tray rivers, salt-dough mountains, an orange-peel earth, a jar rain gauge, the seven continents sung aloud, and every way people travel, from feet and wagon wheels to the Mayflower and the Wright brothers' first flight at Kitty Hawk.

First edition

"And hath made of one blood all nations of men for to dwell on all the face of the earth, and hath determined the times before appointed, and the bounds of their habitation;" (Acts 17:26, KJV)

COURSE GUIDE

This course is a child's first look at geography, and it starts right where the child stands. In Unit 1 your child learns to see a table the way a bird sees it, from above, and then draws a map of his or her own room, house and street. From there the year widens out: the round earth in the *Blue Marble* photograph taken from Apollo 17 in 1972, hills and valleys built in sand, a river found by pouring water down a sand hill, the weather and the four seasons, the people and places that keep a town running, the seven continents and five oceans, and at last all the ways people travel over land and sea.

Every lesson follows the same simple path. First comes **something real**: a photograph of the earth from space, Mount Everest and the hill nearest home, the Grand Canyon, a loaf of bread traced back to a wheat field, the Mayflower's long trip in 1620, or the Wright brothers at Kitty Hawk on December 17, 1903. Then a parent reads a few short paragraphs aloud and the child **looks closely** at a painting, map or photograph. Last, the child **makes or does something** with his or her hands: a shoebox room with a map on the lid, a salt-dough landform tray, a foil boat, a rain gauge, a cardboard-box town or a paper airplane. Nothing needs to be read by the child; everything is said, pointed to, built or drawn.

A thread runs through the whole year: **people finding ways to cross the land and sea God made**. Feet and wheels, boats and bridges, trains and airplanes each let people go farther and faster than before. Lessons that carry this thread are marked ✿, and the last unit, **How We Get There**, gathers it all together, from rolling a heavy load on pencils to folding and flying a paper plane. This is the first step in a story that runs through the whole School Launch Geography series, up to canals, railroads, satellites and GPS in the older grades.

Above all, the course teaches that the world is not an accident. "In the beginning God created the heaven and the earth" (Genesis 1:1), and He gathered the waters together and made the dry land appear (Genesis 1:9-10). He placed the mountains, rivers and seas, and He placed the peoples of the earth in their lands: "And hath made of one blood all nations of men for to dwell on all the face of the earth, and hath determined the times before appointed, and the bounds of their habitation;" (Acts 17:26). A map is a way of saying thank you for the place God has given us, and of learning to love our neighbors near and far.

WHO IT IS FOR

Written for kindergartners (about ages 5-6) and easily used with a younger first grader. The child does not need to read or write: a parent or teacher reads every lesson aloud, asks the questions, and helps with the projects, while the child talks, points, counts, colors, builds and draws. Counting to 20 and holding a crayon are all the skills required. Nothing needs to be bought beyond ordinary household things: paper, crayons, a shoebox, sand or salt dough, a jar, an orange and a few toys, plus an inexpensive globe if you can get one.

HOW TO USE THIS COURSE

The weekly rhythm. The year has 32 lessons, one a week from September to May, in eight units of four lessons each, plus an optional bonus unit, the **Map Lab**, with four map games for any week off. Each lesson takes two sessions of 30–40 minutes. Session 1 is the warm-up, the short video, the read-aloud and the picture study. Session 2 is the project and the map notebook page. Stop while your child is still having fun; you can always finish tomorrow.

The ★ and ⚙ marks. Ten lessons are marked ★. Together they make a **quarter path** for families who want a shorter, one-quarter version of the course: they cover seeing from above, a map of my room, the round earth, mountains, rivers, weather, my town, the continents and the first and last travel lessons. Lessons marked ⚙ carry the technology thread, showing how people made tools to cross hills, rivers and oceans.

The map notebook. Use one large blank sketchbook or a folder of plain paper for the whole year. Every unit adds at least one map the child draws or colors: a room with a treasure X, land and water on a world outline, a river from mountain to sea, a weather map, a street with a three-symbol key, the seven continents and a route to grandma's house. Write the date and the child's words under each page. By May the notebook shows how far your child's eyes and hands have traveled.

Worked examples and practice. Each lesson has one very simple worked example to do together, such as counting squares on a map grid, finding which way is up on a globe or deciding which island is bigger, and five short practice items that are mostly oral: point to it, count it, match it, draw it. Answers are given for the parent. If your child misses one, show the picture again and try it together; there is no hurry.

Unit reviews and unit projects. The last week of each unit adds a short review of 6–8 questions (20 points) that you ask aloud while your child answers, points or draws, and a **unit project** that pulls the unit together, such as the shoebox room, the play-dough globe, the landform tray, the sand-tray river, the seasons wheel, the cardboard-box town, the continent puzzle or the transport sorting game. Take a photograph of each one for the year's record.

How this fits the School Launch series. This is the first year of the School Launch Geography series, which climbs grade by grade from my room and my town to the United States, the continents, the explorers and missionaries, the earth's systems and the great ports and trade routes, and on to high school electives. It pairs naturally with the kindergarten Engineering & Physics and Business & Finance courses: the bridges, boats and wheels here meet the builders there, and the people who help in Unit 6 meet the shops and workers of the Business course.

SCOPE AND SEQUENCE

Unit 1: Where I Live (1–4)

Seeing the world from above, the way a map does: a bird's-eye view of the table, a map of my room with a hidden toy, my house and yard, and my address on a real letter.

Unit 2: The Globe: Land and Water (5-8)

The earth is round and most of it is water: the Blue Marble photograph, a globe as a small earth, an orange peel that shows why flat maps stretch, and the cold North and South Poles.

Unit 3: Hills, Mountains and Valleys (9-12)

The shapes of the land: Mount Everest and the hill nearest home, valleys and plains where farms and towns grow, islands and peninsulas in a tray of water, and the Grand Canyon and Mammoth Cave.

Unit 4: Rivers, Lakes and the Sea (13-16)

Following the water: a river finding the low way down a sand hill, lakes and ponds and the Great Lakes from space, fresh water and salty sea, and boats from Noah's ark to a leaf boat.

Unit 5: Weather and the Seasons (17-20)

What the sky does and how the year turns: a week-long picture weather chart, the four seasons promised in Genesis 8:22, hot places and cold places, and a jar rain gauge.

Unit 6: My Town and the People Who Help (21-24)

Places in a community and the work done there: the post office, store, church, fire station and library; the people who help; a loaf of bread from field to table; and why roads and bridges go where they do.

Unit 7: Seven Continents, Five Oceans (25-28)

The big pieces of land and water: singing and finding the seven continents and five oceans, animals that live on each continent, and a sticker on the globe to show where I am.

Unit 8: How We Get There (29-32)

How people cross land and sea: from feet and wheels to boats and the Mayflower, trains across the country, and the Wright brothers' first flight at Kitty Hawk in 1903.

Unit 9: Map Lab (optional bonus) (Any week off)

Four map games for a free week, a rainy day or the summer: a yard treasure hunt, a continent puzzle, Simon Says directions, and a map the child draws for someone else.

MATERIALS

- **Map notebook (a large blank sketchbook or a folder of plain paper):** One for the whole year: every map your child draws or colors, dated, with his or her words written underneath by a parent.

- **Crayons, colored pencils, markers, scissors, glue and tape:** Used in nearly every lesson. Blue, green and brown get the most use.
- **A globe and a simple world map:** An inexpensive inflatable globe works well. Printable world outlines are fine for the map.
- **A shoebox, cardboard boxes and building blocks:** For the shoebox room, the paper house map, the block bridge and train, and the cardboard-box town.
- **A sand tray or a large baking pan with sand or soil, and a pitcher of water:** For mountains, islands and the sand-tray river. Work outdoors or on a towel.
- **Salt dough or play dough:** Flour, salt and water make salt dough for the landform tray; play dough in blue and green makes the globe.
- **Kitchen things: an orange, aluminum foil, salt, two cups, a clear straight-sided jar and a ruler:** For the orange-peel globe, the foil boat, the fresh-and-salt taste test and the rain gauge.
- **A few small toys and stickers:** For hiding and finding with maps, the treasure hunts and animal stickers on the world map.
- **Optional: one of the picture books or resources listed in a unit:** Never required. Every lesson can be done without them.

GRADING

Kindergarten geography is learned by looking, talking and making, so grades come mostly from the projects and the map notebook. Many families simply keep the notebook and photographs as the record of the year; the points below are for those who want a grade.

- Projects (taking part, trying carefully and telling what was made): 40%
- Map notebook (one dated map or page for each lesson): 20%
- Unit reviews (asked aloud, 20 points each): 15%
- Unit projects: 25%

A 90–100, B 80–89, C 70–79. Below 70: do the lesson again together another day. Families who prefer may record each unit as Mastered, Growing or Not yet.

- Grade effort and understanding, not neatness. A wobbly map that shows the bed, door and window in the right places earns full credit.
- All reviews are oral. The child may answer by speaking, pointing, drawing or building; the parent writes down the answers.
- If an item is missed, show the picture or the project again and ask once more. Count the second answer.
- Photograph each unit project and keep the photos with the map notebook. Together they make a fine record of the year.

A NOTE TO PARENTS

You do not need to know any geography to teach this course. Read the lesson aloud, look at the picture together, and then get down on the floor and build. Ask “What would a bird

see?”, “Where does the water go?” and “How would we get there?” Those three questions are most of what a good geography teacher does with a five-year-old.

Let your own home and town be the textbook. Walk the street, visit the post office, notice the hill nearest your house and the creek where the rain runs, and point out the weather each morning. A child who can draw a map of his or her own room has taken the first real step toward reading every map in the world.

A word about time. This course is written from a Christian view of creation (Genesis 1:1) and the Flood (Genesis 6-9). Young children do not need ages in the millions of years, and the lessons give none. When your child meets one on a museum sign, in a library book or in a video, you can use the simple habit the later grades call “Thinking About Time”: some things we can watch and measure today, such as how fast a river carries sand or how much a beach changes after a storm, and the very large ages come from assuming things always went at today’s speed. Names such as “Ice Age” are taught as museum words, so your child can read any sign and still know that “in the beginning God created the heaven and the earth” (Genesis 1:1).

Most of all, let the year be full of wonder and thanks. The mountains, rivers and seas were made by God, and the people who live on every continent were made by Him too. When your child colors the seven continents or flies a paper airplane toward grandma’s house, he or she is learning that the world is large and good, and that God has given each of us a place in it.

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Unit 7: Seven Continents, Five Oceans

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9.2 Puzzle Map

9.3 Simon Says Directions

9.4 Make a Map for Someone Else

★ quarter path · ⚙ technology overcoming geography

WHERE I LIVE

Every map in the world begins with a simple trick: looking at a place from above, the way a bird does. In this unit your child learns that trick right at home. We start at the kitchen table, drawing a cup, a plate and a spoon from the side and then from above. Then we lift the roof off the bedroom, the whole house and the yard, and draw them as a bird would see them.

Along the way we meet real people who looked at the world this way: James Wallace Black, who photographed Boston from a balloon in 1860; the geographer in Vermeer's painting of 1669; young George Washington, who measured land and drew maps at 16; and Benjamin Franklin, the first Postmaster General. We finish by learning our own address, house, street, town and state, and mailing a letter to see the address do its job. Through it all we remember that God made the earth and has given each family a place to live in it (Acts 17:26).

BEFORE YOU BEGIN

- Can hold a crayon and draw simple shapes: circles, squares and long boxes
- Can count objects to 10
- Knows the names of the rooms in the house
- Can follow two-step directions spoken aloud

MASTERY CHECKLIST

- I can say what a bird's-eye view is.
- I can draw a cup, a plate and a spoon from above.
- I can draw a map of my room and find a hidden toy with an X.
- I can lay out the rooms of my house in the right order.
- I can say my street, my town and my state.

OPTIONAL BOOKS AND RESOURCES

- **Panoramic Maps, Library of Congress** (<https://www.loc.gov/collections/panoramic-maps/>): Free. Hundreds of old bird's-eye drawings of American towns. Find one of your state and let your child hunt for houses, churches, rivers and trains from above.
- **Smithsonian National Postal Museum** (<https://postalmuseum.si.edu/>): Free online exhibits about letters, mail carriers and how the mail travels. Good pictures to look at together for Lesson 1.4.

1.1 A BIRD’S-EYE VIEW ★

OBJECTIVES

- Say that a bird’s-eye view is how a thing looks from straight above.
- Draw a cup, a plate and a spoon from the side and then from above.
- Tell that a map is a picture of a place drawn from above, the way a bird sees it.

Warm-up. Lie on the floor beside a kitchen chair and look at it from the side. What do you see? (Legs, a back, a seat.) Now stand on a sturdy step stool, with a grown-up holding your hand, and look straight down at the chair. What do you see now? Can you still see all four legs? You just saw the chair the way a bird would.

Video. Coming soon. Short (under 8 minutes) kid-friendly bird’s-eye or drone footage of a town, farm or park, and a gentle animation on “what is a map”; search Smithsonian, NASA (earth from above), Homeschool Pop (Alternate), and Brightly Storytime-style read-alouds of *Me on the Map* by Joan Sweeney (candidate, needs vetting).

KEY TERMS

bird’s-eye view

How something looks from high above, the way a bird flying over sees it.

side view

How something looks when you stand or sit beside it.

map

A picture of a place drawn from above.

CORE IDEAS

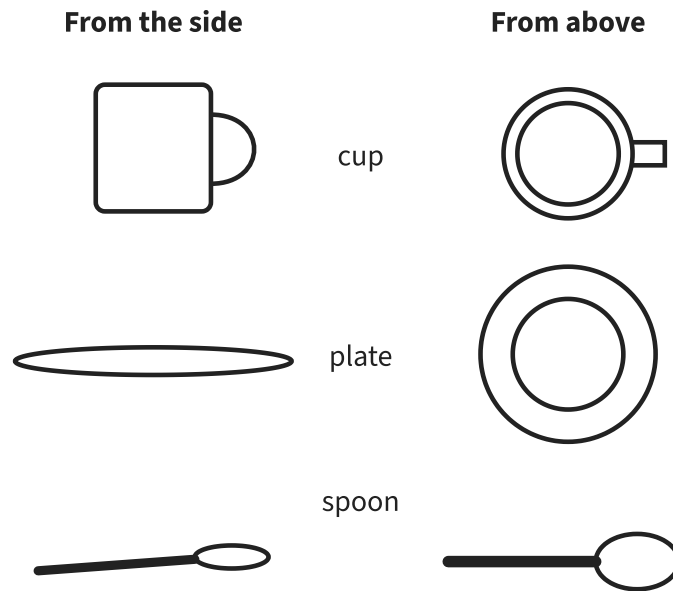
The story. A long time ago, in October 1860, a man named James Wallace Black climbed into the basket of a big balloon in Boston. Mr. Black was a photographer. He took pictures with a camera. A balloon pilot named Samuel King went with him. Up, up, up they floated, higher than the church towers. Mr. Black pointed his camera down and took a picture of the city below. The picture was named “Boston, as the Eagle and the Wild Goose See It.” It is one of the oldest photographs taken from the sky that we can still look at today.

How it worked. On the ground, people saw Boston from the side. They saw the fronts of houses and the doors of shops. But from the balloon, Mr. Black saw the *tops* of things. He saw roofs instead of doors. He saw streets as long, thin lines between the houses. He saw what a bird sees. We call this a **bird’s-eye view**.

The big idea. Things look different from the side and from above. Hold up a cup and look at it from the side. You see a tall shape with a handle. Now look straight down into it. You see a circle! A plate from the side is a thin, flat line. From above, it is a big round circle. A spoon

from the side is a long, thin stick. From above, you see its round bowl and its long handle. A bird flying over your table would see circles and ovals, not tall shapes.

On the map. A **map** is a picture drawn from above, the way a bird sees. Mapmakers pretend they are birds high in the air. When you draw your table from above, you are making your very first map. And remember, God sees the whole earth from above, every home and every child in it. The Bible says, “The LORD looketh from heaven; he beholdeth all the sons of men” (Psalm 33:13).



The same three things from the side (left) and from above (right). From above, the cup and the plate become circles.

PICTURE STUDY



Boston, as the Eagle and the Wild Goose See It, James Wallace Black, 1860 · Albumen silver print from a glass negative (photograph) · The Metropolitan Museum of Art, New York

James Wallace Black took this photograph from a balloon floating over Boston in 1860. It is one of the oldest photographs taken from the air that still exists. The picture is named after two birds, because before balloons, only eagles and geese could see Boston this way.

Look closely

- Find the roofs. Do you see any front doors? Why not?
- Find a street. What does a street look like from way up high?
- Find the tallest building you can see.
- Put your finger on a spot where you think a bird could land.

Talk about it

1. If you were a bird flying over our house, what would you see?
2. Why do you think the picture is named after an eagle and a goose?

PROJECT: FROM THE SIDE, FROM ABOVE

Your child will draw three table things two ways: first from the side, then from straight above. Then you will trace around each one to see its from-above shape. The child does not need to read or write; the grown-up can write any words the child says.

You will need

- A cup or mug with a handle
- A small plate

- A spoon
- Two sheets of paper
- Crayons or a pencil
- A sturdy step stool or chair (with a grown-up beside the child)

Steps

1. Set the cup, the plate and the spoon on the table.
2. Have your child kneel so their eyes are level with the tabletop and look at the three things from the side.
3. On the first sheet, your child draws each thing from the side. Ask, “What shape is the plate from here?”
4. Now your child stands on the step stool (hold their hand) and looks straight down. Ask, “What shapes do you see now?”
5. On the second sheet, your child draws each thing from above.
6. Lay the plate on a clean sheet and trace around it with a crayon. Trace around the bottom of the cup. Lay the spoon flat and trace it too. These tracings are true from-above shapes!
7. Put the side drawings and the from-above drawings next to each other. Ask, “Which one is like a map?”

Tips

- Young children often keep drawing the side view while looking down. Ask, “Do you see the cup standing tall, or do you see a circle?”
- Praise every honest try. This is a brand-new way of seeing.

Check your work

- I can say what a bird’s-eye view is.
- I can draw a circle for the top of a cup and a plate.
- I can point to the drawing that was made from above.

MAP NOTEBOOK

1. Draw a bird flying over our table.
2. Draw your favorite toy the way a bird would see it from above.
3. Draw a cookie and a glass of milk from above. Your grown-up can write the names.

From history. Mr. Black was not the very first person to take a picture from a balloon. In 1858 a French photographer who called himself Nadar took a picture from a balloon above a village near Paris. Sadly, Nadar’s first balloon pictures were lost, so Mr. Black’s picture of Boston is one of the oldest air photographs we can still see.

WORKED EXAMPLES

Example 1. Look at the picture. Which drawing shows the plate from above?

(Use the map or drawing “Side views on the left, bird’s-eye views on the right.” shown earlier in this lesson.)

1. Find the word “plate” in the middle row.
2. On the left is a thin, flat shape. That is the plate seen from the side.
3. On the right is a big circle with a smaller circle inside. That is the plate seen from straight above.

Answer: The big circle on the right shows the plate from above.

PRACTICE

1. **EASY** If a bird flew over a ball, what shape would it see?
2. **EASY** A grown-up sets 3 cups on the table. Look down from above. How many circles do you see? Point and count.
3. **EASY** Draw a cookie from above.
4. **MEDIUM** Look at the top of a closed box from above. Is it a circle or a square?
5. **MEDIUM** Is a map drawn from the side or from above?

COMMON MISTAKES

- Drawing the cup’s handle standing up in the from-above picture. From above, the handle is just a little bump on the side of the circle.
- Thinking a bird’s-eye view is a picture of a bird. It is a picture of what a bird sees.
- Looking from a slant instead of straight down. Stand right over the thing and look down.

Make it a game • I Spy from the Sky. The grown-up says, “I spy from the sky something that is a circle with a little bump on its side.” The child looks around the table and guesses (a cup!). Then the child gives a from-above clue and the grown-up guesses. Try a plate, a bowl, a book, a spoon and a shoe. Take turns until each player has guessed five things.

Scripture. “The LORD looketh from heaven; he beholdeth all the sons of men.” (Psalm 33:13, KJV)

A bird sees one town from above. God sees the whole earth and every person in it, and He knows each one of us by name.

Practice answers

1. A circle.
2. 3 circles, one for each cup.
3. A circle (chocolate chips can be dots inside it).
4. A square or a rectangle (a box shape with four corners).
5. From above, the way a bird sees.

1.2 A MAP OF MY ROOM ★

OBJECTIVES

- Draw a map of my room from above, with the bed, the door and the window in the right places.
- Use a map with an X to find a hidden toy.
- Tell that a geographer is a person who studies the earth and makes maps.

Warm-up. Stand in the doorway of your bedroom and close your eyes. Point to the bed. Point to the window. Now open your eyes and check. Were you right? You already carry a map of your room inside your head!

Video. Coming soon. A read-aloud (under 8 minutes) of *Me on the Map* by Joan Sweeney or another picture book about making a map of a room, plus a short kid-friendly animation on treasure maps and “X marks the spot”; search Homeschool Pop (Alternate), Smithsonian, and Brightly Storytime-style read-alouds (candidate, needs vetting).

KEY TERMS

geographer

A person who studies the earth and its places and makes maps.

room map

A drawing of a room from above, as if the roof were lifted off.

symbol

A little mark on a map that stands for something real, like an X for a hidden treasure.

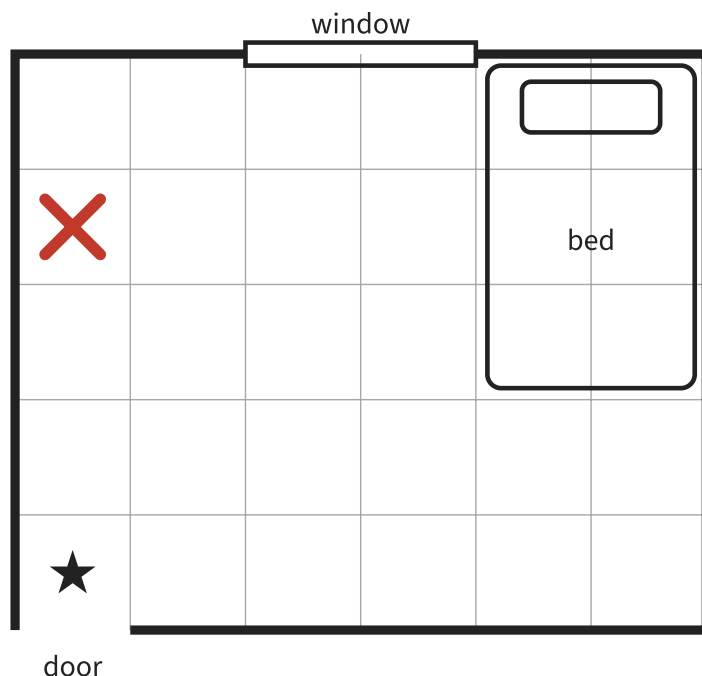
CORE IDEAS

The story. About 350 years ago, in the Dutch town of Delft, a painter named Johannes Vermeer painted a man at work in his room. The man is a **geographer**, a person who studies the earth and makes maps. Light pours in through the window. A map lies on his table. A globe sits on top of a cupboard, and a big sea map hangs on the wall. He holds a measuring tool in his hand and looks up, thinking. Vermeer finished the painting in 1669.

How it worked. In Vermeer’s day, Dutch mapmakers drew maps of coasts and seas so that sailors could find their way across the world. But every mapmaker begins the same way you will. He looks carefully at where things are. What is next to what? What is near the door? What is by the window? Then he draws it all from above.

The big idea. A map of a room is the room seen from above, as if a giant lifted the roof off and peeked in. The bed becomes a long box shape. A rug becomes a square or a circle. The door is a gap in the wall. The window is a line on the wall. A good map keeps things in their right places. If the bed is by the window in your room, it is by the window on your map too.

On the map. A map helps you find things. If you hide a toy and mark its place with an X, someone else can use your map to find it. That is a treasure map! The X is a **symbol**, a little mark that stands for something real. Your bedroom is a good gift from God, a safe place to rest. The Bible says, “I will both lay me down in peace, and sleep: for thou, LORD, only makest me dwell in safety” (Psalm 4:8).



A room map from above. The door is a gap in the wall, the window is a thin box on the wall, and the X marks a hidden toy.

PICTURE STUDY



The Geographer, Johannes Vermeer, 1669 · Oil on canvas · Städel Museum, Frankfurt am Main, Germany

Johannes Vermeer lived in Delft, a town in the Netherlands, and he loved to paint quiet rooms filled with soft window light. In this painting a geographer is busy with his maps. He has stopped for a moment to look out the window and think.

In Vermeer's time the Dutch were famous for making maps, globes and sea charts. Look how many map things this man keeps in one small room!

Look closely

- Find the window. Where is the light coming from?
- Find the globe on top of the cupboard. It is a little model of the whole earth.
- Find the map hanging on the wall.
- Find the tool in the man's hand. It is used to measure distances on a map.

Talk about it

1. What do you think the geographer is thinking about?
2. If we lifted the roof off his room and looked down like a bird, what would we see?
Where would the table be? Where would the window be?

PROJECT: TREASURE MAP OF MY ROOM

Your child will draw a bird's-eye map of their own bedroom and then use it to find a hidden toy. This map is the unit's main map: a map of my room with a treasure X.

You will need

- A large sheet of paper
- Crayons, with a red one for the X
- A small toy to hide
- A clipboard or a book to draw on

Steps

1. Stand together in the bedroom doorway and look around. Name the big things: bed, door, window, dresser, rug.
2. The grown-up draws a big box on the paper for the walls. Say, "This is our room from above, with the roof lifted off."
3. Your child marks the door as a gap in the wall on the same side as the real door.
4. Your child draws the window as a thin box on the wall where the real window is.
5. Your child draws the bed from above as a long box shape, against the same wall as the real bed. Add one or two more things, like a rug or a toy box.
6. Turn the map so the door on the paper points toward the real door. Now the map and the room match.
7. The child leaves the room. The grown-up hides the toy and draws a red X on the map where it is hidden.

8. The child uses the map to find the treasure. Then switch: the child hides the toy and marks the X, and the grown-up hunts.

Tips

- Keep it simple. Four or five things on the map are plenty for a five-year-old.
- If your child is stuck, stand in the room holding the map and ask, “Is the bed closer to the window or to the door?”
- Save this map. It goes into the shoebox room project at the end of the unit.

Check your work

- I can draw my bed, door and window from above.
- I can put things on my map in the right places.
- I can use an X on a map to find a hidden toy.

MAP NOTEBOOK

1. Draw your bed from above. Then draw your pillow on it.
2. Draw the geographer’s globe from Vermeer’s painting.
3. Draw a treasure X and a toy you would like to hide next time.

From history. Around the same time, Vermeer painted another picture called *The Astronomer*. It looks almost like a twin of *The Geographer*: a man in a long robe sits in a bright room by a window. But the astronomer studies a globe of the stars in the sky, while the geographer studies maps of the earth. Many people think the same man posed for both paintings.

WORKED EXAMPLES

Example 1. On the room map, start at the star by the door. Count the squares you move to reach the X.

(Use the map or drawing “Count the squares from the star to the X.” shown earlier in this lesson.)

1. Put your finger on the star. That is the starting square, so we do not count it.
2. Move your finger up one square: 1.
3. Move up again: 2.
4. Move up once more and you land on the X: 3.

Answer: 3 squares from the star to the X.

PRACTICE

1. **EASY** Point to the bed on your map. Now point to the real bed.
2. **EASY** Look at the room map picture. Is the bed near the window or near the door?

(Use the map or drawing “Where is the bed?” shown earlier in this lesson.)

3. **EASY** What does the X mean on a treasure map?
4. **MEDIUM** How many windows are in your room? Count them. Does your map have the same number?
5. **MEDIUM** Draw a rug from above.

COMMON MISTAKES

- Drawing the bed from the side, with legs. From above, a bed is a long box shape with a pillow at one end.
- Putting things on the wrong wall. Stand in the room and check each thing before drawing it.
- Holding the map turned the wrong way. Turn the map until the door on the paper points to the real door.

Make it a game · Hot and Cold Treasure Hunt. Hide a toy and give your child the map with the X. As they walk, say “warm” when they get closer and “cold” when they move away. When they find it, they get to hide it for you. For a harder round, hide two toys and draw two X’s.

Scripture. “I will both lay me down in peace, and sleep: for thou, LORD, only makest me dwell in safety.” (Psalm 4:8, KJV)

Your room is the place where you rest each night. God watches over you there, and He keeps you safe.

Practice answers

1. The child points to the bed on the map and then to the bed in the room.
2. Near the window.
3. The X shows where the treasure is hidden.
4. Answers vary. The number on the map should match the number in the real room.
5. A square, a rectangle or a circle, flat with no sides showing.

1.3 MY HOUSE AND YARD

OBJECTIVES

- Walk through my house and name the rooms in order.
- Lay out a floor map of my house on the floor with paper and blocks.
- Tell that a surveyor measures land and draws it on a map, as young George Washington did.

Warm-up. Stand at the front door. Close your eyes and say which room you would walk into first, then next, then next. Now open your eyes and walk it. Did you remember the way?

Video. Coming soon. A short (under 8 minutes) kid-friendly video showing a floor plan or a dollhouse seen from above, and a simple animation or tour of George Washington's Mount Vernon; search Smithsonian, Homeschool Pop (Alternate), Library of Congress, and Brightly Storytime-style read-alouds of a picture book about maps of a house (candidate, needs vetting).

KEY TERMS

surveyor

A person whose job is to measure land and draw it on a map.

floor plan

A map of a house from above that shows where each room is.

yard

The land right around a house, where you can play or plant a garden.

CORE IDEAS

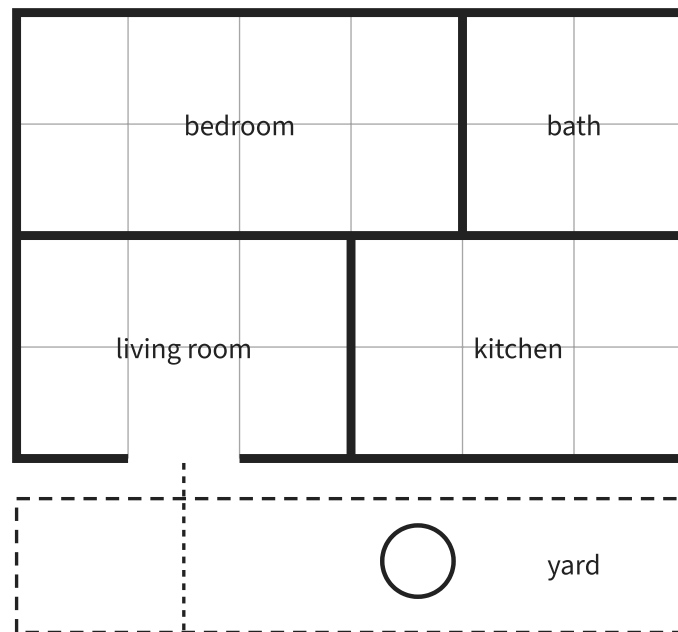
The story. When George Washington was a boy in Virginia, he learned how to measure land. In 1748, when he was just 16 years old, he rode with a group of men over the mountains to measure fields and forests and draw maps of them. He slept outdoors and cooked by the campfire. The next year he became a real **surveyor**, a person whose job is to measure land and draw it on a map.

How it worked. A surveyor walks the land. He measures how long each side of a field is. He notes where the creek runs and where the big trees stand. Then he sits down and draws it all from above, small enough to fit on a sheet of paper. When Washington grew up, he lived on a farm called Mount Vernon, and he drew maps of his own fields. Another Virginian, Thomas Jefferson, drew the plans for his own house, Monticello, with his own pen.

The big idea. A map of a house is called a **floor plan**. It shows each room from above, as if a bird looked down on a house with no roof. The rooms sit side by side the way they really

do. The kitchen may be next to the living room. The bedrooms may be down the hall. Big rooms are drawn big, and small rooms are drawn small. The **yard** goes around the outside.

On the map. To map your house, do what Washington did: walk it, count it, then draw it. Walk from the front door to each room and count your steps. Then use sheets of paper for rooms and blocks for walls, and lay out your whole house on the floor. A house is more than walls. It is where a family lives, works and prays together. Joshua said, “as for me and my house, we will serve the LORD” (Joshua 24:15).



A floor plan shows the rooms of a house from above. Count the squares to see which rooms are big and which are small.

PICTURE STUDY



The Courtyard of a House in Delft, Pieter de Hooch, 1658 · Oil on canvas · The National Gallery, London

Pieter de Hooch lived in Delft, the same town as Vermeer. He loved to paint the homes and yards of ordinary Dutch families. In this painting we stand in a small paved yard behind a house. A passage runs straight through the house to the street in front.

Look closely

- Find the bricks on the ground. Can you see the pattern they make?
- Find the little girl. Who is with her?
- Find the dark passage. Who is standing at the end of it, and what is she looking at?
- Find something green growing in the yard.

Talk about it

1. If you were a bird looking down on this yard, what shape would it be?
2. How is this yard like our yard? How is it different?

Safety first. Walk the yard together with a grown-up. Stay away from the street, from a driveway where cars move, from pools or ponds, and from garden tools.

PROJECT: PAPER ROOMS ON THE FLOOR

Your child will walk the house like a little surveyor, then build a giant floor plan on the floor with sheets of paper for rooms and blocks for walls.

You will need

- Sheets of paper or newspaper, one for each room (bigger sheets for bigger rooms)
- Crayons
- Building blocks or books for walls
- A green towel or green paper for the yard
- A small toy person

Steps

1. Start at the front door. Walk to each room and count your steps out loud together.
2. In each room, ask: “Is this room big or small? Which room is next door?”
3. Back in an open space, the child draws a picture on each sheet to show the room: a bed for a bedroom, a pot for the kitchen, a tub for the bath. The grown-up can write the names.
4. Lay the sheets on the floor in the same order as the real rooms, starting with the room by the front door.
5. Use bigger sheets for bigger rooms. Fold a sheet smaller for a little room like a bathroom.
6. Build the walls with blocks along the edges. Leave gaps for doors.
7. Spread the green towel outside the house for the yard. Add a block tree or a paper garden.
8. Walk the toy person from the front door to the kitchen, then to the bedroom, saying the room names on the way.

Tips

- A one-floor plan is plenty. If you have stairs, map only the main floor or let the child pick one floor.
- Take a photo of the floor map from above, standing on a chair. Show your child the photo: it is a bird’s-eye view of their map!

Check your work

- I can name the rooms in my house in order.
- I can lay out my house with paper rooms and block walls.
- I can show which room is bigger and which is smaller.

MAP NOTEBOOK

1. Draw the front of your house from the side, with the door and windows.
2. Draw the top of your house from above, the way a bird sees the roof.
3. Draw your yard from above, with a tree, a path or a garden.

From history. In George Washington’s day, surveyors measured land with a metal chain 66 feet long, made of 100 links. Two men carried the chain. One held the front end and

walked ahead until the chain was stretched tight, and then they counted one chain and did it again, over hills and through the woods.

WORKED EXAMPLES

Example 1. Look at the floor plan. Which room is bigger, the bedroom or the bath? Count the squares to find out.

(Use the map or drawing “Count the squares in the bedroom and in the bath.” shown earlier in this lesson.)

1. Find the bedroom. Count its squares, row by row: 4 on top and 4 on the bottom, 8 in all.
2. Find the bath. Count its squares: 2 on top and 2 on the bottom, 4 in all.
3. 8 is more than 4.

Answer: The bedroom is bigger: it has 8 squares and the bath has 4.

PRACTICE

1. **EASY** Walk from our front door to the kitchen. How many steps did you take?
2. **EASY** Look at the floor plan. Point to the kitchen. Count its squares.
(Use the map or drawing “Find the kitchen.” shown earlier in this lesson.)
3. **EASY** On the floor plan, point to the front door. Which room does it open into?
4. **MEDIUM** On the floor plan, which room is right next to the bedroom, on the same side of the house?
5. **MEDIUM** Name the room in our house where we cook. Is it big or small?

COMMON MISTAKES

- Putting the rooms in any order. Walk the house again and place each room next to the room it touches.
- Making every room the same size. Big rooms get big paper, and small rooms get small paper.
- Forgetting the doors. Leave a gap in the block walls wherever there is a doorway.

Make it a game • Which Room Am I In? The grown-up moves the toy person to a paper room on the floor map and gives a clue: “I am in the room where we take a bath.” The child points to the room. Then the child moves the toy and gives the clue. Play until every room has been visited once.

Scripture. “but as for me and my house, we will serve the LORD.” (Joshua 24:15, KJV)

A house is where a family lives together. Joshua wanted his whole household to love and serve God.

Practice answers

1. Answers vary. Count together out loud.
2. 6 squares.
3. The gap in the bottom wall; it opens into the living room.
4. The bath.
5. The kitchen. Big or small depends on your house.

1.4 MY ADDRESS

OBJECTIVES

- Say my house number and street, my town and my state.
- Tell that an address tells the mail where to go, from small to big: house, street, town, state.
- Mail a letter to grandparents and watch the address do its job.

Warm-up. Look at a real envelope that came in the mail. Point to the stamp. Point to the name. Your grown-up reads the address out loud. Is that our house? How did the letter know to come here?

Video. Coming soon. A short (under 8 minutes) kid-friendly video following a letter from the mailbox to the post office to a home, and a read-aloud of *Me on the Map* by Joan Sweeney (house, street, town, state, country); search Smithsonian (National Postal Museum), Homeschool Pop (Alternate: community helpers), and Brightly Storytime-style read-alouds (candidate, needs vetting).

KEY TERMS

address

The words and numbers that tell exactly where a house is, so mail and visitors can find it.

street

A road with houses or stores along it. Each street has a name.

town

A place where many families live near one another. A big town is called a city.

state

A big part of our country with many towns in it. Our country has 50 states.

CORE IDEAS

The story. In 1775, when America was just becoming a country, its leaders chose Benjamin Franklin to be the first Postmaster General. That means he was in charge of the mail. Franklin already knew a lot about mail. For years he had worked to make letters travel faster from town to town, and he had traveled the roads himself to see how the mail was carried.

How it worked. A letter cannot think. It does not know where to go! So we write an **address** on it: the name of the person, the house number, the **street**, the **town** and the **state**. Every mail worker who picks up the letter reads the address and sends it a little closer, like passing a ball down a line of friends. In 1963 the post office added ZIP codes, a number at the end of the address that helps sort the letters even faster.

The big idea. Your address is like a set of boxes, one inside the other. Your house is on a street. Your street is in a town. Your town is in a state. Your state is in our country. Say it from small to big: my house, my street, my town, my state, my country. Every family has its own address, and no two houses have exactly the same one.

On the map. An address tells exactly where on the map you live. God made the whole earth, and He has given each family a place to live in it. The Bible says God “hath determined the times before appointed, and the bounds of their habitation” (Acts 17:26). Learn your address well. Tell it only to grown-ups you trust, like your family, your teacher or a police officer if you are ever lost.

The diagram shows a rectangular envelope with a black border. In the top left corner, there are three horizontal lines for writing, with the text "my address" below them. In the top right corner, there is a red square box labeled "stamp". In the center of the envelope, there are three horizontal lines for writing, with the text "name" above the first line, "house number and street" above the second line, and "town, state, ZIP code" above the third line.

Where things go on an envelope: the stamp in the top right corner, our own address in the top left, and the address of the person we are writing to in the middle.

PICTURE STUDY



Woman Writing a Letter, Gerard ter Borch, about 1655 · Oil on panel · Mauritshuis, The Hague, the Netherlands

Gerard ter Borch was a Dutch painter who lived at the same time as Vermeer. He liked to paint quiet moments at home. Here a young woman is writing a letter with a feather pen. Long ago, letters were the only way to talk to someone who lived far away.

Look closely

- Find the pen in her hand. It is made from a bird's feather!
- Find the paper. What do you think she is writing?
- Look at her face. Is she in a hurry, or is she taking care?

Talk about it

1. Who do you think will get her letter?
2. Who would you like to send a letter to?

PROJECT: A LETTER TO GRANDMA AND GRANDPA

Your child will make a letter for their grandparents (or another relative or friend who lives at a different address), help address the envelope, and mail it. When a reply or a phone call comes, your child will see that the address did its job.

You will need

- Paper and crayons
- An envelope
- A postage stamp

- The grandparents' full address
- Stickers (optional)

Steps

1. Your child draws a picture for the grandparents: our house, our family or a favorite toy.
2. Your child says a short message out loud, and the grown-up writes it down. Your child can "sign" with a drawing or the first letter of their name.
3. Fold the letter and put it in the envelope.
4. The grown-up writes the grandparents' address in the middle of the envelope while the child watches. Read each line aloud: name, house number and street, town, state and ZIP code.
5. Now write our own address in the top left corner. Your child says each part as you write it: house number and street, town, state.
6. Your child sticks the stamp in the top right corner.
7. Walk together to the mailbox or the post office and mail the letter.
8. Mark the day on the calendar. When the grandparents call or write back, count how many days the letter took.

Tips

- Practice the address with a little tune (see the game below). Many children learn it fastest by singing.
- If you can, show the grandparents' town and your town on a map or a phone map, so the child can see the letter's trip.

Check your work

- I can say my street, my town and my state.
- I can show where the stamp goes on an envelope.
- I can tell how a letter knows where to go.

MAP NOTEBOOK

1. Draw your house with its house number on the door. Your grown-up can help with the number.
2. Draw a mail carrier bringing a letter to your house.
3. Draw four boxes, one inside another. Your grown-up writes "house," "street," "town" and "state" as you say them.

From history. ZIP codes began in the United States in 1963. ZIP stands for Zone Improvement Plan. To help people remember to use them, the post office made a cheerful cartoon mail carrier named Mr. ZIP.

WORKED EXAMPLES

Example 1. Look at the envelope picture. Where does the stamp go?

(Use the map or drawing “Find the stamp box.” shown earlier in this lesson.)

1. Find the top of the envelope.
2. Look at the right side.
3. The small box in the top right corner is where the stamp goes.

Answer: The stamp goes in the top right corner.

PRACTICE

1. **EASY** What is the name of our street? Say it out loud.
2. **EASY** What town do we live in? What state?
3. **EASY** Look at the envelope picture. Count the lines in the middle address.
(Use the map or drawing “Count the address lines.” shown earlier in this lesson.)
4. **MEDIUM** Which is bigger, our town or our state?
5. **MEDIUM** Put these in order from small to big: town, house, state, street.

COMMON MISTAKES

- Mixing up the town and the state. The town is the smaller place; the state is the big place with many towns in it.
- Putting the stamp in the wrong corner. The stamp always goes in the top right corner.
- Telling our address to anyone who asks. Share it only with grown-ups you trust.

Make it a game • The Address Song. Sing your address to the tune of “Frère Jacques” or “Mary Had a Little Lamb”: first the house number and street, then the town, then the state. Sing it once a day this week. On Friday, the child sings it alone for a family member and earns a sticker for the envelope of the next letter.

Scripture. “And hath made of one blood all nations of men for to dwell on all the face of the earth, and hath determined the times before appointed, and the bounds of their habitation;” (Acts 17:26, KJV)

God made all people, and He has given each family a home on the earth. Our address names the place where God has set us to live.

Practice answers

1. Your child says your street name.
2. Your child says your town and your state.
3. 3 lines.

4. Our state. Our town is inside our state.

5. House, street, town, state.

UNIT 1 REVIEW

Read each question aloud. Your child answers by saying, pointing or drawing. No reading or writing is needed. The review is worth 20 points.

1. (3 pts) What is a bird's-eye view?
2. (3 pts) Draw a plate from above.
3. (3 pts) On a map of a room, how do we show the door?
4. (3 pts) Show the room map from Lesson 1.2. Start at the star and count the squares to the X.
5. (3 pts) Show the floor plan from Lesson 1.3. Which room is bigger, the bedroom or the bath?
6. (3 pts) Say our street, our town and our state.
7. (2 pts) Point to where the stamp goes on an envelope.

UNIT PROJECT: MY SHOEBOX ROOM WITH A LID MAP

Turn a shoebox into a little model of your bedroom. Stand the box on its side or lay it open, and inside it build your room: a bed from a small box or folded card, a rug from a scrap of cloth, a window drawn on the wall and a door cut as a gap. Then, on the inside of the lid, draw a bird's-eye map of the same room, with a red treasure X where a tiny toy is hidden in the box. Show a family member how the map on the lid matches the room in the box, and let them use the map to find the treasure. Keep your treasure map from Lesson 1.2 and your letter-mailing day in the portfolio too.

- **Seeing from above:** The lid map shows the room from above: the bed is a box shape, the door is a gap and the window is a line on the wall.
- **Right places:** The bed, door and window are in the same places on the lid map as in the shoebox room and the real room.
- **Treasure X:** The X on the map leads a family member to the hidden toy.
- **Telling about it:** The child explains the map out loud and can say their street, town and state.

Answer key

1. How something looks from high above, the way a bird sees it.
2. A circle (often with a smaller circle inside).
3. As a gap (an opening) in the wall.
4. 3 squares.
5. The bedroom (8 squares; the bath has 4).
6. Your child says your street, town and state correctly.
7. The top right corner.

THE GLOBE: LAND AND WATER

In Unit 1 your child learned to look down on the world like a bird and draw a map of a room. Now we fly much higher, all the way into space, and look back at the whole earth. Astronauts on *Apollo 8* and *Apollo 17* took pictures that show what God made: one **round** world, mostly blue with **water**, with green and brown **land**, white clouds and white ice. “In the beginning God created the heaven and the earth” (Genesis 1:1), and He gathered the waters together and let the dry land appear (Genesis 1:9–10).

Your child will spin a globe and count how often a finger lands on water, build a play-dough earth that is seven parts blue and three parts green, peel an orange to discover why flat maps stretch and tear, and visit the cold North and South Poles, where polar bears and penguins live at opposite ends of the world. Everything is said, pointed to, built or drawn; no reading is needed from the child.

BEFORE YOU BEGIN

- Can tell the difference between a ball shape and a flat shape
- Can name the colors blue, green, brown and white
- Can count objects to 10
- Has drawn a bird’s-eye map of a room (Unit 1)

MASTERY CHECKLIST

- I can show that the earth is round like a ball.
- I can point to water and land on a globe and say which there is more of.
- I can tell why an orange peel, or the earth, tears or stretches when it is made flat.
- I can point to the North Pole and the South Pole.
- I can tell where polar bears live and where penguins live.

OPTIONAL BOOKS AND RESOURCES

- **NASA Image and Video Library** (<https://images.nasa.gov/>): Free. Search “Blue Marble” or “Earthrise” to show the real photographs in large size on a screen.
- ***The Blue Marble* on Wikimedia Commons** (https://commons.wikimedia.org/wiki/File:The_Earth_seen_from_Apollo_17.jpg): Free, public domain. Print it in color for the wall and for the picture study in Lesson 2.1.

2.1 OUR ROUND EARTH ★

OBJECTIVES

- Say that the earth is round like a ball, and show it with a ball or an orange.
- Point to water (blue) and land (green and brown) in the *Blue Marble* photograph.
- Tell how astronauts saw the whole earth at once by going very far away.

Warm-up. Hold a big ball very close to your child’s nose. Ask, “Can you see the whole ball?” (No, only a little piece.) Now step back across the room and ask again. (Yes!) Say: “The earth is a giant ball. We live so close to it that we see only a little piece. Today we will see a picture of the whole earth, taken from very far away.”

Video. Coming soon. Short, kid-friendly clips (under 8 minutes) of the earth seen from space and the Apollo 17 Blue Marble photograph: search NASA and NASA Earth Observatory first; SciShow Kids for a simple “Why is the earth round?” video; Homeschool Pop (Alternate); National Geographic Kids (candidate, needs vetting).

KEY TERMS

earth

The great round world God made, where we live.

round

Shaped like a ball, with no corners and no edges to fall off.

land

The dry ground where we can walk, build houses and grow food. In pictures from space it looks green and brown.

water

The seas and oceans. In pictures from space it looks blue.

CORE IDEAS

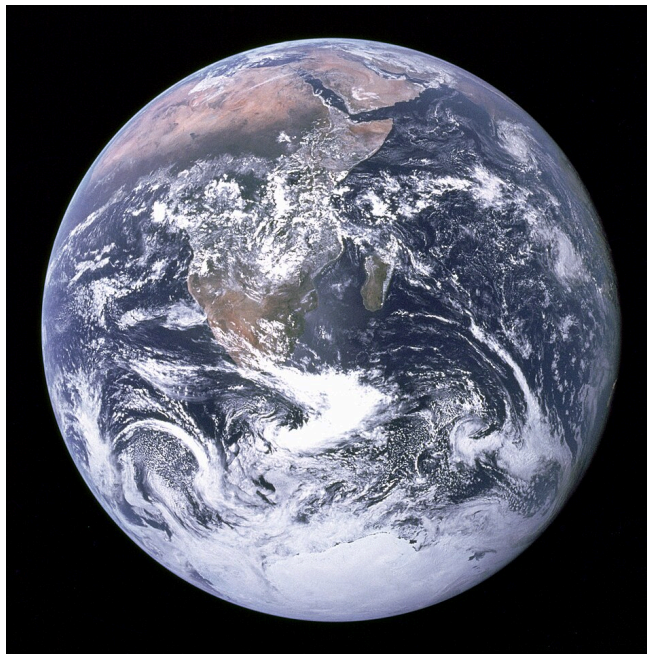
The story. On December 7, 1972, three astronauts rode a giant rocket toward the moon. Their names were Gene Cernan, Ron Evans and Jack Schmitt, and their spaceship was called *Apollo 17*. A few hours after they left, they looked out the window, back toward home. There was the earth, floating in black space. The sun was shining from behind the spaceship, so the whole earth was lit up, like a full moon. Click! One of them took a picture. People call it the *Blue Marble*, because the earth looks like a shiny blue marble.

How they saw it. When we stand in the yard, the earth looks flat. That is because the earth is very, very big, and we are very small. We can only see a little piece at a time, like an ant on a basketball. To see the whole earth at once, the astronauts had to go far away, about 18,000 miles. A car driving day and night without stopping would need almost two weeks to go that far! From there, the whole big earth fit in one small window.

The big idea. The earth is **round**, like a ball. Look at the colors in the picture. **Blue** is water: the great seas and oceans. **Green and brown** are land: forests, grass, deserts and mountains. **White** is clouds, and at the bottom of the picture there is white ice too. Look closely: there is much more blue than green and brown. Most of our earth is covered with water.

God made it. The very first words of the Bible say, “In the beginning God created the heaven and the earth” (Genesis 1:1). Long before anyone flew into space, the prophet Isaiah spoke of God sitting “upon the circle of the earth.” When the astronauts looked out their window, they saw what God had made: one round home for all the people in the world, spinning in the sunshine.

PICTURE STUDY



The Blue Marble, The crew of Apollo 17 (NASA), December 7, 1972 · Color photograph · NASA (photograph AS17-148-22727); public domain

This is one of the most famous photographs ever taken. The *Apollo 17* astronauts took it with a hand-held camera on their way to the moon. Because the sun was behind them, the whole earth was bright, and they could see it as one round ball.

The big land in the middle is Africa. The white at the bottom is the thick ice of Antarctica, near the South Pole. You will learn more about those places later this year.

Look closely

- Point to the blue. That is water. Is there a lot of it?
- Point to the green and brown. That is land. Can you find the big piece of land in the middle?
- Find the white swirls. Those are clouds. Find the white at the very bottom. That is ice.

- Look at the black all around the earth. That is space.

Talk about it

1. Is there more blue or more green and brown in the picture?
2. Why did the astronauts have to go so far away to take this picture?
3. If you could look out the spaceship window, what would you say about the earth God made?

PROJECT: MY BLUE MARBLE PICTURE

Your child makes a picture of the whole earth, the way the astronauts saw it, with torn paper for water and land.

You will need

- A sheet of black paper (or white paper colored black)
- A paper circle about the size of a dinner plate (trace a plate)
- Blue, green and brown paper or tissue paper
- A few cotton balls
- Glue stick

Steps

1. Show the *Blue Marble* picture again. Ask: "What colors do you see?"
2. Glue the paper circle onto the black paper. Say: "The black is space. The circle is our round earth."
3. Tear the blue paper into pieces and glue them on to cover most of the circle. Say: "Most of the earth is water."
4. Tear a few green and brown pieces and glue them on in a few places for land.
5. Pull the cotton balls thin and glue them on for clouds. Put a little white at the bottom for ice.
6. Hold the picture up across the room and have your child say, "This is our round earth. Blue is water. Green and brown are land."

Tips

- Tearing paper is good work for small hands. It does not need to be neat.
- Keep this picture. It can go on the wall for the whole unit.

Check your work

- My child said the earth is round like a ball.
- My child pointed to water and to land and named their colors.
- My child used more blue than green and brown.

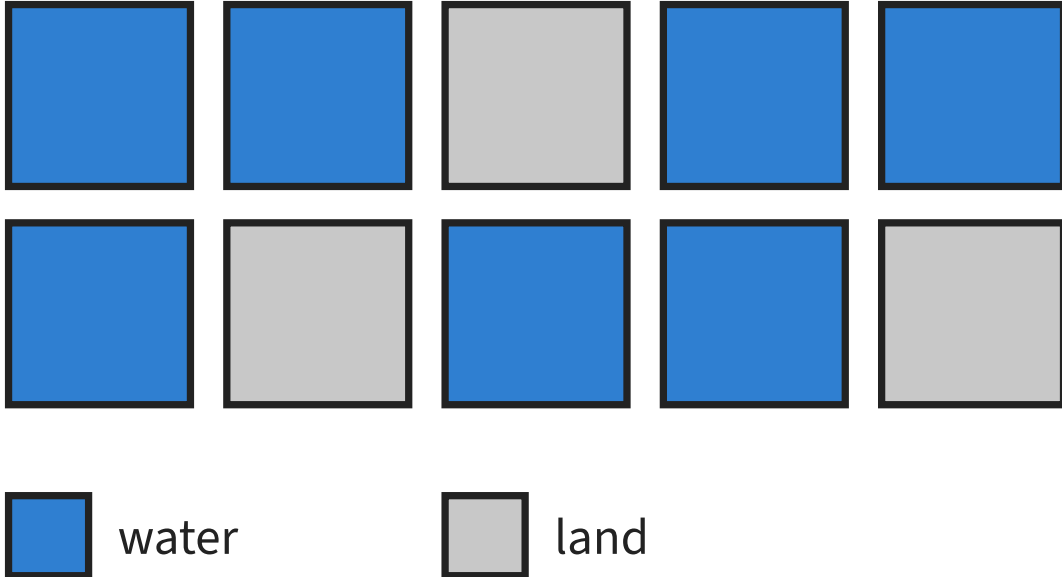
MAP NOTEBOOK

1. Draw a big circle. Color it to look like the earth from space: lots of blue, some green and brown.
2. Draw the rocket and the astronauts looking out the window at the earth.
3. Draw a ball and a plate side by side. Your parent asks, "Which one is the shape of the earth?" Put a smile face by the ball.

From history. Apollo 17 was the last of the Apollo trips to the moon. On that trip Gene Cernan and Jack Schmitt walked on the moon for three days, and Jack Schmitt was a geologist, a scientist who studies rocks and land. The *Blue Marble* photograph became one of the most shared pictures in the world, because it showed so many people what their whole home looks like.

WORKED EXAMPLES

Example 1. Look at the picture of ten squares. Blue squares are water. Gray squares are land. Are there more water squares or more land squares?



Count the blue water squares and the gray land squares.

1. Point to each blue square and count out loud: 1, 2, 3, 4, 5, 6, 7. There are 7 water squares.
2. Point to each gray square and count: 1, 2, 3. There are 3 land squares.
3. Which number is bigger, 7 or 3? 7 is bigger.
4. So there is more water than land, just like on our real earth.

Answer: More water: 7 water squares and 3 land squares.

PRACTICE

1. **EASY** Point to the water in the *Blue Marble* picture. What color is it?
2. **EASY** Point to some land in the picture. What colors is it?
3. **EASY** Is the earth flat like a plate, or round like a ball? Show me with your hands.
4. **MEDIUM** Your parent sets out 5 blue blocks and 2 green blocks. Count each group. Which group has more?
5. **MEDIUM** Why could the astronauts see the whole round earth, when we can only see a little piece?

COMMON MISTAKES

- Thinking the earth is flat because the yard looks flat. Use the ant on a basketball: the ant also thinks its ball is flat.
- Mixing up “round like a plate” and “round like a ball.” The earth is round like a ball, all the way around.
- Calling the white parts water. White is clouds or ice; blue is water.

Make it a game • Splash or Stomp. Your parent names a thing: a fish, a cow, a boat, a tree, a whale, a car, a duck. If it belongs in the water, make swimming arms and say “Splash!” If it belongs on land, stomp your feet and say “Stomp!” A duck can do both, so you may splash and stomp. Then trade places and let your child name things for the parent.

Scripture. “It is he that sitteth upon the circle of the earth, and the inhabitants thereof are as grasshoppers; that stretcheth out the heavens as a curtain, and spreadeth them out as a tent to dwell in:” (Isaiah 40:22, KJV)

The earth is very big to us, but God is greater still. To Him, all the people on the earth are as small as grasshoppers, and He cares for every one.

Practice answers

1. Blue.
2. Green and brown.
3. Round like a ball (hands make a ball shape).
4. 5 blue and 2 green. The blue group has more.
5. They were very far away from it.

2.2 A GLOBE IS A SMALL EARTH

OBJECTIVES

- Say that a globe is a small, round model of the earth.
- Point to land and water on a globe and show that there is more water than land.
- Spin a globe ten times, keep a tally of water and land, and count the marks.

Warm-up. Set a toy car next to a real car, or a doll house next to your own house (or show a picture). Ask: “Is the toy the same as the real thing? How is it the same? How is it different?” Say: “A toy car is a small car. Today we will meet a small earth. It is called a globe.”

Video. Coming soon. Kid-friendly videos under 8 minutes: NASA footage of the Apollo 8 Earthrise and the earth turning in space; a simple “What is a globe?” video from Homeschool Pop (Alternate) or Learn Bright; National Geographic Kids or Free School (candidates, need vetting).

KEY TERMS

globe

A small, round model of the earth that sits on a stand and can spin.

ocean

A very big body of salty water. On a globe the oceans are blue.

continent

One of the very big pieces of land on the earth. We live on one of them.

CORE IDEAS

The story. On Christmas Eve, December 24, 1968, three men in the spaceship *Apollo 8* were flying around the moon. Their names were Frank Borman, Jim Lovell and Bill Anders. They were the first people ever to go around the moon. As they came around, Bill Anders saw something wonderful: the earth was rising over the gray edge of the moon, blue and white and round. He grabbed his camera and took a picture. We call it *Earthrise*. That night the three men read the first words of the Bible to the people back home: “In the beginning God created the heaven and the earth.” Frank Borman read the part where God gathered the waters together and made the dry land appear.

How it works. We cannot all fly to the moon to see the round earth. But we can look at a **globe**. A globe is a small earth. It is round, like the real earth, and it sits on a stand so it can spin. The whole world fits on your table! The blue parts are water. The other colors are land. The biggest blue parts are called **oceans**, and the biggest pieces of land are called **continents**.

The big idea. Spin the globe slowly and look. Blue, blue, blue, then some land, then more blue! There is much more water than land on the earth. If you split the earth into 10 equal parts, about 7 parts would be water and only about 3 would be land. That is why, when you spin a globe and stop it with your finger, your finger lands on water most of the time.

On the map. Ask your parent to show you where your home is on the globe. It is too small to see your house, but you can find the land you live on. Now follow the blue with your finger. The oceans all flow into one another, all the way around the world, just as God gathered the waters “unto one place.”

PICTURE STUDY



Earthrise, William Anders (NASA, Apollo 8), December 24, 1968 · Color photograph · NASA (photograph AS08-14-2383); public domain

Bill Anders took this picture through the window of *Apollo 8* while the spaceship flew around the moon. The gray ground in front is the moon. The blue and white ball far away is our earth.

Only half of the earth is bright, because the sun was shining on just one side of it. On the dark side, it was nighttime for the people living there.

Look closely

- Find the moon. What color is it? Do you see any water on the moon?
- Find the earth. What colors can you see on it?
- Look at the shape of the earth. Is it round, like a ball?
- Why is part of the earth dark? (It is night there.)

Talk about it

1. How is the earth different from the moon?
2. If you were in the spaceship, what would you say when you saw the earth rise?
3. How is a globe like the earth in this picture?

PROJECT: A PLAY-DOUGH GLOBE

Your child builds a small earth from play dough, using seven parts blue for water and three parts green for land, just like the real earth.

You will need

- Blue play dough and green play dough (brown too, if you have it)
- A tray or plate to work on
- A real globe or a picture of one, to look at

Steps

1. Roll 10 small balls of dough, all about the same size: 7 blue and 3 green. Count them together.
2. Ask: "Are there more blue balls or more green balls?" (Blue: 7 is more than 3.)
3. Squish all 7 blue balls together and roll them into one big round ball. That is the water.
4. Flatten the 3 green balls into lumpy pancakes. Press them onto the blue ball in a few places. That is the land.
5. Turn your dough globe slowly in your hands. Is there more blue or more green showing?
6. Set it next to the real globe and say, "My globe is a small earth."

Tips

- The land shapes do not need to look like real continents. The goal is "mostly water, some land."
- Some families like to give the dough globe a toothpick and spin it like a real globe.

Check your work

- My child counted 7 blue and 3 green.
- My child said a globe is a small earth.
- My child said there is more water than land.

MAP NOTEBOOK

1. Color a simple world outline map (your parent can print or trace one): color the water blue and the land green.
2. Draw the *Earthrise* picture: a gray moon at the bottom and a round blue earth above it.
3. Draw your globe on its stand and put a dot where your parent says you live.

From history. The *Apollo 8* men were the first people ever to see the far side of the moon with their own eyes. Bill Anders later said, in so many words, that they went all that way to explore the moon, and what they discovered was the earth. Their Christmas Eve reading of Genesis was heard by a huge number of people around the world.

WORKED EXAMPLES

Example 1. Sam spun his globe 10 times and stopped it with his finger. Each time, his mom made a mark for water or for land. Look at the tally marks. How many times did Sam land on water? On land? Which was more?

Water



Land



Sam's 10 spins: count the marks in each row.

1. Count the water marks. The tied bundle is 5. Then count on: 6, 7. Sam landed on water 7 times.
2. Count the land marks: 1, 2, 3. Sam landed on land 3 times.
3. 7 is more than 3, so Sam landed on water more often.
4. That makes sense, because most of the earth is water.

Answer: Water 7 times, land 3 times. Water was more.

PRACTICE

1. **EASY** Point to some water on the globe. What color is it?
2. **EASY** Point to some land on the globe.
3. **MEDIUM** Spin the globe 10 times and stop it with one finger. Your parent makes a tally mark each time. Count the water marks and the land marks.
4. **EASY** Which is bigger: the globe or the real earth?

5. **MEDIUM** With your parent's help, find the land where you live on the globe. Put your finger on it.

COMMON MISTAKES

- Thinking each blue spot is a different, separate sea. Trace with a finger to show that the oceans all join together.
- Expecting exactly 7 water landings every time. A few spins can come out differently; the more you spin, the closer you get to about 7 of 10.
- Thinking the colors on a globe (pink, yellow, purple land) are the real colors of the land. Those colors only help us tell places apart.

Make it a game · Spin and Splash. Take turns spinning the globe and stopping it with one finger. If your finger lands on water, everyone says "Splash!" and wiggles like a fish. If it lands on land, everyone says "Stomp!" and stomps like an elephant. After 10 spins, count: did you splash more, or stomp more?

Scripture. "And God said, Let the waters under the heaven be gathered together unto one place, and let the dry land appear: and it was so. And God called the dry land Earth; and the gathering together of the waters called he Seas: and God saw that it was good." (Genesis 1:9-10, KJV)

These are the verses Frank Borman read from beside the moon. God made both the land and the seas, and He called them good.

Practice answers

1. Blue.
2. The child points to any continent or island (not blue).
3. Answers will vary. Usually there are more water marks, about 7 out of 10.
4. The real earth. The globe is a small earth.
5. The child points to their home continent (for American families, North America).

2.3 MAKING FLAT FROM ROUND

OBJECTIVES

- Peel an orange and press the peel flat, and tell what happened (it tore and left gaps).
- Say that a flat map is made from the round earth, so it must stretch or have gaps.
- Tell why travelers like flat maps: they fold up and fit in a pocket, a car or a ship.

Warm-up. Set out a ball and a sheet of paper. Ask your child to wrap the paper smoothly around the ball with no wrinkles. (It cannot be done! The paper crinkles and folds.) Then ask: “Which one is easier to fit in a pocket, the ball or the paper?” Say: “Mapmakers have a puzzle: the earth is round, but paper is flat. Today we will see how they solve it.”

Video. Coming soon. Short kid-friendly videos (under 8 minutes) on why flat maps look different from a globe, ideally showing an orange or ball being peeled flat: search NASA, Smithsonian and Library of Congress for globe gores; Homeschool Pop (Alternate); Jay Foreman’s Map Men and Free School (candidates, need vetting; the Map Men episode on projections is for parents to preview).

KEY TERMS

map

A flat picture of a place, as if you saw it from above.

flat

Smooth and level, like a sheet of paper or a table top.

stretch

To pull something so it gets bigger or longer than it really is.

CORE IDEAS

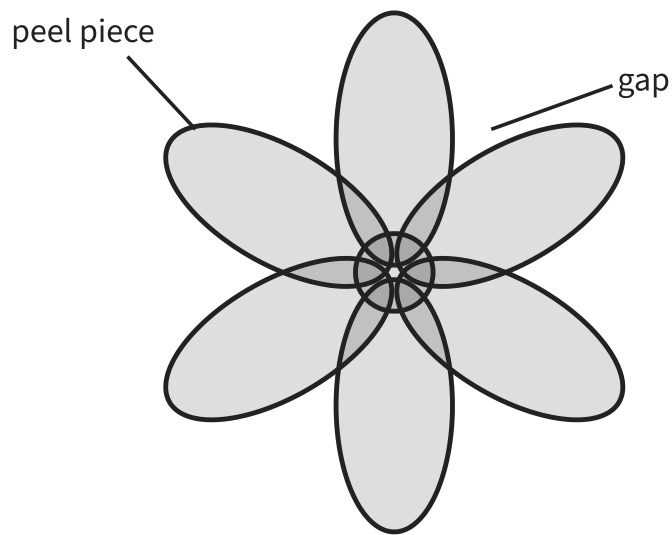
The story. More than five hundred years ago, in 1507, a mapmaker named Martin Waldseemüller lived in the little town of Saint-Dié, in the hills of what is now eastern France. He and his friends printed a big map of the whole world. They also printed a small sheet with 12 long, pointy pieces on it, shaped like slices of orange peel. You could cut the pieces out and glue them onto a ball, and then you had a little globe! These pointy map pieces are called *gores*. Waldseemüller’s gores are one of the first printed maps to use the name *America*.

How it works. Why did the map pieces have to be pointy, with gaps between them? Try it with an orange. Peel it and press the peel flat on the table. It cracks and tears, and there are gaps between the pieces. A round thing cannot become flat without tearing or stretching. The earth is round too. So when mapmakers draw the whole round earth on flat paper, they must either leave gaps, like the gores, or stretch some places to fill the gaps. On many flat

world maps, the lands near the very top and bottom are stretched and look much bigger than they really are.

Technology overcoming geography. Then why do people make flat maps at all? Because a globe is hard to carry! You cannot fold a ball and put it in your pocket. A flat map can be folded up, tucked in a book, kept in a car or rolled up on a ship. Sailors, wagon drivers and pilots have all carried flat maps to find their way across land and sea. Turning the round earth into a flat map was a clever tool that helped people travel the world God made.

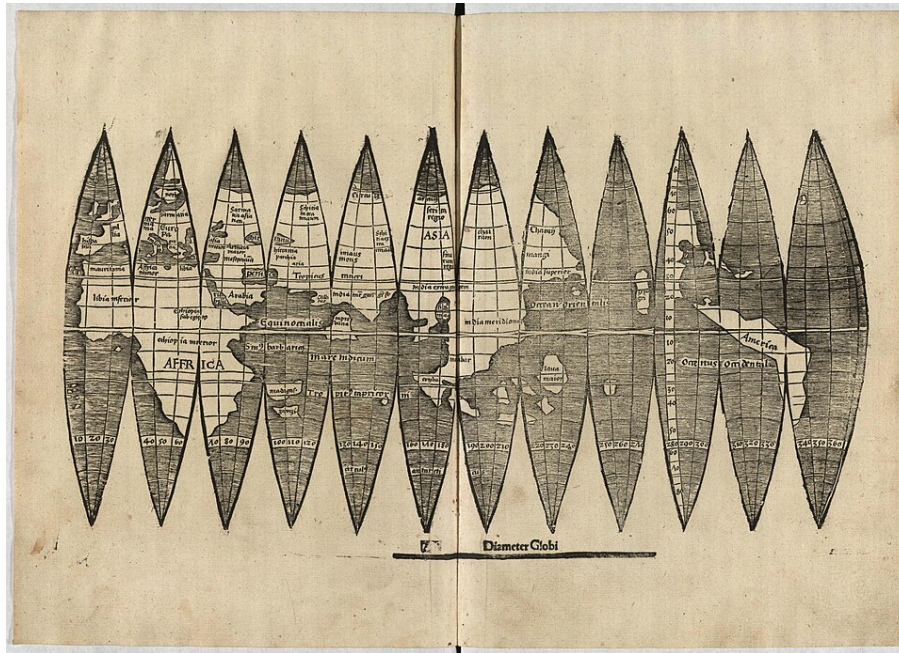
The big idea. A globe and a flat map are both good helpers. The globe shows the true shape of the earth. The flat map lets you see the whole world at once and carry it with you. Smart travelers use both.



6 pieces, 6 gaps

An orange peel pressed flat: the pieces stay joined in the middle, but gaps open between them.

PICTURE STUDY



Globe Gores (a world map made to wrap a ball), Martin Waldseemüller, 1507 · Woodcut print on paper · Universitätsbibliothek München (Munich University Library), Germany (one of a few surviving copies)

This is not a picture of a globe. It is a globe that has not been put together yet! This map was carved into a block of wood. Then printers put ink on it and pressed paper onto it, like a big stamp. People were meant to cut out the pointy pieces and glue them onto a wooden ball.

Only a few copies of this little map are left in the whole world. They are treasures, because they are among the first maps to name the land of America.

Look closely

- Count the pointy pieces with your finger. How many are there? (12)
- Find where every piece comes to a point. When the pieces are glued onto a ball, all the points meet at the top and at the bottom.
- Find the gaps between the pieces. What shape are the gaps?
- Can you find any land? Can you find any sea?

Talk about it

1. How are these map pieces like the orange peel you pressed flat?
2. Why do you think Waldseemüller made pointy pieces instead of one big square?

Safety first. A parent should start the orange peel with a small cut at the top and handle any permanent marker. Check for citrus allergies, and wash hands after peeling, before eating the orange.

PROJECT: THE ORANGE-PEEL GLOBE

Your child turns an orange into a little earth, peels it, presses the peel flat to make a “map,” and then puts the peel back on to make a globe again.

You will need

- A large navel orange (thick peel works best)
- A blue and a green permanent marker (parent uses or helps)
- A paper plate or cutting board
- A sheet of paper and a crayon

Steps

1. Look at the globe. With the markers, help your child color the orange like a small earth: mostly blue, with a few green patches for land.
2. Say: “This orange is round like the earth. Now let’s try to make it flat.”
3. The parent makes a small cut at the top. Together, peel the orange slowly, trying to keep the peel in one big piece.
4. Press the peel down flat on the plate. Watch it crack and tear. Ask: “Can you make it lie flat with no gaps?” (No!)
5. Lay the flat peel on the paper and let your child trace around it with a crayon. This is the orange’s “flat map.” Point to the gaps.
6. Now wrap the peel back around the orange (or a ball of the same size). It closes up and becomes round again: an orange-peel globe!
7. Eat the orange together and say grace for the fruit God made.

Tips

- If the peel breaks into several pieces, that is fine. It shows the same lesson: round does not lie flat.
- Let the peel dry for a day on the paper. It curls back up, as if it wants to be round.

Check your work

- My child said the peel tore or left gaps when we pressed it flat.
- My child traced a “flat map” of the orange.
- My child said a flat map is easier to carry than a globe.

MAP NOTEBOOK

1. Glue or trace your orange-peel “flat map” in your book. Color the gaps a different color.
2. Draw a globe on one side of the page and a folded paper map on the other. Circle the one you would put in your pocket.
3. Draw a sailor on a ship looking at a map.

From history. In 1569 a mapmaker named Gerardus Mercator made a famous flat world map for sailors. On his map, a sailor could draw a straight line and steer by the compass along it. But to make that work, Mercator had to stretch the lands far to the north and south, so places near the poles look much too big. Mapmakers have been trying ever since to find the best ways to make flat from round.

WORKED EXAMPLES

Example 1. Look at the picture of the orange peel pressed flat. How many pieces of peel are there? How many gaps are between them?

(Use the map or drawing “Count the pieces of peel and the gaps.” shown earlier in this lesson.)

1. Start at the top piece and count the pieces going around: 1, 2, 3, 4, 5, 6.
2. Now count the empty spaces between the pieces, going around the same way: 1, 2, 3, 4, 5, 6.
3. Each gap is a place where the round peel could not cover the flat table.

Answer: 6 pieces of peel and 6 gaps.

PRACTICE

1. **EASY** Your parent holds up a ball and a sheet of paper. Which one is round like the earth? Which one is flat like a map?
2. **EASY** What happened when we pressed the orange peel flat?
3. **EASY** Which is easier to fold and put in your pocket: a globe or a flat map?
4. **MEDIUM** Look at Waldseemüller’s map in the picture study. Count the pointy pieces. How many are there?
5. **MEDIUM** Draw a picture of your flat orange peel and show your parent where the gaps are.

COMMON MISTAKES

- Thinking a flat map shows every land at its true size. Flat world maps stretch some places, most of all near the top and bottom.
- Thinking a globe is “better” and a flat map is “wrong.” Each one is a good tool for a different job.
- Getting upset when the peel tears. The tearing is the lesson! Celebrate it.

Make it a game • Ball-Round or Flat?. Gather things from the house: a ball, an orange, a plate, a coin, a book, a marble, a sheet of paper, a cookie. Hold up each one. Your child says “Ball-round!” if it is round all the way around like the earth, or “Flat!” if it is flat. (Careful: a plate and a coin are circles, but they are flat!) Sort them into two piles, then count each pile.

Scripture. “When he prepared the heavens, I was there: when he set a compass upon the face of the depth:” (Proverbs 8:27, KJV)

In this old English, a “compass” means a circle. God set a circle upon the face of the deep waters. Mapmakers are still learning to draw the round world He made.

Practice answers

1. The ball is round like the earth; the paper is flat like a map.
2. It cracked or tore, and there were gaps.
3. A flat map.
4. 12.
5. A drawing of the peel with the gaps pointed out.

2.4 UP AND DOWN: NORTH AND SOUTH POLES

OBJECTIVES

- Point to the North Pole at the top of the globe and the South Pole at the bottom.
- Say that the poles are cold and icy, and the middle of the earth is warm.
- Match polar bears to the north and penguins to the south.

Warm-up. Give your child an ice cube to hold for a few seconds (on a napkin). Ask: “How does it feel?” Then shine a flashlight straight down on a hand, and then at a slant from far off to the side. Ask: “Which way makes a brighter spot?” Say: “Today we will visit the coldest, iciest places on the earth: the very top and the very bottom.”

Video. Coming soon. Kid-friendly animal and place footage under 8 minutes: polar bears on Arctic sea ice and emperor penguins in Antarctica; search Smithsonian (National Zoo) and NASA Earth Observatory for polar ice, SciShow Kids for “why are the poles cold?”; Homeschool Pop (Alternate); National Geographic Kids (candidate, needs vetting).

KEY TERMS

North Pole

The very top of the earth. It is cold and icy all year.

South Pole

The very bottom of the earth. It is even colder than the North Pole.

north

The direction toward the North Pole. On a globe and on most maps, north is up.

south

The direction toward the South Pole. On a globe and on most maps, south is down.

CORE IDEAS

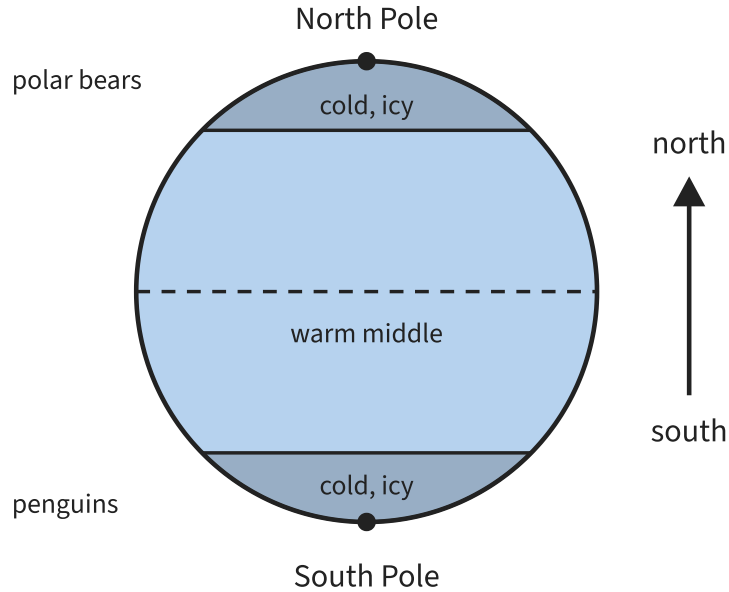
The story. On December 14, 1911, five men from Norway and their sled dogs came to a white, flat, freezing place. All around them was snow and ice, as far as they could see. Their leader was Roald Amundsen. They had traveled for weeks across ice and mountains to reach the very bottom of the earth: the **South Pole**. They put up a little tent and a Norwegian flag to show they had been there. They were the first people ever to stand at the South Pole.

Where are the poles? Look at a globe. The very top is the **North Pole**. The very bottom is the South Pole. When we go toward the top, we go **north**. When we go toward the bottom, we go **south**. The North Pole sits in the middle of a frozen sea, with ice floating on the water. The South Pole sits on land, on a big continent called Antarctica, buried under thick ice.

Why so cold? Remember the flashlight. In the middle of the earth, the sun shines almost straight down, so it is warm. At the top and the bottom, the sunshine comes in low and

slanting, like the flashlight held off to the side. It does not warm the ground much, so the poles stay cold and icy all year long.

Who lives there? God made animals just right for these cold places. In the far north live **polar bears**, with thick white fur and wide paws for walking on ice. They swim in the icy sea and hunt seals. In the far south live **penguins**. They cannot fly, but they swim like fish, and they huddle close together to keep warm. Polar bears live in the north and penguins live in the south, so in the wild, a polar bear never meets a penguin!



The North Pole is at the top, the South Pole is at the bottom, and the middle is warm.

PICTURE STUDY



The Icebergs, Frederic Edwin Church, 1861 · Oil on canvas · Dallas Museum of Art, Dallas, Texas

Frederic Edwin Church was an American painter who loved to paint the wonders of God's world. In 1859 he sailed north on a ship to the cold waters near Newfoundland and Labrador, to see and sketch icebergs with his own eyes. Icebergs are giant chunks of ice that break off from the ice of the far north and float south in the sea.

Back home, he painted this very big picture. When people first saw it, many had never seen an iceberg, and they were amazed.

Look closely

- Find the biggest iceberg. Is it taller than a house?
- Look at the colors in the ice. Is it only white, or can you find blue and green too?
- Find a cave or an arch in the ice.
- Look near the bottom of the picture. Can you find a broken piece of a ship's mast?

Talk about it

1. How would it feel to sail past these icebergs? Hot or cold?
2. Would a polar bear or a penguin be more likely to live near here, in the north?
3. Why do you think Church traveled so far to see the icebergs before he painted them?

PROJECT: ICY POLES ON A BALLOON GLOBE

Your child makes a globe from a balloon, gives it icy caps at the top and bottom, and puts a polar bear in the north and a penguin in the south.

You will need

- A blue balloon (or a light balloon colored with blue marker)
- A green marker
- White paper, cotton balls or white tissue
- Tape
- A paper polar bear and a paper penguin (drawn and cut out, or stickers)

Steps

1. The parent blows up the balloon and ties it. (Stay close by. If the balloon pops, pick up every piece right away, because balloon pieces can choke small children.) Say: "This is our earth. The tied end is the bottom."
2. With the green marker, draw a few patches of land. Remember: most of the earth is water.
3. Tape white paper or cotton at the very top. Say: "This is the cold, icy North Pole."
4. Tape white paper or cotton at the very bottom. Say: "This is the cold, icy South Pole."
5. Run a finger around the middle of the balloon. Say: "The middle is warm."
6. Ask your child: "Where does the polar bear live?" Tape it near the top. "Where does the penguin live?" Tape it near the bottom.
7. Point and say together: "Up is north. Down is south."

Tips

- Extra fun: fill a bowl with ice water. Your child puts one finger in for a moment, then pushes a finger into a zip bag half full of shortening (like a polar bear's fat) and dips the bag in the water. The fat keeps the cold out!
- Keep the polar bear and penguin cutouts for the unit review game.

Check your work

- My child pointed to the North Pole and the South Pole.
- My child said the poles are cold and the middle is warm.
- My child put the polar bear at the top and the penguin at the bottom.

MAP NOTEBOOK

1. Draw a big circle. Color white ice at the top and bottom, and draw a polar bear at the top and a penguin at the bottom.
2. Draw an iceberg floating in the sea. Color some blue and green in the ice, like Church did.
3. Draw Amundsen's tent and flag at the South Pole, with a sled dog beside it.

From history. In 1958, a submarine named USS *Nautilus* did something no ship had ever done: it traveled underwater, beneath the ice, all the way across the top of the world. On August 3, 1958, it passed right under the North Pole. That showed for sure that under the ice of the North Pole there is no land, only deep sea.

WORKED EXAMPLES

Example 1. Look at the globe picture. Where is the North Pole? Which animal lives near it? Where is the South Pole? Which animal lives near it?

(Use the map or drawing “Up is north; down is south.” shown earlier in this lesson.)

1. Put your finger at the very top of the globe. That is the North Pole. Polar bears live in the icy north.
2. Put your finger at the very bottom of the globe. That is the South Pole. Penguins live in the icy south.
3. Follow the arrow: up is north, down is south.

Answer: North Pole at the top, with polar bears. South Pole at the bottom, with penguins.

PRACTICE

1. **EASY** Point to the North Pole on the globe.
2. **EASY** Point to the South Pole on the globe.
3. **EASY** Match the animals: does the polar bear live in the north or the south? The penguin?
4. **MEDIUM** Are the poles hot or cold? Is the middle of the earth hot or cold?
5. **MEDIUM** Your parent sets out 3 polar bear pictures and 4 penguin pictures. How many animals are there in all?

COMMON MISTAKES

- Putting penguins and polar bears together. They live at opposite ends of the earth.
- Thinking the North Pole is a big piece of land. It is frozen sea; the South Pole is on land (Antarctica).
- Thinking “up” on the globe means up in the sky. On a globe, up means north, toward the North Pole.

Make it a game • Polar Bear, Penguin. Stand in the middle of the room. One wall is the North Pole and the opposite wall is the South Pole. When your parent calls “Polar bear!” stomp like a bear to the north wall. When your parent calls “Penguin!” waddle to the south wall. When your parent calls “Sunshine!” run to the warm middle. Then let your child be the caller.

Scripture. “He giveth snow like wool: he scattereth the hoarfrost like ashes.” (Psalm 147:16, KJV)

The snow and ice of the poles come from God, who made even the coldest places and the animals that live there.

Practice answers

1. The child points to the very top.
2. The child points to the very bottom.
3. Polar bear: north. Penguin: south.
4. The poles are cold. The middle is warm.
5. 7.

UNIT 2 REVIEW

A parent asks each question aloud. The child answers by saying, pointing, matching or showing with hands. Have a globe and the *Blue Marble* picture nearby. The review is worth 20 points.

1. (3 pts) What shape is the earth? Show me with your hands.
2. (2 pts) Point to the water in the *Blue Marble* picture. What color is it? Now point to land.
3. (3 pts) What is a globe?
4. (3 pts) Is there more land or more water on the earth? Spin the globe and show me.
5. (3 pts) What happened when we pressed the orange peel flat?
6. (2 pts) Which is easier to put in your pocket for a trip: a globe or a flat map?
7. (2 pts) Point to the North Pole and the South Pole on the globe.
8. (2 pts) Put the polar bear picture where it lives, and the penguin picture where it lives.

UNIT PROJECT: MY LITTLE EARTH

Your child makes a play-dough or balloon globe that is mostly blue with some green land, with white icy caps at the top and bottom and a polar bear and a penguin in the right places. Beside it, add a simple world outline map your child has colored: water blue, land green. Then your child “teaches” the globe and map to a grandparent or friend, telling what is water, what is land, where the poles are and why a flat map is handy for a trip.

- **Land and water:** The globe and the map are mostly blue, with less land than water, and the colors are used correctly.
- **The poles:** Icy caps are at the top and bottom, the polar bear is in the north and the penguin is in the south.
- **Telling:** The child explains, in their own words, that the earth is round, mostly water, and cold at the poles.
- **Care:** The child worked carefully and finished both the globe and the colored map.

Answer key

1. Round like a ball (hands make a ball shape).
2. Points to blue for water, and to green or brown for land.
3. A small, round model of the earth.
4. More water (about 7 parts water to 3 parts land).
5. It tore or cracked and left gaps, because round things cannot lie flat.
6. A flat map.
7. Top for the North Pole, bottom for the South Pole.
8. Polar bear at the top (north); penguin at the bottom (south).

HILLS, MOUNTAINS AND VALLEYS

“And God said, Let the waters under the heaven be gathered together unto one place, and let the dry land appear: and it was so” (Genesis 1:9). The dry land God made is not flat like a table. It rises up into hills and mountains, dips down into valleys and canyons, stretches out into wide plains, pokes into the sea as peninsulas, sits in the sea as islands, and even hides hollow caves underground. These are the **shapes of the land**, and in this unit your child will learn to see them, name them, build them and find them on a map.

Your child will climb Mount Everest with Edmund Hillary and Tenzing Norgay, look down into a farming valley with the painter Thomas Cole, come ashore on the island of Malta with the apostle Paul, and carry a lamp into Mammoth Cave with the guide Stephen Bishop. Every lesson is built with the hands: a sand mountain, a blanket valley, islands in a tray of water and a paper tunnel cave. The unit ends with a salt-dough landform tray and a picture map where your child points to a mountain, hill, valley and island. No reading is needed; everything is said, pointed to, built or drawn.

BEFORE YOU BEGIN

- Knows that a map shows a place from above (Unit 1)
- Knows that the globe has land and water, and that water is shown in blue (Unit 2)
- Can count objects to 10
- Can draw simple shapes: a triangle, a circle and a line

MASTERY CHECKLIST

- I can show a hill and a mountain and say which is taller.
- I can name Mount Everest, the tallest mountain in the world.
- I can point to a valley and a plain and tell why farms like them.
- I can tell an island (water all around) from a peninsula (water on three sides).
- I can say what a cave is and what a canyon is.
- I can point to a mountain, hill, valley and island on a picture map.

OPTIONAL BOOKS AND RESOURCES

- **Grand Canyon National Park (National Park Service)** (<https://www.nps.gov/grca/>): Free. Photographs of the canyon and the Colorado River to look at together with Lesson 3.4, plus the Junior Ranger program for children.
- **Mammoth Cave National Park (National Park Service)** (<https://www.nps.gov/macav/>): Free. Photographs of the cave rooms and information about its history and guides, including Stephen Bishop, for Lesson 3.4.
- **Smithsonian American Art Museum** (<https://americanart.si.edu/>): Free. Search the collection for Thomas Moran and Albert Bierstadt to see the mountain and canyon paintings from Lessons 3.1 and 3.4 in large images.

3.1 MOUNTAINS AND HILLS ★

OBJECTIVES

- Tell the difference between a hill and a mountain: a mountain is much taller and steeper.
- Tell the story of the first climb to the top of Mount Everest, the tallest mountain on earth.
- Build a hill and a mountain in sand and say which one is taller.

Warm-up. Lay a blanket flat on the floor. Slip a small ball under one end to make a low, round bump. Under the other end, set an upside-down mixing bowl with a cereal box standing on it to make a tall, pointed heap. Let a toy person walk over both. Ask: Which one was easy to walk over? Which one was hard? Today we will learn that the low bump is like a **hill** and the tall heap is like a **mountain**.

Video. Coming soon. Short, kid-friendly footage of Mount Everest and the Himalaya Mountains from above (NASA, Smithsonian), and a simple landforms video on hills and mountains under 8 minutes (Homeschool Pop, Alternate); candidates needing vetting: National Geographic Kids, Free School, or a Brightly Storytime-style read-aloud of a picture book about mountains.

KEY TERMS

hill

Land that rises up higher than the land around it. A hill is low and rounded. You can walk to the top of a hill.

mountain

Land that rises very, very high, much higher than a hill. Mountains often have steep, rocky sides.

peak

The pointed top of a mountain.

landform

A shape of the land, like a hill, a mountain or a valley.

CORE IDEAS

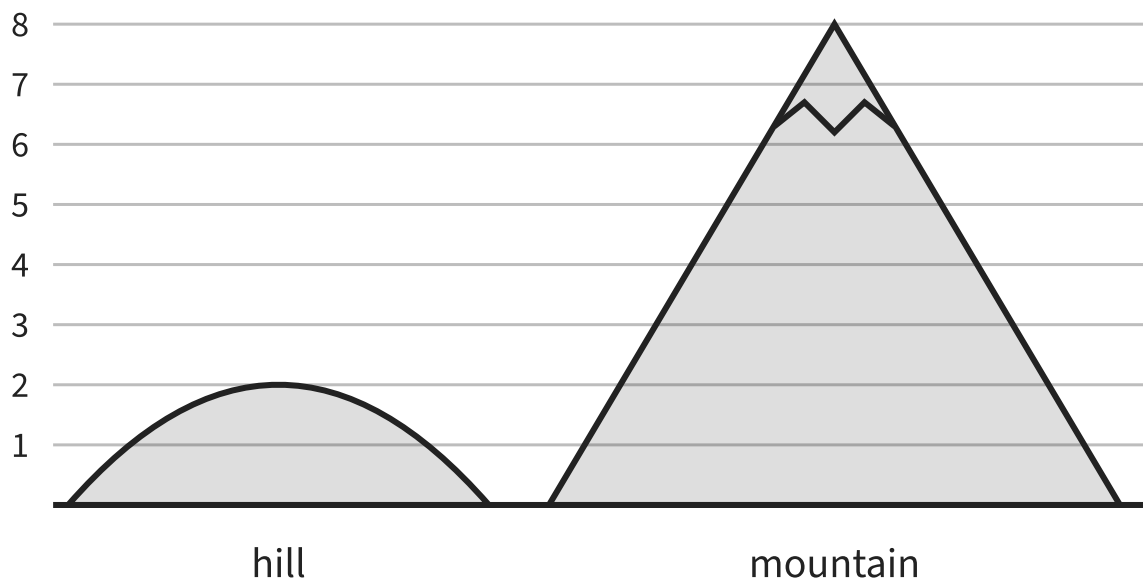
The story. Far away, between the countries of Nepal and China, stand the Himalaya Mountains. The tallest of them all is **Mount Everest**. It is the highest mountain on the whole earth. At the top the air is thin and freezing cold, and the snow never melts. For many years climbers tried to reach the top and had to turn back. Then, on May 29, 1953, two men stood on the very top together. One was Edmund Hillary, a beekeeper from New Zealand. The other was Tenzing Norgay, a Sherpa man who had grown up among these high mountains.

They stayed on top for only about fifteen minutes. Hillary took a picture of Tenzing holding up his ice ax with flags flying from it. Then they climbed carefully back down.

How they figured it out. How tall is Everest? Long before anyone climbed it, map makers measured it from far away with careful tools. Everest is about 29,000 feet tall. That is more than five miles straight up into the sky! If you could stack houses one on top of another, you would need about a thousand houses to reach the top.

The big idea. A **hill** is land that rises up higher than the land around it. Hills are low and rounded, and often covered with grass and trees. You can walk up a hill before lunch. A **mountain** is land that rises much, much higher. Mountains are tall and steep, with rocky sides and a pointed top called a **peak**. Tall mountains can have snow on top even in summer. There is no exact line between the two. A mountain is like a hill that grew very big. Hills and mountains are **landforms**, shapes of the land, and God made every one of them.

On the map. Is there a hill near your home? Maybe you sled down it or roll down it in the grass. On a picture map, a mountain is drawn as a tall triangle, often with snow on top. A row of triangles means a whole line of mountains. A hill is drawn as a small, round bump.



A hill and a mountain side by side. Count the lines to see how tall each one is.

PICTURE STUDY



Among the Sierra Nevada, California, Albert Bierstadt, 1868 · Oil on canvas · Smithsonian American Art Museum, Washington, D.C.

Albert Bierstadt was a painter who traveled to the American West and made sketches of the mountains there. Back in his studio, he turned those sketches into giant, glowing paintings. People who had never seen the West could stand in front of his paintings and feel how tall and wild the mountains were. This painting shows the Sierra Nevada, a long line of mountains in California.

Look closely

- Point to the tallest mountain. Can you find its peak?
- Find the snow. Is it at the top of the mountains or the bottom? Why do you think so?
- Find the waterfall. Where is the water going?
- Look near the water at the bottom. Can you find any animals?

Talk about it

1. Are these hills or mountains? How can you tell?
2. If you stood by the lake and looked up, how would you feel?
3. What would you need to take with you to climb one of these mountains?

PROJECT: A SAND HILL AND A SAND MOUNTAIN

Your child will build a low hill and a tall mountain out of damp sand, walk a toy person over both, and measure them with blocks to see which is taller.

You will need

- A sandbox, a pile of garden dirt, or a big baking pan filled with sand
- A spray bottle or cup of water to dampen the sand
- A paper cup for packing sand
- A small toy person
- A few small building blocks for measuring
- A pinch of flour for snow
- Paper and crayons

Steps

1. Dampen the sand so it holds its shape when squeezed.
2. Make a hill: pat a small, low, round pile of sand. Smooth the sides so they slope gently.
3. Make a mountain: pack sand into the paper cup again and again and pile the cup shapes on top of each other. Push and pat until you have a tall, steep heap. Pinch the top into a pointed peak.
4. Sprinkle a pinch of flour on the peak for snow. Ask: Why does the snow go on the mountain and not the hill?
5. Walk the toy person up the hill, then up the mountain. Which climb is easy? Which is hard?
6. Stand blocks in a stack beside each one. Count how many blocks tall the hill is and how many blocks tall the mountain is.
7. Draw the hill and the mountain side by side on paper. A parent writes the block counts under each.

Tips

- If the mountain keeps falling, the sand is too dry. Add a little more water.
- Name the mountain “Everest” and let the toy person be Tenzing or Hillary planting a flag on top. A toothpick with a paper flag works well.

Check your work

- My child can point to the hill and the mountain and say which is taller.
- My child can tell me that a mountain is steeper and has a peak.
- My child can say the name Mount Everest.

MAP NOTEBOOK

1. Draw the hill nearest your home. Draw yourself at the top.
2. Draw Mount Everest as a tall triangle with snow on top. Draw two tiny climbers with a flag at the peak.
3. Draw a row of three mountains, the way they look on a picture map.

From history. Mount Everest got its English name in 1865. It was named for Sir George Everest, a British map maker who had led the great survey that measured the land of

India. The people who live near the mountain have their own older names for it. In Tibet it is called Chomolungma, and in Nepal it is called Sagarmatha.

WORKED EXAMPLES

Example 1. Look at the picture of the hill and the mountain. Count the lines to find how tall each one is. Which is taller?

(Use the map or drawing “Count up from the ground line.” shown earlier in this lesson.)

1. Put your finger on the ground line at the bottom of the hill.
2. Move your finger up to the top of the hill, counting the lines: 1, 2. The hill is 2 lines tall.
3. Now start at the bottom of the mountain and count up to the peak: 1, 2, 3, 4, 5, 6, 7, 8. The mountain is 8 lines tall.
4. 8 is more than 2, so the mountain is taller. Count from line 3 up to line 8 to see how much taller: 6 more lines.

Answer: The hill is 2 lines tall and the mountain is 8 lines tall. The mountain is taller, by 6 lines.

PRACTICE

1. **EASY** Point to the mountain in the picture. Now point to the hill.
(Use the map or drawing “Hill or mountain?” shown earlier in this lesson.)
2. **EASY** What is the name of the tallest mountain in the world?
3. **EASY** Who were the two men who first stood on top of Mount Everest?
4. **MEDIUM** Your sand mountain is 9 blocks tall. Your sand hill is 3 blocks tall. How many more blocks tall is the mountain? (Use real blocks to count.)
5. **MEDIUM** Draw a hill and a mountain side by side. Put snow on the one that is tall enough to be cold at the top.

COMMON MISTAKES

- Calling every bump a mountain. A mountain is much taller and steeper than a hill; a hill is low and rounded.
- Thinking snow sits only at the North Pole. High mountains have snow on top even in summer because it is cold up high.
- Drawing a mountain as a round bump. On a picture map, mountains are tall triangles with peaks.

Make it a game • Build Everest. Take turns adding one block at a time to a tower. Each time, the builder says “hill” while the tower is short and “mountain” when it gets tall. When the tower is taller than your knee, it is a mountain! Set a toy climber on top for the

peak. If the tower falls, start again at the bottom, just like climbers who had to turn back and try another day.

Scripture. “I will lift up mine eyes unto the hills, from whence cometh my help. My help cometh from the LORD, which made heaven and earth.” (Psalm 121:1-2, KJV)

The hills and mountains are big and strong, but God is bigger. He made them all. When we look up at a mountain, we can remember that our help comes from the One who made it.

Practice answers

1. The mountain is the tall, pointed one on the right. The hill is the low, round one on the left.
2. Mount Everest.
3. Edmund Hillary and Tenzing Norgay (in 1953).
4. 6 more blocks.
5. The snow goes on the mountain. The hill is low and round; the mountain is tall and pointed.

3.2 VALLEYS AND PLAINS

OBJECTIVES

- Point to a valley and a plain in a picture and say how they are different from a mountain.
- Tell two reasons farms and towns like valleys and plains: the land is flat, and water is close by.
- Build a valley farm with a blanket, a river and toy houses.

Warm-up. Set two pillows on the floor a little apart and lay a blanket over both. Gently roll a small ball down one pillow. Where does it stop? In the low place between the pillows! Rain does the same thing: it runs down the hills into the low places. That low place is a **valley**. Now pull one end of the blanket out flat on the floor. That wide, flat land is a **plain**.

Video. Coming soon. Short footage of farms in a river valley and of the wide, flat Great Plains (Smithsonian, NASA Earth from space), and a simple landforms video on valleys and plains under 8 minutes (Homeschool Pop, Alternate); candidates needing vetting: National Geographic Kids, Free School.

KEY TERMS

valley

Low land between hills or mountains. A river or stream often runs along the bottom of a valley.

plain

Wide, flat land that stretches a long way. On a plain you can see far, far away.

river

A long stream of moving water. Rivers always run downhill.

soil

The soft dirt that plants grow in.

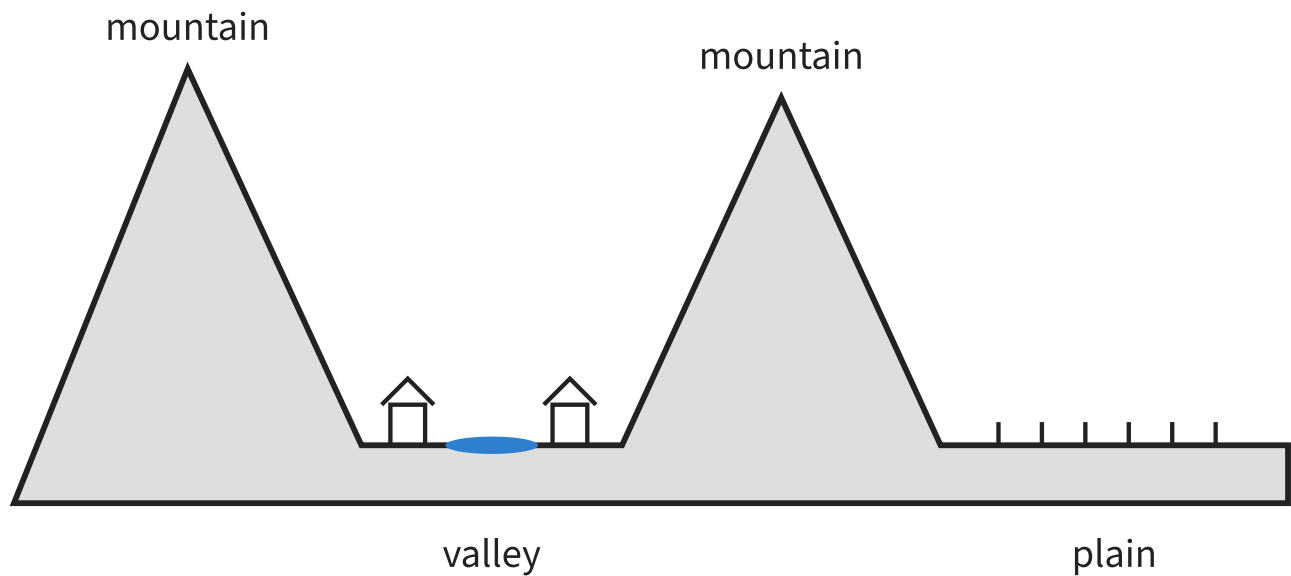
CORE IDEAS

The story. In 1836 a painter named Thomas Cole went up a mountain called Mount Holyoke in Massachusetts. From high on the mountain he looked down into the valley of the Connecticut River. Far below, the river curved in a big loop, like a horseshoe. All along the river lay flat green fields, cut into squares like a patchwork quilt. There were farms and little houses, and smoke curled up from chimneys. Over the wild woods on the mountain, a thunderstorm was just blowing away. Cole painted what he saw. On one side of his painting is the dark, wild mountain. On the other side is the sunny valley full of farms.

The big idea. A **valley** is low land between hills or mountains. When rain falls on the hills, it runs down their sides into the valley, just like your ball. So most valleys have a stream or a **river** running along the bottom. A **plain** is wide, flat land with no mountains at all. In the middle of our country is a huge plain called the Great Plains. It is so flat and wide that you can see the sky touch the land far away.

How it works. Why do farms and towns like valleys and plains? First, the land is flat. A farmer can plow a flat field easily, but on a steep mountain his tractor might tip over. It is easy to build houses and roads on flat land. Second, the river is close by. It gives water to drink and water for the crops and the cows. Third, when a river spills over its banks, it leaves behind soft, rich **soil**, and plants grow well in it. That is why Cole saw so many farms in the valley and none on the steep mountain.

On the map. On many maps, low land is colored green and high land is colored brown. Look for green along rivers and across the plains. That is often where you will find farms and towns. God made the valleys to be full of good things: “the valleys also are covered over with corn.”



Two mountains with a valley between them, and a wide, flat plain.

PICTURE STUDY



View from Mount Holyoke, Northampton, Massachusetts, after a Thunderstorm (The Oxbow), Thomas Cole, 1836 · Oil on canvas · The Metropolitan Museum of Art, New York

Thomas Cole loved the wild mountains and forests of America and painted them again and again. Most people call this painting *The Oxbow*, because the river bends in a loop shaped like an oxbow, the curved wooden collar that goes around an ox's neck. Cole shows us two kinds of land at once: the steep, wild mountain and the flat, farmed valley.

Look closely

- Find the river. Trace its big loop with your finger.
- Find the flat fields in the valley. What shapes are they?
- Find the dark storm clouds and the broken trees on the left side.
- Can you find the painter? Cole painted a tiny picture of himself at his easel near the bottom of the painting.

Talk about it

1. Where would you rather build a farm: on the dark mountain or in the sunny valley? Why?
2. Which side of the painting looks wild? Which side looks like people live there?

PROJECT: A BLANKET VALLEY FARM

Your child will build two mountains, a valley with a river between them, and a flat plain, then decide where the farm and the town should go.

You will need

- Two pillows or two stacks of large books
- A green or brown towel or blanket
- A long strip of blue paper or blue ribbon for the river
- Blocks or small boxes for houses
- Toy animals, a toy tractor or car
- Squares of green and yellow paper for fields

Steps

1. Set the pillows apart on the floor and drape the blanket over them to make two mountains. Leave the blanket flat between them for the valley floor.
2. Pull the far end of the blanket out flat to make a plain.
3. Lay the blue river along the bottom of the valley.
4. Try to set a block house on the steep side of a mountain. Does it slide off? Now set it in the valley beside the river.
5. Lay the paper squares in the valley and on the plain for fields. Put the animals near the river so they can drink.
6. Drive the toy tractor across the plain, then try to drive it up the mountain. Which is easier?
7. Ask your child to point and name: mountain, valley, river, plain. Then ask: Why did we put the farm here?

Tips

- Take a photo of the finished farm from above. It is a bird's-eye view, just like the maps in Unit 1.
- If you live near a valley or a wide, flat place, drive or walk there this week and look for farms and a river.

Check your work

- My child can point to the valley and the plain.
- My child can tell me one reason a farm is built in a valley or on a plain.
- My child knows that rivers run along the bottom of valleys.

MAP NOTEBOOK

1. Draw two mountains with a valley between them. Draw a blue river along the bottom of the valley.
2. Draw a farm in your valley: a barn, a field and one animal.
3. Draw a long, flat line across the page for a plain. Draw the sun sitting on the edge of the land far away.

From history. Thomas Cole was born in England in 1801 and came to America with his family as a young man. He learned to paint mostly by teaching himself, and he hiked into the Catskill Mountains of New York to sketch the forests, waterfalls and valleys. Many

younger painters followed his way of painting the American land, and today they are remembered as the Hudson River School.

WORKED EXAMPLES

Example 1. Look at the picture. Point to the valley. How many houses are in the valley?

(Use the map or drawing “Find the valley and count the houses.” shown earlier in this lesson.)

1. Find the two tall mountains.
2. Find the low, flat place between them. That is the valley. The little blue river runs there.
3. Count the houses in the valley, touching each one: 1, 2.

Answer: There are 2 houses in the valley, one on each side of the river.

PRACTICE

1. **EASY** Point to the valley in the picture. Now point to the plain.
(Use the map or drawing “Valley or plain?” shown earlier in this lesson.)
2. **EASY** Which one is low land between hills or mountains: a valley or a peak?
3. **MEDIUM** Why would a farmer rather plow a field in a valley than on a steep mountain? Tell one reason.
4. **MEDIUM** On your blanket farm, you put 4 cows in the valley and 3 cows on the plain. How many cows are there in all? (Count the toys.)
5. **EASY** Draw a valley with a river running along the bottom and one house beside the river.

COMMON MISTAKES

- Thinking a valley is a hole. A valley is a long, low place between hills or mountains, often with a river running through it.
- Mixing up a plain and a valley. A valley has hills or mountains on its sides; a plain is wide and flat with no mountains around it.
- Thinking rivers can run uphill. Water always runs down to the lowest place, so rivers flow along the bottoms of valleys.

Make it a game • Mountain, Hill, Valley, Plain. The parent calls out a landform and the child makes its shape with their body. Mountain: stand on tiptoe with hands pressed together high over the head for a peak. Hill: crouch halfway with arms in a round bump. Valley: squat down low between two parents (or two chairs) who are the mountains. Plain: lie flat on the floor with arms stretched out wide. Call them faster and faster!

Scripture. “The pastures are clothed with flocks; the valleys also are covered over with

corn; they shout for joy, they also sing.” (Psalm 65:13, KJV)

In the Bible, “corn” means grain, like wheat. God made the valleys low and well watered so that grain could grow there and feed His people. Even the valleys seem to sing for joy!

Practice answers

1. The valley is the low, flat place between the two mountains, with the river. The plain is the wide, flat land on the right.
2. A valley.
3. Any one: the land is flat and easy to plow; the tractor will not tip over; the river gives water; the soil by the river is good for plants.
4. 7 cows.
5. The drawing shows two hills or mountains, a low place between them, a blue river at the bottom and a house next to the river.

3.3 ISLANDS AND PENINSULAS

OBJECTIVES

- Say what an island is (land with water all around) and what a peninsula is (land with water on three sides).
- Make an island and a peninsula in a tray of water and point to each one.
- Tell how the apostle Paul’s ship came to the island of Malta.

Warm-up. Set an upside-down cup in the middle of a dinner plate. Pretend the plate is the sea and the cup is land. Stand a toy person on the cup. Ask: Can the toy walk off to the table without getting its feet wet? No! The cup has sea all around it. It is an **island**. Now slide the cup to the edge of the plate so one side touches the table. Now the toy can walk off on one side. Land with water on three sides is a **peninsula**.

Video. Coming soon. Short footage of islands and peninsulas seen from above, such as the Hawaiian Islands and the Florida peninsula from space (NASA, NASA Earth Observatory), and a simple landforms video on islands and peninsulas under 8 minutes (Homeschool Pop, Alternate); candidates needing vetting: National Geographic Kids, Free School.

KEY TERMS

island

Land with water all around it.

peninsula

Land with water on three sides. The fourth side is joined to more land.

coast

The edge of the land, where it meets the sea.

CORE IDEAS

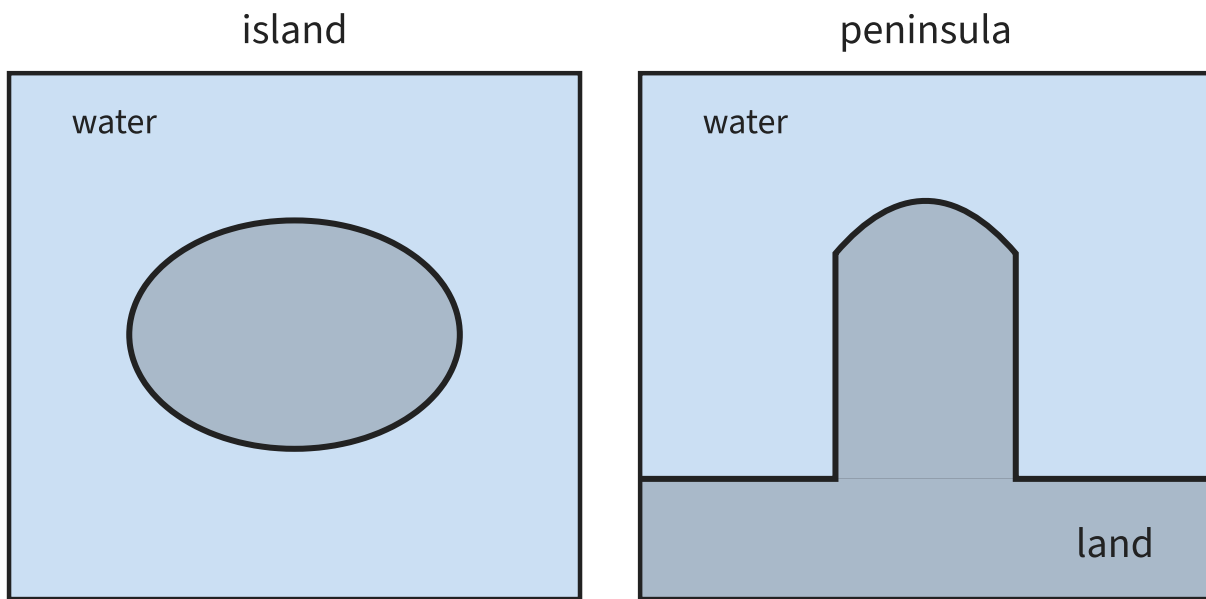
The story. Long ago the apostle Paul was sailing on a big wooden ship to the city of Rome. A terrible storm blew for many days. The sailors could not see the sun or the stars. At last the ship ran onto the sand near land and broke apart. Some people swam, and some floated to shore on boards. The Bible says “they escaped all safe to land.” Then they learned where they were. The land was an island called Melita. We call it Malta today. The people of the island were kind. They built a fire to warm the wet, cold travelers. When spring came, Paul sailed on to Italy and walked to Rome.

The big idea. An **island** is land with water all around it. To leave an island, you need a boat, a bridge or an airplane. Some islands are tiny, with room for only a few trees. Others are so big that whole countries fit on them. A **peninsula** is land with water on three sides. The fourth side is joined to more land, so you can walk off it without getting wet. Italy, where

Paul went next, is a peninsula shaped like a tall boot, with sea on three sides. Florida is a peninsula too.

How it works. Count the sides. Hold up four fingers for an island: water on every side. Hold up three fingers for a peninsula: water on three sides, land on one. The edge where any land meets the sea is called the **coast**. People on islands and peninsulas often love boats and fishing, because the sea is never far away.

On the map. On a map, the sea is colored blue. Look for a spot of land with blue all the way around it. That is an island. Look for land that sticks out into the blue like a finger or a thumb. That is a peninsula. God made the dry land and gathered the seas around it, and He made the islands too: “let the multitude of isles be glad.”



An island has water all around. A peninsula has water on three sides.

PICTURE STUDY



Owl's Head, Penobscot Bay, Maine, Fitz Henry Lane, 1862 · Oil on canvas · Museum of Fine Arts, Boston

Fitz Henry Lane grew up in Gloucester, Massachusetts, a fishing town right on the sea. He spent his life painting harbors, coasts and ships in calm, golden light. Owl's Head is a point of land in Maine that reaches out into a wide bay of the sea. A lighthouse stands there to warn ships away from the rocks.

Look closely

- Find the place where the land meets the water. That edge is the coast.
- Find the ship. Is it sailing on land or on water?
- Look at the water. Is it calm and smooth, or wild and stormy?
- Find the land that reaches out into the water. Does it have water on more than one side?

Talk about it

1. Why would people build a lighthouse on land that pokes out into the sea?
2. How is this calm sea different from the storm that wrecked Paul's ship?

Safety first. Stay right beside your child whenever there is water in a tub or tray, even a shallow one. Wipe up spills so no one slips.

PROJECT: ISLANDS AND PENINSULAS IN A TRAY

Your child will press clay into a pan to make a mainland, a peninsula and an island, then pour in a little sea and test each one with a toy person and a tiny boat.

You will need

- A baking pan or plastic tub with low sides
- Modeling clay or play dough (rocks and damp sand also work)
- A pitcher of water (a few drops of blue food coloring make a fine sea)
- A small toy person
- A bottle cap or walnut shell for a boat

Steps

1. Press a big lump of clay against one side of the pan. This is the mainland.
2. Pinch out a long finger of clay from the mainland into the middle of the pan. This is the peninsula.
3. Make a separate round lump and set it in the open part of the pan, not touching anything. This is the island.
4. Pour water slowly into the pan, about one inch deep, so the land stays dry on top.
5. Stand the toy person on the tip of the peninsula. Can it walk to the mainland without getting wet? Yes!
6. Stand the toy on the island. Can it walk to the mainland? No! Float the bottle-cap boat over to carry it, the way Paul's ship carried him.
7. Point to each piece and name it: island, peninsula, mainland. Count the sides of each that touch the water.

Tips

- Keep the clay pieces flat on the bottom so they stay put when the water comes in.
- Let your child make more islands and peninsulas and give each one a name.

Check your work

- My child can point to the island and the peninsula.
- My child can say that an island has water all around and a peninsula has water on three sides.
- My child can tell that Paul's ship came to the island of Malta.

MAP NOTEBOOK

1. Draw an island with water all around it. Color the water blue. Draw a palm tree or a house on the island.
2. Draw a peninsula sticking out into the blue sea like a thumb.
3. Draw Paul's ship near the island of Malta, with the people safe on the shore by a fire.

From history. The biggest island in the world is Greenland, far in the cold north. It is very big, and most of it is covered with ice and snow, and only a small number of people live there, mostly along its coasts. Australia is even bigger, but because it is so large, map makers call it a continent instead of an island.

WORKED EXAMPLES

Example 1. Look at the two pictures. How many sides of the island have water? How many sides of the peninsula have water?

(Use the map or drawing “Count the sides with water.” shown earlier in this lesson.)

1. Put your finger on the island. Move it to the top: water. To the bottom: water. To the left: water. To the right: water. That is 4 sides.
2. Put your finger on the peninsula. Move it to the left: water. To the top: water. To the right: water. That is 3 sides.
3. Move your finger down from the peninsula: land! The bottom side is joined to more land.

Answer: The island has water on all 4 sides. The peninsula has water on 3 sides and land on 1 side.

PRACTICE

1. **EASY** Point to the island in the picture. Now point to the peninsula.
(Use the map or drawing “Island or peninsula?” shown earlier in this lesson.)
2. **EASY** Listen: “This land has water all around it.” Is it an island or a peninsula?
3. **EASY** Paul’s ship broke apart near an island. What was the island called?
4. **EASY** Hold up the right number of fingers: how many sides of a peninsula have water?
5. **MEDIUM** In your tray you made 2 islands and 1 peninsula. How many pieces of land did you make in the water? (Touch and count them.)

COMMON MISTAKES

- Calling a peninsula an island. If you can walk off it onto more land without getting wet, it is a peninsula, not an island.
- Thinking all islands are tiny. Some islands are so big that whole countries are on them.
- Forgetting the water. Islands and peninsulas are named by where the water is, so always look for the blue.

Make it a game • Island Hop. Scatter pillows and cushions on the floor. The floor is the sea; the couch is the mainland. Push one pillow so it touches the couch: that is a peninsula. The child hops from island to island without touching the sea. When the parent calls “Peninsula!” the child must hop to the pillow touching the couch and walk off onto the mainland. Whoever touches the sea must swim (crawl) back to the mainland and start again.

Scripture. “The LORD reigneth; let the earth rejoice; let the multitude of isles be glad thereof.” (Psalm 97:1, KJV)

“Isles” means islands. There are many, many islands in the sea, big and small, and God is King over every one. The people who live on them can be glad, because He made them and He cares for them.

Practice answers

1. The island is the round land on the left with water all around. The peninsula is the finger of land on the right reaching up into the water.
2. An island.
3. Melita, which we call Malta today.
4. 3 fingers.
5. 3 pieces of land.

3.4 CAVES AND CANYONS

OBJECTIVES

- Say what a cave is (a hollow space under the ground) and what a canyon is (a deep valley with steep rock walls).
- Tell about Stephen Bishop exploring Mammoth Cave and look closely at Thomas Moran's painting of the Grand Canyon.
- Point to and name a mountain, a hill, a valley and an island on a picture map.

Warm-up. Drape a blanket over a table to make a dark space underneath. Crawl inside together with a flashlight and whisper: This is what it is like inside a **cave**. Then come out and look down into a deep laundry basket or a tall pot. Its sides go straight down, and the bottom is far below. That is the shape of a **canyon**.

Video. Coming soon. Short footage of the Grand Canyon and of the rooms and underground river inside Mammoth Cave (Smithsonian, NASA Earth from space for the Grand Canyon); candidates needing vetting: National Park Service virtual tours and Junior Ranger videos for Grand Canyon and Mammoth Cave, National Geographic Kids, Free School, all under 8 minutes.

KEY TERMS

cave

A big hollow space under the ground or inside a hill, big enough for people to go into.

canyon

A very deep valley with steep rock walls on both sides, usually with a river at the bottom.

cliff

A wall of rock that goes almost straight up and down.

CORE IDEAS

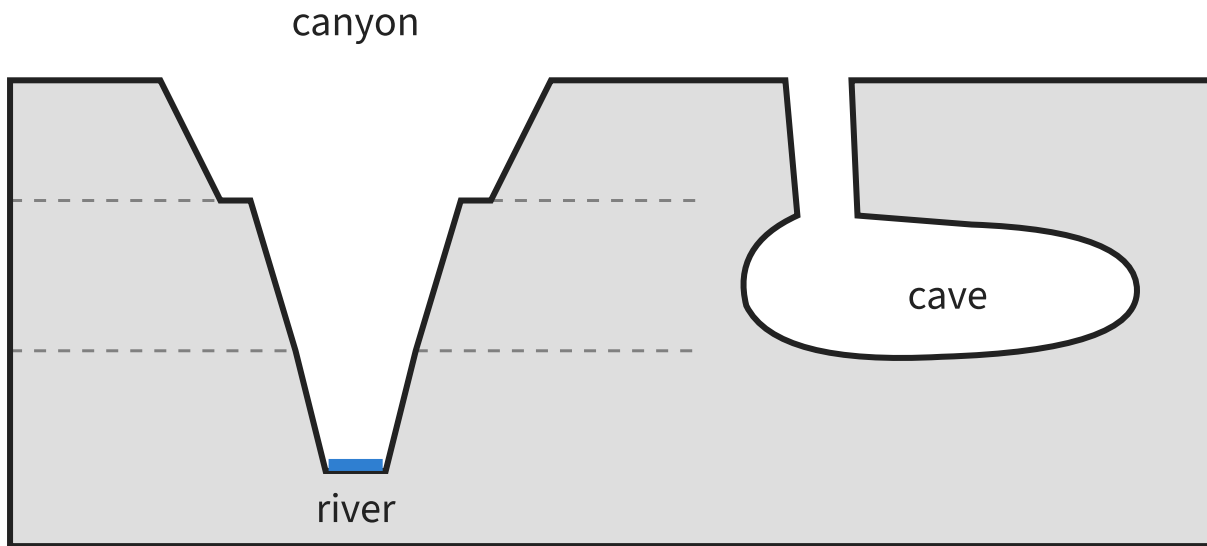
The story. In 1838 a young man named Stephen Bishop began to lead visitors into Mammoth Cave in Kentucky. Stephen was enslaved; he belonged to the man who owned the cave, and he was not free to choose his own work. Yet he became the most famous cave guide of his day. Carrying an oil lamp, he squeezed through tight holes and crossed a deep pit called the Bottomless Pit. He found new rooms and an underground river. In its dark water live small white fish that have no eyes! Stephen drew a map of the cave so that others could find their way. Today we know that Mammoth Cave is the longest cave in the world, with more than 400 miles of passages.

The big idea. A **cave** is a hollow space under the ground or inside a hill, big enough to walk or crawl into. Inside a cave it is dark and cool and quiet. Water dripping and trickling through the rock for a very long time slowly carried some of the rock away and left the

hollow rooms behind. A **canyon** is a very deep valley with steep rock walls called **cliffs**. A river runs along the bottom of most canyons. The river has worn its way down into the rock.

The Grand Canyon. The most famous canyon of all is the Grand Canyon in Arizona. It is about a mile deep and so long that it would take weeks to hike from one end to the other. The Colorado River runs along its bottom. The walls have stripes of red, tan and gray rock, like layers in a cake. In 1873 the painter Thomas Moran traveled there and made sketches. Then he painted a giant picture of it, and in 1874 the United States Congress bought it for the whole country to enjoy.

On the map. Now you know many shapes of the land: mountains, hills, valleys, plains, islands, peninsulas, caves and canyons. On a picture map we can draw each one with its own little picture, so anyone can find it. "In his hand are the deep places of the earth: the strength of the hills is his also."



A canyon is open to the sky. A cave is a hollow space under the ground.

PICTURE STUDY



The Chasm of the Colorado, Thomas Moran, 1873–1874 · Oil on canvas · Smithsonian American Art Museum, Washington, D.C. (lent by the U.S. Department of the Interior Museum)

Thomas Moran loved the wild places of the American West. In the summer of 1873 he traveled to the Grand Canyon with John Wesley Powell, the explorer who had boated down the Colorado River. Moran climbed to the edge, looked down and made sketches. Back in his studio he painted this enormous picture. It is about 7 feet tall and 12 feet wide, wider than most rooms in a house!

Look closely

- Find the stripes of rock in the canyon walls. What colors do you see?
- Find the clouds. Is the weather sunny, or is a storm moving over the canyon?
- Look for the deepest, lowest part of the canyon. That is where the river runs.
- Find a cliff: a rock wall that goes straight down.

Talk about it

1. If you stood at the edge of this canyon, what would you hear? How would you feel?
2. How is a canyon like a valley? How is it different?
3. Why do you think Moran painted this picture so very big?

Safety first. Use only flashlights in the play cave, never candles. Keep the tunnel on the floor where it is safe to crawl.

PROJECT: A PAPER TUNNEL CAVE AND A BOOK CANYON

Your child will crawl through a paper tunnel cave with a flashlight, the way Stephen Bishop explored Mammoth Cave, and then build a canyon from two stacks of books with a river at the bottom.

You will need

- Large paper grocery bags opened up, or a long roll of brown packing paper or poster board
- Masking tape
- Two kitchen chairs or a row of cardboard boxes to hold the paper up
- A flashlight
- Black and white paper, scissors (for the parent) and crayons
- A blue ribbon or strip of blue paper
- Two tall stacks of books

Steps

1. Make the cave: bend long sheets of paper into an arch between two chairs or along a row of boxes and tape them down to make a tunnel. Leave one end open for the cave entrance.
2. Cut out a few black paper bats and tape them to the ceiling. Lay a blue paper river inside and set small white paper fish in it. Remind your child that the real cave fish have no eyes.
3. Turn off the room lights. Your child crawls in with the flashlight, as Stephen Bishop, and tells you what they find: bats, the river, the fish.
4. Make the canyon: stand two tall stacks of books side by side with a narrow gap between them. These are the cliffs.
5. Lay the blue ribbon along the bottom of the gap. This is the Colorado River.
6. Walk a toy person along the top edge and look down into the canyon. Then walk it along the river at the bottom and look up.
7. Ask: Which one is open to the sky, the canyon or the cave? Which one has a roof of rock?

Tips

- Tape strips of red, tan and gray paper along the book cliffs to make the rock stripes of the Grand Canyon.
- Afterward, help your child draw a simple map of the paper cave from above, with an X where the fish were.

Check your work

- My child can tell me that a cave is under the ground and a canyon is open to the sky.
- My child can tell me one thing about Stephen Bishop or the Grand Canyon.

- My child can point to a mountain, hill, valley and island on the picture map.

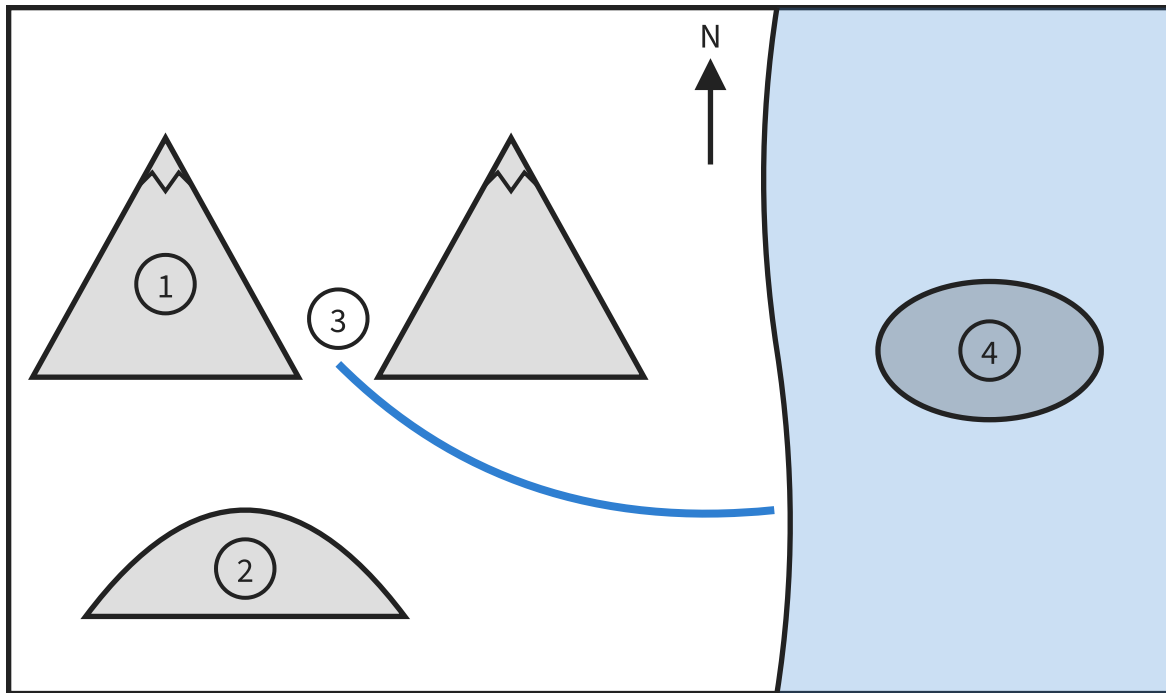
MAP NOTEBOOK

1. Draw the Grand Canyon with stripes of red, tan and gray, and a blue river at the bottom.
2. Draw Stephen Bishop with his lamp inside Mammoth Cave, and a white fish in the dark water.
3. Draw your own picture map with a mountain, a hill, a valley and an island. Tell a parent where each one is.

From history. Stephen Bishop was set free in 1856 and died the next year. He is buried near the entrance of the cave he explored and loved. Mammoth Cave became a national park in 1941, and today park rangers lead visitors through some of the same rooms Stephen once showed by lamplight. The Grand Canyon became a national park in 1919.

WORKED EXAMPLES

Example 1. Look at the picture map. It has four numbers. Point to each number and say what kind of land it shows.



Our picture map. Name each numbered place.

1. Number 1 is a tall, pointed triangle with snow on top. It is a mountain.
2. Number 2 is a low, round bump. It is a hill.
3. Number 3 is the low place between the two mountains, where the river starts. It is a valley.
4. Number 4 is land in the blue sea, with water all around it. It is an island.

Answer: 1 is a mountain, 2 is a hill, 3 is a valley and 4 is an island.

PRACTICE

1. **EASY** Point to the canyon in the picture. Where is the river?
(Use the map or drawing "Find the canyon and its river." shown earlier in this lesson.)
2. **EASY** Now point to the cave in the same picture. Does the cave have a roof of rock, or is it open to the sky?
(Use the map or drawing "Find the cave." shown earlier in this lesson.)
3. **EASY** What river runs at the bottom of the Grand Canyon?
4. **MEDIUM** In your paper cave you taped up 5 bats and put 4 fish in the river. How many cave animals are there in all? (Touch and count them.)
5. **MEDIUM** On the picture map, point to the island. Then point to the arrow and show which way is north.

(Use the map or drawing “Find the island and the north arrow.” shown earlier in this lesson.)

COMMON MISTAKES

- Mixing up a cave and a canyon. A cave is under the ground with a rock roof; a canyon is open to the sky with a river at the bottom.
- Thinking a canyon is just a big hole. A canyon is a long, deep valley with cliffs on both sides.
- Thinking caves are always empty. Bats, crickets and blind white fish can live in caves.

Make it a game • Echo in the Cave. Mammoth Cave has an underground river named Echo River, because voices bounce off the rock walls and come back. Crawl into your paper cave or blanket cave together. The parent calls out a word from this unit, such as “mountain,” “valley” or “island,” and the child is the echo, saying it back softly two times. Then switch: the child calls out a landform, and the parent echoes it and makes its shape with their hands.

Scripture. “In his hand are the deep places of the earth: the strength of the hills is his also.” (Psalm 95:4, KJV)

The deepest caves and canyons and the tallest hills all belong to God. Nothing is too deep or too high for Him, and He is with us everywhere.

Practice answers

1. The canyon is the deep cut on the left. The river is at the very bottom of the canyon.
2. The cave is the hollow room under the ground on the right. It has a roof of rock.
3. The Colorado River.
4. 9 cave animals.
5. The island is number 4, in the sea on the right. The arrow with the N points up, so north is toward the top of the map.

UNIT 3 REVIEW

Ask each question aloud. Your child answers by saying, pointing, showing with hands or drawing. Have the picture map from Lesson 3.4 ready for the last question. The review is worth 20 points.

1. (2 pts) Show me a hill with your hands. Now show me a mountain. Which one is taller?
2. (3 pts) What is the tallest mountain in the world? Who were the two men who first stood on top of it?
3. (3 pts) What is a valley? What often runs along the bottom of a valley?
4. (2 pts) Why do farmers like to plant fields in valleys and on plains? Tell me one reason.
5. (3 pts) What is an island? Draw one, with water all around it.
6. (2 pts) Hold up the right number of fingers: how many sides of a peninsula have water?
7. (2 pts) Which one is under the ground with a roof of rock: a cave or a canyon?
8. (3 pts) Look at the picture map from Lesson 3.4. Point to the mountain, the hill, the valley and the island.

UNIT PROJECT: MY SALT-DOUGH LANDFORM TRAY

Make salt dough together: mix 2 cups of flour and 1 cup of salt, then stir in about 3/4 cup of water a little at a time until the dough is smooth and does not stick to your hands. On a sturdy piece of cardboard or a baking sheet, your child shapes a tall mountain with a peak, a low round hill, a valley with a river groove between two hills, a flat plain, a peninsula reaching out to the edge, and a separate island. Let it air-dry for a few days, or bake it at a low oven temperature (about 200°F) for a few hours until hard, then paint the bare board around the island and peninsula blue for the sea, the low land green, the mountains brown or gray and the peaks white. Do not eat the dough, and keep it away from dogs, since that much salt can make pets sick.

When the tray is dry, your child gives a short “tour” to the family, pointing to and naming each landform and telling one thing about it, such as “This is Mount Everest; Hillary and Tenzing climbed it” or “The farm goes in the valley by the river.” Take a photo of the tray from above and from the side, and keep it with the picture map from Lesson 3.4.

- **Landforms:** The tray shows at least five landforms: mountain, hill, valley, plain, island or peninsula, each with the right shape.
- **Naming:** The child points to and names each landform without help.
- **Telling:** The child tells one true thing about at least three landforms, such as a story from the unit or why farms like valleys.
- **Care:** The tray is shaped and painted with care, with water in blue and land in land colors.

1. A low, round shape for the hill and a tall, pointed shape for the mountain. The mountain is taller.
2. Mount Everest. Edmund Hillary and Tenzing Norgay (1 point for Everest, 1 point for each name).
3. Low land between hills or mountains. A river or stream.
4. Any one: the land is flat and easy to plow; the river gives water; the soil is good for plants.
5. Land with water all around it. The drawing shows land fully surrounded by water (colored blue or marked as water).
6. 3.
7. A cave. (A canyon is a deep valley open to the sky with a river at the bottom.)
8. Mountain: number 1. Hill: number 2. Valley: number 3. Island: number 4. (3 points for all four; 2 points for three; 1 point for one or two.)

RIVERS, LAKES AND THE SEA

On the third day of creation, God said, “Let the waters under the heaven be gathered together unto one place, and let the dry land appear” (Genesis 1:9). In this unit your child will follow that water. A raindrop falls on a mountain, runs down into a little stream, joins a river, rests for a while in a lake and at last pours into the great salty sea. Along the way your child will build a sand-tray river, make a lake, dry a saucer of salt water in the sun and load a foil boat with pennies.

We will meet the baby Mississippi River at Lake Itasca, look down at the five Great Lakes the way astronauts see them, taste the difference between fresh and salty water and remember Noah’s ark floating on the flood. In the last lesson we will see that rivers were people’s first roads, long before trucks, trains or airplanes. Everything is said, pointed to, built or drawn; your child does not need to read.

BEFORE YOU BEGIN

- Knows that a map shows a place from above (Unit 1)
- Can point to land and water on a globe or picture map (Unit 2)
- Can tell a mountain or hill from a valley (Unit 3)
- Can count objects to 10

MASTERY CHECKLIST

- I can show that water always runs downhill.
- I can follow a river on a map from the mountain to the sea.
- I can tell a river (moving water) from a lake (resting water), and count the five Great Lakes.
- I can tell why the sea is salty and a river is fresh.
- I can make a foil boat that floats and tell how rivers became roads.

OPTIONAL BOOKS AND RESOURCES

- **NASA Earth Observatory** (<https://earthobservatory.nasa.gov/>): Free. Search “Great Lakes” to find real satellite pictures of the five lakes from space for Lesson 4.2. A parent can pick one clear picture to show on a screen.
- **Mississippi National River and Recreation Area (National Park Service)** (<https://www.nps.gov/miss/>): Free. Photos and short facts about the Mississippi River, from its small beginning in Minnesota to the river towns along its banks (Lessons 4.1 and 4.4).
- **National Gallery of Art** (<https://www.nga.gov/>): Free. Search the collection for Winslow Homer’s *Breezing Up (A Fair Wind)* to see the painting large and zoom in on the boys in the boat (Lesson 4.4).

4.1 WHERE DOES A RIVER GO? ★

OBJECTIVES

- Show with sand and water that water always runs downhill.
- Tell how a river goes from a high place (its source) down to the sea (its mouth).
- Trace a river on a picture map with a finger, from the mountain to the sea.

Warm-up. Lay a baking sheet flat on the kitchen table. Put one end up on a thick book so it is like a hill. Ask your child, “If I pour a little water at the top, which way will it go?” Let your child guess, then pour a spoonful at the high end and watch it run down. Try it again with the book under the other end. Does the water ever run up?

Video. Coming soon. Short kid-friendly footage (under 8 minutes) of a river from mountain stream to the sea, and of the Mississippi River’s small beginning at Lake Itasca, Minnesota, where people walk across on stepping stones; search SciShow Kids, Smithsonian, National Park Service (Mississippi National River) and Homeschool Pop (Alternate); candidates needing vetting: National Geographic Kids, Free School.

KEY TERMS

river

A long line of water that keeps moving, always going downhill.

stream

A small river. Little streams join together to make a big river.

source

The place where a river begins, high up on the land.

mouth

The place where a river ends and pours into the sea or a lake.

CORE IDEAS

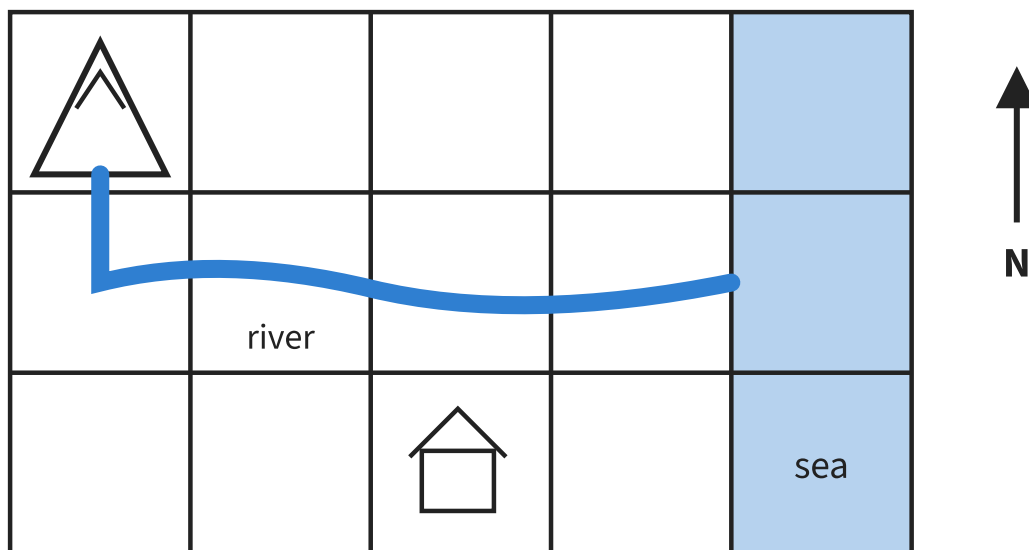
The story. Far up in the north woods of Minnesota there is a small, quiet lake called Lake Itasca. Out of it runs a little stream. It is so narrow and shallow that children can walk across it on big stepping stones. That little stream is the very beginning of the **Mississippi River**, one of the biggest rivers in the world. From there it twists and turns, first north and east, and then flows south, past forests and farms and towns, for more than two thousand miles. It gets wider and wider and wider, until at last it pours into the sea at the Gulf of Mexico.

How it works. Water always goes downhill. It never runs uphill by itself. When rain falls on a mountain or a hill, the water runs down in tiny trickles. The trickles meet and make a **stream**. Streams meet and make a **river**. The river looks for the lowest way it can find. It goes around hills and down through valleys, lower and lower, until it reaches the lowest

place of all: the sea. The place where a river begins is its **source**. The place where it ends is its **mouth**.

The big idea. God made water to move. Long ago, wise King Solomon wrote, “All the rivers run into the sea.” Rivers carry water to thirsty animals, trees, fields and people all along the way. That is why so many towns are built beside rivers. People drink the water, water their gardens and catch fish there.

On the map. On a map, a river is drawn as a wiggly blue line. To read it, start up at the mountain and follow the line down with your finger. Most rivers start thin and get fatter as other streams join them. Keep going until your finger reaches the big blue sea. That is where the river goes!



A river runs from the mountain down to the sea. Follow it with your finger.

PICTURE STUDY



View from Mount Holyoke, Northampton, Massachusetts, after a Thunderstorm—The Oxbow, Thomas Cole, 1836 · Oil on canvas · The Metropolitan Museum of Art, New York

Thomas Cole loved to paint the hills, rivers and forests of America. One day he climbed a mountain in Massachusetts and looked down at the Connecticut River. Far below, the river made a giant loop, shaped like a horseshoe. People call this loop the Oxbow. The Connecticut River keeps flowing south from here, all the way to the sea.

Cole painted himself into the picture too, but he made himself very small. Can you find him?

Look closely

- Put your finger on the river. Follow it around the big loop.
- Find the dark storm clouds. Which side of the picture are they on? Which side is sunny?
- Find the little painter at his easel. He is hiding near the bottom.
- Find the fields by the river. Why do you think farmers like to live near a river?

Talk about it

1. Is the painter up high or down low? How can you tell?
2. Where do you think this river is going?
3. Would you rather be in the stormy part or the sunny part of the picture? Why?

Safety first. This is a wet, sandy activity. Do it outside or on an old towel, and wash hands after playing in sand or dirt.

PROJECT: A SAND-TRAY RIVER

You will build a mountain out of sand, pour “rain” on top and watch the water find its own way down to the sea. Then you will help it with a river bed.

You will need

- A large plastic storage tub, baking pan or sandbox corner
- Damp sand or garden dirt (enough to fill half the tub)
- A watering can, or a cup with a few small holes poked in the bottom
- A few pebbles and small sticks
- A small toy boat, cork or leaf (optional)

Steps

1. Pile the damp sand at one end of the tub. Pat it into a tall mountain. Leave the other end of the tub empty. That empty end is the “sea.”
2. Ask: “If it rains on the mountain, where will the water go?” Let the child point.
3. Let the child sprinkle “rain” gently on the top of the mountain with the watering can. Watch the little trickles.
4. Look closely: do little trickles join together? Where do they all end up?
5. Now let the child press a finger into the sand to draw a river bed from the top of the mountain down to the sea, with a bend or two.
6. Pour water slowly at the top again. Does the water follow the river bed?
7. Set pebbles along the river for rocks and stick a twig in the sand for a tree. Float a cork or leaf down the river to the sea.
8. Point and name: “Here is the source. Here is the mouth.”

Tips

- Damp sand holds its shape best. If the mountain melts too fast, pat it firmer or pour more slowly.
- Keep the tray for Lesson 4.2: a hollow in the sand will become a lake.

Check your work

- My child poured water on the mountain and watched it run downhill.
- My child can point to the source and the mouth of the sand river.
- My child can tell where the river goes: down to the sea.

MAP NOTEBOOK

1. Draw a big mountain on one side of the page and a blue sea on the other side. Draw a wiggly blue river from the top of the mountain down to the sea.
2. Draw raindrops falling on your mountain. Draw three little streams running down to join your river.

3. Draw a house, a tree and a cow beside your river. They all need the river's water.

From history. For a long time, no one was sure where the Mississippi River began. In 1832 an explorer named Henry Schoolcraft traveled north into the woods of Minnesota with an Ojibwe guide named Ozawindib, who knew the country well. Ozawindib led him to a lake that the Ojibwe already knew. Schoolcraft named it Lake Itasca, which he made from parts of two Latin words, *veritas* and *caput*, meaning “true head.” Today visitors walk across the baby Mississippi there on stepping stones.

WORKED EXAMPLES

Example 1. Look at the picture map. Put your finger on the mountain. Follow the river to the sea. How many squares does the river go through after it leaves the mountain square?

(Use the map or drawing “Count the river squares from the mountain to the sea.” shown earlier in this lesson.)

1. Put your finger on the mountain in the top corner.
2. Slide your finger down the blue river into the next square. Count “one.”
3. Keep sliding to the right, one square at a time: “two, three, four.”
4. The next square is all blue. That is the sea. Stop counting.

Answer: 4 squares. The river runs downhill from the mountain to the sea.

PRACTICE

1. **EASY** Does water run uphill or downhill?
2. **EASY** Point to the picture map. Show me the mountain. Now show me the sea.
3. **EASY** On the picture map, the arrow with the N points to north. Point to north.
4. **MEDIUM** Two little streams join together, and then one more stream joins them. How many streams went into the river?
5. **MEDIUM** Show with your hands: is a river thin or wide near its source? Thin or wide near its mouth?

COMMON MISTAKES

- Thinking a river can start at the sea and flow up to the mountain. Rivers always flow downhill, so they start high and end low.
- Thinking the source and the mouth are the same place. The source is where the river begins; the mouth is where it ends.
- Drawing a river as a straight line. Real rivers bend and wiggle around hills on their way down.

Make it a game · Uphill or Downhill?. The parent says something water might do, such as “Rain runs down a hill,” “A river runs up a mountain,” or “A stream runs into a

lake.” If it can happen, the child crouches low and makes a whooshing river sound with wiggly arms. If it cannot happen, the child stands tall and says, “No, water runs downhill!” Play ten rounds and let the child make up some too.

Scripture. “All the rivers run into the sea; yet the sea is not full; unto the place from whence the rivers come, thither they return again.” (Ecclesiastes 1:7, KJV)

God made the water go round and round: rivers run to the sea, and the rain comes back to the hills to fill the rivers again. Every river on earth is following the path God set for it.

Practice answers

1. Downhill.
2. The mountain is in the top left square. The sea is the blue column on the right.
3. Up, toward the top of the page.
4. 3 streams.
5. Thin near the source (hands close together) and wide near the mouth (hands far apart), because other streams join it on the way.

4.2 LAKES AND PONDS

OBJECTIVES

- Tell that a lake is water resting in a low place with land all around it, and a pond is a small lake.
- Count the five Great Lakes on a map and point to the biggest one, Lake Superior.
- Make a lake in a sand tray and watch water fill a low place and rest there.

Warm-up. Fill a pie pan or a plate with a rim with a little water and set it on the table. Ask, “Is this water running anywhere?” Now tip the pan just a little over the sink so the water runs out. Which one is like a river (moving water)? Which one is like a lake (resting water)?

Video. Coming soon. Kid-friendly views of the Great Lakes from space and short pond-life footage (frogs, ducks, lily pads), each under 8 minutes; search NASA and NASA Earth Observatory (Great Lakes from orbit), Smithsonian, SciShow Kids, and Homeschool Pop (Alternate); candidates needing vetting: National Geographic Kids, and a Brightly Storytime-style read-aloud of Holling C. Holling’s *Paddle-to-the-Sea*.

KEY TERMS

lake

A big pool of water that rests in a low place, with land all around it.

pond

A small, shallow lake. Frogs, ducks and lily pads like ponds.

fresh water

Water that is not salty. Rivers and most lakes have fresh water.

CORE IDEAS

The story. High above the earth, astronauts float in a space station that goes all the way around the world. When they look down at North America on a clear day, they can see five giant blue shapes, like puzzle pieces, sitting in the middle of the land. These are the **Great Lakes**: Lake Superior, Lake Michigan, Lake Huron, Lake Erie and Lake Ontario. They are so big that if you stood on the shore, you could not see the other side. They have waves and beaches like the sea. But their water is **fresh**, not salty.

How it works. Remember that water always runs downhill. When a river or stream runs into a low place, like a big bowl in the land, the water fills up the bowl and rests there. That resting water is a **lake**. A small, shallow lake is a **pond**. Lakes often have a river running in and a river running out. The water of the Great Lakes slowly moves from lake to lake, tumbles over Niagara Falls, and at last runs out through the St. Lawrence River to the Atlantic Ocean.

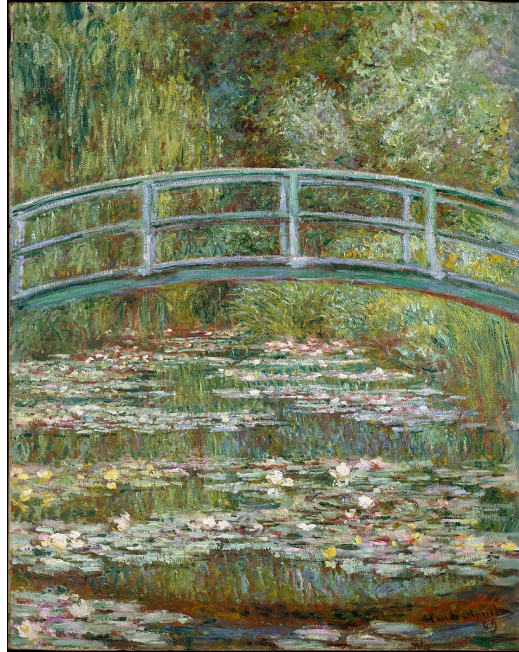
The big idea. A river is water on the move. A lake is water at rest. God made both. Lakes and ponds are homes for fish, frogs, turtles and ducks. Animals come to drink there, and people swim, fish and row boats there. The Bible says the Lord “leadeth me beside the still waters,” like a shepherd taking his sheep to a calm pond to drink.

On the map. On a map, a lake is a blue shape with land all around it. A river is a thin blue line. Look at the map of the Great Lakes and count them on your fingers. The biggest one, at the top, is Lake Superior. It is one of the biggest lakes of fresh water in the whole world.



The five Great Lakes. Count them! Which one is the biggest?

PICTURE STUDY



Bridge over a Pond of Water Lilies, Claude Monet, 1899 · Oil on canvas · The Metropolitan Museum of Art, New York

Claude Monet was a French painter who loved gardens and water. At his home in the village of Giverny, he dug a pond, filled it with water lilies and built a little arched bridge over it. Then he painted his pond again and again, in the morning, at noon and in the evening, to show how the light changed on the still water.

Look closely

- Find the bridge. What shape is it? Trace it in the air with your finger.
- Find the round lily pads floating on the water. Can you count five of them?
- Is the water in this pond rushing or resting? How can you tell?
- Find all the different greens. How many greens can you see?

Talk about it

1. Is this water a river or a pond? How do you know?
2. What animals might live in this pond?
3. If you walked across the bridge, what would you look at first?

PROJECT: MAKE A LAKE

You will use your sand tray from Lesson 4.1 (or a pan of damp dirt) to make a low place in the land and fill it with water. You will see water rest in a lake, and then run out again as a river.

You will need

- The sand tray from Lesson 4.1, or a baking pan of damp sand or dirt
- A cup of water
- A small piece of plastic wrap or a plastic lid (to line the lake so the water does not soak away)
- Small toys: a duck, frog or fish, or paper cutouts of them
- A few green leaves for lily pads

Steps

1. Scoop out a round hollow in the middle of the sand. Say, “This is a low place, like a bowl in the land.”
2. Lay plastic wrap or a plastic lid in the hollow and press sand around its edges.
3. Pour water slowly into the hollow. Watch it fill up and stop. Ask, “Is the water moving or resting?” That is a lake!
4. Float leaves on the lake for lily pads. Set a toy duck or frog on the shore.
5. Now draw a little river bed from the mountain down into the lake. Pour water at the top. The river runs into the lake.
6. Last, draw a river bed out of the other side of the lake toward the “sea.” Pour more water into the lake until it spills over and runs out. Now the lake has a river in and a river out, like the Great Lakes.

Tips

- Without a lining, the sand will drink the water. Pour it in anyway first so your child can see the difference.
- On a walk, visit a real pond or lake if you can. Look for things that live there and count them.

Check your work

- My child made a lake in a low place and saw the water rest.
- My child can tell the difference between a river (moving) and a lake (resting).
- My child can count the five Great Lakes on the map.

MAP NOTEBOOK

1. Draw a round blue pond. Draw a frog, a duck and three lily pads on it.
2. Draw a big lake with land all around it. Draw a river running into the lake and another river running out of it.
3. Trace or copy the five Great Lakes from the map with blue crayon. Color the biggest one, Lake Superior, the darkest blue.

From history. In 1941 an American artist named Holling C. Holling wrote and painted a picture book called *Paddle-to-the-Sea*. In it, a Native boy in the north woods of Canada carves a little wooden canoe with a man inside and sets it in the snow above Lake Superior. When spring comes, the melting snow carries the canoe into a stream, and the

little canoe makes a long journey through all five Great Lakes, over Niagara Falls and down the St. Lawrence River to the ocean. The book won a Caldecott Honor in 1942, and families still read it today to follow the water of the Great Lakes to the sea.

WORKED EXAMPLES

Example 1. Look at the map of the Great Lakes. How many Great Lakes are there? Which one is the biggest?

(Use the map or drawing “Count the lakes, then find the biggest.” shown earlier in this lesson.)

1. Put your finger on the top lake and count “one.”
2. Move your finger to each blue lake in turn: “two, three, four, five.”
3. Now look at the sizes. Which lake takes up the most space on the map? It is the long one at the top.
4. A grown-up reads its name: Lake Superior.

Answer: There are 5 Great Lakes. The biggest is Lake Superior, at the top.

PRACTICE

1. **EASY** Hold up one finger for each Great Lake. How many fingers?
2. **EASY** Which is bigger, a lake or a pond?
3. **EASY** Point to the biggest Great Lake on the map.
4. **MEDIUM** Show me with your body: how does river water move? How does lake water move?
5. **MEDIUM** A pond has 3 ducks. 2 more ducks fly in. How many ducks are on the pond now?

COMMON MISTAKES

- Thinking every big water is the sea. The Great Lakes are as big as seas, but they have land all around them and their water is fresh.
- Thinking lakes never move at all. The water in a lake rests, but rivers bring water in and often carry water out.
- Mixing up a pond and a puddle. A puddle dries up after the rain; a pond stays and is a home for plants and animals.

Make it a game · River or Lake?. Lay a blue towel or blanket on the floor for a lake. The parent calls “River!” or “Lake!” On “River!” the child runs in a wiggly line around the room. On “Lake!” the child hurries to the blue blanket and sits very still, like resting water. Add “Frog!” (hop onto the lake) and “Duck!” (waddle and quack around the shore) for fun.

Scripture. “He maketh me to lie down in green pastures: he leadeth me beside the still waters.” (Psalm 23:2, KJV)

Sheep are afraid to drink from rushing water, so a good shepherd leads them to calm, still water. The Lord is our Good Shepherd, and He gives us rest like a quiet pond.

Practice answers

1. 5 fingers.
2. A lake.
3. Lake Superior, the long lake at the top left of the map.
4. River water: wiggle and run along (it moves and flows). Lake water: stand still and calm (it rests).
5. 5 ducks.

4.3 THE SALTY SEA

OBJECTIVES

- Taste a drop of fresh water and a drop of salt water and tell which is like a river and which is like the sea.
- Tell in simple words why the sea is salty: rivers carry tiny bits of salt to the sea, and the sun lifts the water up but leaves the salt behind.
- Sort rain, rivers, ponds and the sea into “fresh” and “salty.”

Warm-up. Set out two small clear cups of water that look just the same. Stir one teaspoon of salt into one cup while your child is not looking. Ask, “Can you tell which one has salt just by looking?” Now let your child dip a fingertip in each cup and touch it to the tongue. Which is fresh? Which is salty?

Video. Coming soon. Short kid-friendly videos (under 8 minutes) on why the ocean is salty, how evaporation leaves salt behind, and gentle ocean footage of waves and sea animals; search SciShow Kids, NASA, Smithsonian (Ocean Portal), and Homeschool Pop (Alternate); candidates needing vetting: NOAA SciJinks, National Geographic Kids, Free School.

KEY TERMS

sea

The big, deep, salty water that covers most of the earth. A very big sea is called an ocean.

salty

Tasting of salt, like sea water or a pretzel.

fresh water

Water that is not salty, like rain, rivers and most lakes. It is the water people and animals drink.

CORE IDEAS

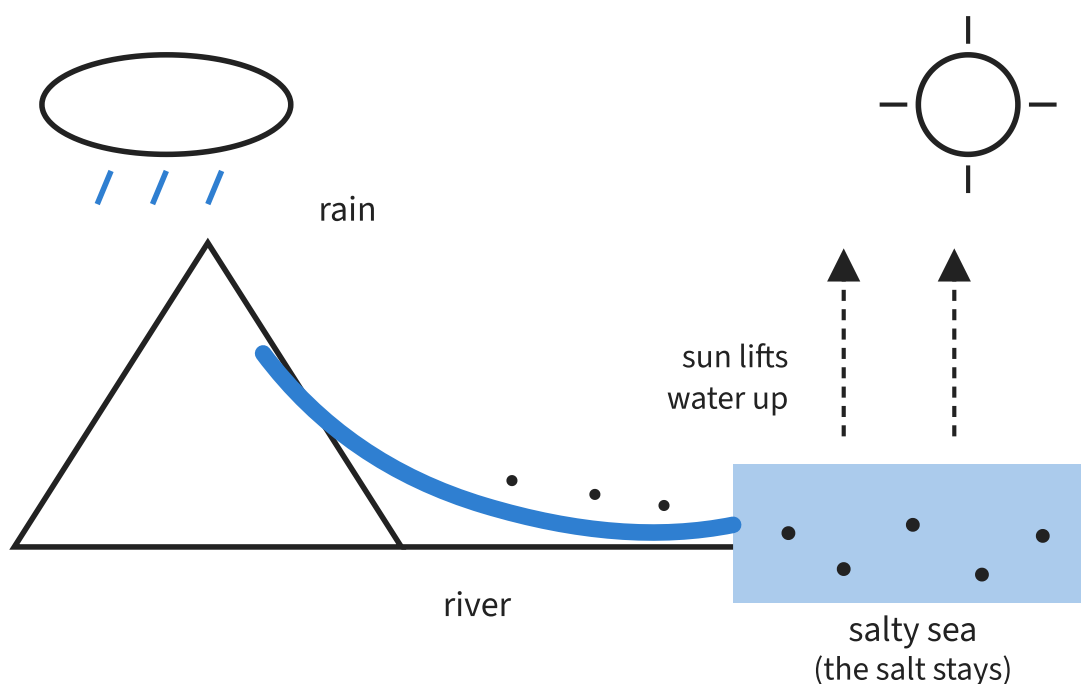
The story. Long ago, when sailors crossed the sea in wooden ships, they carried big wooden barrels full of fresh water to drink. They were floating on water all the way across, but they could not drink it, because sea water is **salty**. A poet named Samuel Taylor Coleridge wrote a famous poem in 1798 about a sailor stuck on a ship with no fresh water left. The sailor said, “Water, water, every where, / Nor any drop to drink.”

How it works. Rain is fresh. When rain falls on the land, it runs over rocks and through the dirt. As it goes, it picks up teeny, tiny bits of salt, far too small to taste. Rivers carry those tiny bits down to the sea. Then the warm sun shines on the sea. Little by little, the sun lifts water up into the air, where it makes clouds. But the salt cannot go up into the air. It stays

behind in the sea. Year after year, the rivers keep bringing salt, and the salt keeps staying. So the sea is salty.

The big idea. Why does a river stay fresh? Because a river never sits still. New rain keeps filling it, and it keeps running away to the sea, so the salt never piles up. On the third day of creation God gathered the waters together, and “the gathering together of the waters called he Seas.” The salty sea is full of fish, whales, crabs and seaweed that God made to live in salt water. Rivers and lakes are full of creatures that need fresh water.

On the map. On a map, the sea and the ocean are colored blue, just like rivers and lakes. The sea is the biggest blue of all. It goes all the way around the land. Remember: rivers are lines, lakes are shapes with land all around, and the sea is the big blue that touches the land’s edges.



Rivers carry tiny bits of salt to the sea. The sun lifts the water up, but the salt stays in the sea.

PICTURE STUDY



Cliff Walk at Pourville, Claude Monet, 1882 · Oil on canvas · The Art Institute of Chicago

Claude Monet spent a summer painting by the sea in a little French village called Pourville. Here he shows two ladies standing on a windy cliff, looking out at the wide sea. The grass is blowing, the sky is bright and the sea seems to go on forever. If you could stand on that cliff, you might smell the salty air.

Look closely

- Find the two ladies. What is one of them holding?
- Find the sea. Can you see where it ends?
- Count the little white sailboats on the water.
- Look at the grass. Is the wind blowing? How can you tell?

Talk about it

1. If the ladies tasted this water, would it be fresh or salty?
2. Are the ladies up high or down low? Why can they see so far?
3. What sounds do you think you would hear on this cliff?

Safety first. Only a fingertip taste of salt water. Explain that people should never drink sea water, because it makes the body thirstier. Never leave a young child alone near water.

PROJECT: MAKE SEA SALT IN A SAUCER

You will make your own little “sea” in a saucer and let the sun do its work. In a few days the water will be gone, but the salt will be left behind, just like in the real sea.

You will need

- Two saucers or small dark plates
- Warm water
- Salt and a teaspoon
- Two labels or sticky notes (a parent writes FRESH and SALTY, or draws a raindrop and a fish)
- A sunny windowsill
- A magnifying glass (optional)

Steps

1. Stir two teaspoons of salt into half a cup of warm water until the salt disappears. Ask, "Where did the salt go? Is it still there?" Let your child taste a fingertip to find out.
2. Pour a thin layer of the salt water into one saucer. Pour a thin layer of plain tap water into the other saucer.
3. Label the saucers and set them side by side on a sunny windowsill.
4. Each day, look at the saucers together. Is there less water? Where is it going? (The sun is lifting it up into the air.)
5. When the water is all gone (two to five days), look closely. The salty saucer has white crunchy salt crystals left. The fresh saucer has almost nothing.
6. Look at the crystals with a magnifying glass. Say together: "The water went up, but the salt stayed behind. That is why the sea is salty!"

Tips

- Dark plates make the white salt easier to see.
- Tap water may leave a faint ring from minerals. That is a tiny bit of what rivers carry to the sea.

Check your work

- My child tasted fresh and salty water and could tell them apart.
- My child saw the water disappear and the salt stay behind.
- My child can say in his or her own words why the sea is salty.

MAP NOTEBOOK

1. Draw a cup of fresh water with a smiling face and a cup of salt water with a puckered face.
2. Draw the sun shining on the sea. Draw wavy arrows going up from the sea to make a cloud. Draw little dots of salt staying in the sea.
3. Draw one animal that lives in the salty sea and one animal that lives in a fresh-water pond.

From history. In Utah there is a lake called the Great Salt Lake. Rivers run into it, but no river runs out. The sun lifts the water up and leaves the salt behind, just like in the sea. Over a very long time it has become much saltier than the ocean, so salty that a person can float in it like a cork. Fish cannot live in it, but tiny brine shrimp can, and millions of birds come to eat them.

WORKED EXAMPLES

Example 1. Sort these waters into two groups, fresh and salty: rain, a river, a pond, the sea.

(Use the map or drawing “Point to the rain, the river and the sea. Which one is salty?” shown earlier in this lesson.)

1. Rain falls from the clouds. The sun lifted it up and left the salt behind, so rain is fresh.
2. A river is filled by rain and keeps running, so a river is fresh.
3. A pond is filled by rain and little streams, so a pond is fresh.
4. The sea keeps all the salt the rivers bring, so the sea is salty.
5. Count each group: fresh has 3, salty has 1.

Answer: Fresh: rain, river, pond (3). Salty: the sea (1).

PRACTICE

1. **EASY** Is the sea fresh or salty?
2. **EASY** Is a river fresh or salty?
3. **EASY** Point to the picture. Where does the salt stay?
4. **MEDIUM** A thirsty sailor finds two barrels. One has sea water and one has rain water. Which one should he drink? Why?
5. **MEDIUM** Draw 3 fish in a river and 4 fish in the sea. How many fish did you draw in all?

COMMON MISTAKES

- Thinking people pour salt into the sea. The salt comes very slowly from rocks and soil, carried by rivers over a very long time.
- Thinking the salt goes up into the clouds with the water. The sun lifts only the water; the salt stays behind, so rain is fresh.
- Thinking all big water is salty. Rivers and most lakes, even the giant Great Lakes, are fresh.

Make it a game • Fresh or Salty Toss. Set out two baskets or bowls: one for “fresh” (a parent can mark it with a raindrop) and one for “salty” (marked with a fish or wave). The parent names a water or a creature: rain, a puddle, the sea, a pond, a river, a whale, a

frog, a duck pond. The child tosses a sock ball into the right basket. One point for each right toss; play to ten.

Scripture. “The sea is his, and he made it: and his hands formed the dry land.” (Psalm 95:5, KJV)

The great salty sea is not too big for God. He made it, He knows every drop in it, and He made the dry land where we live.

Practice answers

1. Salty.
2. Fresh.
3. In the sea.
4. The rain water, because it is fresh. Sea water is salty and would make him thirstier.
5. 7 fish.

4.4 BOATS ON THE WATER

OBJECTIVES

- Tell the story of Noah’s ark and how the waters “bare up the ark.”
- Show with foil that a wide, hollow boat floats while the same foil squeezed into a ball sinks.
- Tell how rivers were the first roads, carrying people and loads on boats.

Warm-up. Fill the sink or a big bowl with water. Gather six small things from the house: a spoon, a cork, a crayon, a coin, a plastic lid and a leaf. Before each one goes in, ask, “Will it float or sink?” Drop it in and see. Make two piles: floaters and sinkers. How many floaters? How many sinkers?

Video. Coming soon. Kid-friendly sink-or-float and foil-boat experiments, a gentle picture-book read-aloud of Noah’s ark, and short footage of barges and boats on the Mississippi River, each under 8 minutes; search Science Max, SciShow Kids, The Henry Ford, Smithsonian, and Homeschool Pop (Alternate); candidates needing vetting: Free School, Brightly Storytime-style read-alouds.

KEY TERMS

float

To stay up on top of the water.

sink

To go down to the bottom of the water.

boat

Something people build to float and carry people and things across water.

ark

The great boat God told Noah to build to keep his family and the animals safe in the flood.

CORE IDEAS

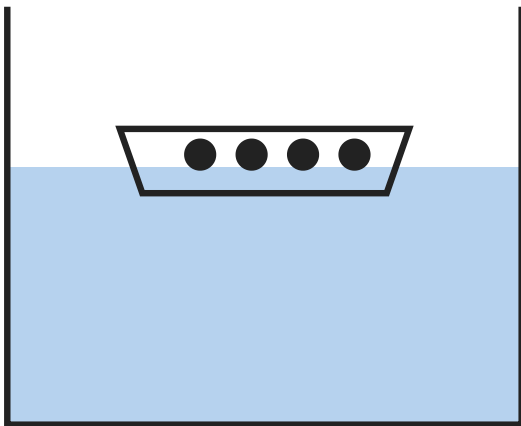
The story. The Bible tells about a man named Noah. God told Noah to build a very big boat called an **ark**, out of wood, and to cover it with pitch inside and out to keep the water out. Noah obeyed. He brought his family and the animals inside, two by two. Then the rain came down for forty days and forty nights. The water rose higher and higher, and the Bible says the waters “bare up the ark.” The great wooden boat **floated**, and everyone inside was safe.

How it works. Why does a boat float? When you push a boat down into water, it pushes the water out of the way. The water pushes back up on the boat. A wide, hollow boat pushes lots of water out of the way, so the water pushes up hard and holds it up. But take that same piece of foil and squeeze it into a tight little ball, and it **sinks**. It is the same foil! Only the

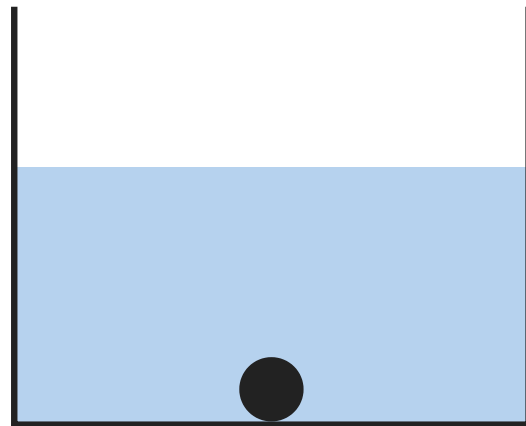
shape changed. That is why boats are wide and hollow, like a bowl, and why a flat leaf can ride along on a puddle.

Technology overcoming geography. Long ago there were no trucks, trains or airplanes, and roads through the woods were rough and muddy. So people used rivers as their roads. They paddled canoes, floated rafts and pushed big flat boats loaded with corn, flour and logs down the river. A river carries a boat downhill without any horse to pull it. Towns grew up along rivers where boats stopped to load and unload. Even today, long, flat boats called barges carry grain down the Mississippi River to the sea.

On the map. Look again at a river on a map. Now you know it is more than water: it is a road. Follow it with your finger, like a little boat, from the mountain down to the sea. Look at Winslow Homer's painting, too. There the wind pushes on the sail, and the boat races across the water.



wide boat floats



foil ball sinks

The same foil: a wide boat floats, a squeezed ball sinks.

PICTURE STUDY



Breezing Up (A Fair Wind), Winslow Homer, 1873–1876 · Oil on canvas · National Gallery of Art, Washington, D.C.

Winslow Homer was an American painter who loved the sea. He spent time in the fishing town of Gloucester, Massachusetts, where he watched boys and fishermen sailing small boats. In this painting, a man and three boys are out on a windy day. The wind fills the sail, the boat leans over and the waves splash by. You can almost feel the spray!

Look closely

- Count the people in the boat. How many are boys?
- Find the sail. Which way is the wind pushing it?
- Look at the boat. Is it sitting straight up, or leaning over? Why?
- Find the other ship far away on the edge of the sea.

Talk about it

1. Why doesn't this boat sink, even with four people in it?
2. How do you think the boys feel? What would you say if you were in the boat?
3. Is this water fresh or salty? How do you know?

Safety first. Stay with your child at all times during water play, even in a tub or sink. Keep pennies away from babies and toddlers, who may put them in their mouths.

PROJECT: A FOIL BOAT

You will build a little boat out of aluminum foil, float it, and load it with pennies one at a time to see how much it can carry. Then you will squeeze the same foil into a ball and watch what

happens.

You will need

- Two squares of aluminum foil, about the size of a sheet of paper
- A tub, sink or large bowl of water
- A jar of pennies (a boat this size can hold 100 or more), or small washers, marbles or dry beans
- A towel

Steps

1. Help your child fold up the four edges of a foil square to make a little open box, like a flat-bottomed boat. Pinch the corners so there are no holes.
2. Set the boat gently on the water. Does it float?
3. Add pennies one at a time, near the middle. Count each one out loud together.
4. Keep going until the water spills in and the boat sinks. How many pennies did it hold?
5. Now take the second foil square and squeeze it into a tight little ball. Then a grown-up squeezes it even harder, pressing out all the air, until it is small and hard. Drop it in the water. Does it float or sink?
6. Talk about it: “Same foil, different shape. The wide, hollow boat floats. The squeezed ball sinks.”
7. Try a new boat with taller sides or a wider bottom. Can it carry more pennies?
8. Last, set a leaf in the water and float it like a little leaf boat. Blow on it like the wind in Winslow Homer’s painting.

Tips

- Spread the pennies out across the bottom of the boat. If they all go on one side, the boat tips over.
- If you made a sand-tray river in Lesson 4.1, float your foil boat down it to the sea.

Check your work

- My child built a foil boat that floated.
- My child counted the pennies the boat could carry.
- My child saw that the same foil sinks when squeezed into a ball.

MAP NOTEBOOK

1. Draw Noah’s ark floating on the water, with a rainbow over it.
2. Draw your foil boat with the pennies it carried. Draw a foil ball at the bottom of the water.
3. Draw a river from a mountain to the sea, then draw three boats traveling down it carrying things: logs, corn and people.

From history. When Abraham Lincoln was a young man, before he was ever president, he helped take a flatboat loaded with farm goods down the Mississippi River to the city of New Orleans, near the sea. A flatboat was a big wooden box-like boat that floated with the river. It could not be rowed back upstream, so at the end of the trip it was often broken apart and sold as lumber, and the boatmen walked or rode a steamboat home. Thousands of farmers sent their crops to market this way, because the river was the best road they had.

WORKED EXAMPLES

Example 1. Look at the two tubs. Which piece of foil floats, and which sinks? Which shape makes a better boat?

(Use the map or drawing “Which one floats? Which one sinks?” shown earlier in this lesson.)

1. Point to the left tub. The foil is wide and hollow, with pennies inside. It is on top of the water: it floats.
2. Point to the right tub. The foil is squeezed into a ball. It is on the bottom: it sinks.
3. Both tubs have the same kind of foil. Only the shape is different.
4. A boat needs to float, so the wide, hollow shape is better.

Answer: The wide, hollow foil boat floats; the foil ball sinks. The wide, hollow shape makes the better boat.

PRACTICE

1. **EASY** Who built the ark?
2. **EASY** Point to the picture. Does the foil ball float or sink?
3. **EASY** Show with your hands the shape of a boat that floats.
4. **MEDIUM** Your foil boat held 8 pennies. Your sister’s boat held 10 pennies. Whose boat held more? How many more?
5. **MEDIUM** Long ago there were no trucks. How could a farmer send his corn far away to the sea?

COMMON MISTAKES

- Thinking only light things float. A huge, heavy ship floats because it is wide and hollow; a tiny coin sinks.
- Thinking the foil ball sinks because it is a different kind of foil. It is the same foil; only the shape changed.
- Thinking rivers are only for swimming and fishing. For a very long time, rivers were the main roads for people and their loads.

Make it a game · Row, Row, Row Your Boat to Market. Sit facing each other on the floor and hold hands. Rock back and forth, “rowing,” while you sing “Row, Row, Row Your Boat.” At the end of each verse, the parent calls out a load for the boat: “Corn!” “Logs!” “Ducks!” “Pennies!” The child makes the load’s sound or action. Then row down the “river” (a hallway) to the “sea” (a blue blanket) and unload everything.

Scripture. “And the flood was forty days upon the earth; and the waters increased, and bare up the ark, and it was lift up above the earth.” (Genesis 7:17, KJV)

God told Noah exactly how to build the ark, and the water held it up. God cared for Noah, his family and the animals through the whole flood.

Practice answers

1. Noah.
2. It sinks.
3. Hands cupped together like a wide, hollow bowl.
4. Your sister’s boat, by 2 pennies.
5. Load it on a boat and float it down the river to the sea.

UNIT 4 REVIEW

A parent asks each question aloud. Your child answers by saying, pointing, showing or drawing. No reading or writing is needed. The review is worth 20 points.

1. (3 pts) If you pour water on top of a sand hill, which way does it go? Show me with your hand.
2. (3 pts) Show me the picture map from Lesson 4.1 (or draw a quick one: mountain on one side, sea on the other). Put your finger on the mountain and follow the river. Where does the river go?
3. (3 pts) Which one moves and which one rests: a river or a lake?
4. (3 pts) Show me with your fingers: how many Great Lakes are there?
5. (3 pts) Is the sea fresh or salty? Is a river fresh or salty?
6. (2 pts) When the sun dried up the salty water in our saucer, what was left behind?
7. (3 pts) Which floats: a wide, hollow foil boat or a squeezed-up foil ball? Who built a big boat that floated on the flood?

UNIT PROJECT: MY RIVER FROM MOUNTAIN TO SEA

On a large sheet of paper, your child draws a river map: a tall mountain on one side, rain falling on it, little streams joining into a wiggly blue river, a lake with land all around it partway down, and the big blue sea at the end. Add a pond with a frog, a boat carrying a load down the river, and a sun lifting water up from the sea. Keep the map with a photo of the sand-tray river and the foil boat with the number of pennies it held. Then let your child “tell the river’s story” aloud, from the mountain to the sea, while a parent writes the words at the bottom.

- **Water runs downhill:** The river starts at the mountain and ends at the sea, and the child can trace it with a finger in the right direction.
- **River, lake and sea:** The map shows a river (a line), a lake (a shape with land all around) and the sea (the big blue), and the child can point to and name each one.
- **Hands-on work:** The sand-tray river and the foil boat were built and tested, and the child can tell what happened.
- **Telling the story:** The child tells where the water goes, why the sea is salty and how boats use the river as a road, in his or her own words.

Answer key

1. Downhill. (The hand moves down from high to low.)
2. Down to the sea.
3. A river moves; a lake rests.
4. 5.
5. The sea is salty. A river is fresh.
6. Salt.

7. The wide, hollow foil boat floats. Noah built the ark.

WEATHER AND THE SEASONS

Every morning the sky has something new to show us. Some days the sun shines, some days the clouds roll in, and some days rain, wind or snow come visiting. In this unit your child becomes a weather watcher, like Thomas Jefferson, who bought a thermometer on July 4, 1776, and wrote down how warm it was. Together you will keep a picture weather chart, learn the little symbols that weather maps use, and look at Pieter Bruegel's snowy *Hunters in the Snow* and sunny *The Harvesters*, two paintings of the turning year.

Then you will follow one tree through spring, summer, fall and winter, and hear God's promise to Noah: "While the earth remaineth, seedtime and harvest, and cold and heat, and summer and winter, and day and night shall not cease" (Genesis 8:22). You will travel on the globe from the hot lands near the equator, where Frederic Church painted, to the icy South Pole, where Roald Amundsen arrived in 1911, and dress a paper doll for each. Last of all, you will make a rain gauge from a jar and a ruler, as King Sejong's helpers measured the rain in Korea in 1441.

Everything in this unit is looked at, pointed to, drawn, built or acted out. No reading is needed. The parent reads the lessons aloud, and the child watches the sky.

BEFORE YOU BEGIN

- Can point to land and water on a globe (Unit 2)
- Knows that the North Pole is at the top of the globe and the South Pole is at the bottom (Lesson 2.4)
- Can count objects to 10
- Can use crayons and child-safe scissors with help

MASTERY CHECKLIST

- I can name sunny, cloudy, rainy, windy and snowy weather and draw a symbol for each.
- I can find the sun, cloud, rain and snow symbols on a weather map and tell what they mean.
- I can name the four seasons in order and tell what a tree looks like in each one.
- I can say God's promise to Noah about seedtime and harvest, summer and winter.
- I can point to the equator and the two poles on a globe and tell which are hot and which are cold.
- I can help make a rain gauge and tell which day had more rain.

OPTIONAL BOOKS AND RESOURCES

- **SciJinks, from NOAA and NASA** (<https://scijinks.gov/>): Free. Simple pictures, games and short explanations about weather, clouds, rain and seasons. A parent can read the pages aloud and choose pictures to show.

- **CoCoRaHS (Community Collaborative Rain, Hail and Snow Network)**
(<https://www.cocorahs.org/>): Free. Volunteers across the country read backyard rain gauges each morning and post the numbers on maps. Look at the daily rain map with your child after making your rain gauge (Lesson 5.4).
- **Robert Louis Stevenson, *A Child's Garden of Verses* (free at Project Gutenberg)**
(<https://www.gutenberg.org/ebooks/search/?query=child%27s+garden+of+verses>): Free. Short poems to read aloud about the weather and the seasons, such as "Rain," "Windy Nights," "Bed in Summer" and "Winter-Time."

5.1 SUN, RAIN, WIND AND SNOW ★

OBJECTIVES

- Name and point to five kinds of weather: sunny, cloudy, rainy, windy and snowy.
- Match each kind of weather to its picture symbol and keep a picture weather chart for one week.
- Count the sunny, rainy and cloudy days on a weather chart and tell which kind of day came most often.

Warm-up. Go to a window or step outside together. Ask: Is the sun out? Do you see clouds? Is anything moving in the wind? Is the ground wet or dry? Then hold up a hand outside (or touch the window glass) and say whether it feels warm or cold. Tell your child, “You just looked at the weather, the way a weather watcher does.”

Video. Coming soon. Search SciShow Kids for a short video on kinds of weather (sun, clouds, rain, wind and snow) and NASA for a short clip of clouds and storms seen from space; candidate (needs vetting): a Brightly Storytime-style read-aloud of Ezra Jack Keats’s *The Snowy Day* or Gail Gibbons’s *Weather Words and What They Mean*. Keep each video under about 8 minutes.

KEY TERMS

weather

What the sky and the air are doing right now outside: sunny or cloudy, warm or cold, wet or dry, still or windy.

cloud

A big puff in the sky made of tiny drops of water, too small to see one by one.

wind

Moving air. We cannot see it, but we can see it push leaves, flags and kites.

symbol

A small picture that stands for something, like a sun that means “sunny.”

CORE IDEAS

The story. On July 4, 1776, in the city of Philadelphia, America’s leaders said yes to the Declaration of Independence. That very same day, Thomas Jefferson went shopping. He bought a thermometer, a little glass tube that tells how hot or cold the air is. Then he wrote down how warm it was, four times that day. At one o’clock in the afternoon it was 76 degrees: a warm summer day. Jefferson loved to watch the sky. For much of his life he wrote down the weather, day after day, so he could learn how it changed.

The big idea. Weather is what the sky and the air are doing right now, outside your door. Some days are **sunny**, with a bright sky. Some days are **cloudy** and gray. Some days are

rainy, and some are **snowy**. Some days are **windy**. Weather can change fast: a sunny morning can turn into a rainy afternoon. God sends the sun to warm the ground, the rain to water the plants and the snow to tuck the fields in for winter.

How it works. A **cloud** is made of tiny drops of water floating in the air. When the drops bump together and grow big and heavy, they fall down as rain. When the air up high is very cold, the water freezes into snowflakes instead. **Wind** is air on the move. You cannot see the wind itself, but you can see what it does. Leaves dance, flags flap, laundry swings on the line and kites climb up into the sky.

On the map. People who tell about the weather use little pictures called **symbols**: a sun for sunny, a cloud for cloudy, a cloud with raindrops for rainy, a snowflake for snowy and curly lines for windy. They put the symbols on a map so we can see the weather in many places at once. This week you will be a weather watcher like Jefferson. Every morning you will look at the sky and draw the right symbol on your chart. At the end of the week you will count how many days of each kind you had.

Mon	Tue	Wed	Thu	Fri	Sat	Sun
						

A picture weather chart for one week. Each box shows the weather symbol for one day.

PICTURE STUDY



The Hunters in the Snow (Winter), Pieter Bruegel the Elder, 1565 · Oil on wood panel · Kunsthistorisches Museum, Vienna

Pieter Bruegel the Elder was a painter who lived in the land we now call Belgium, more than 450 years ago. A rich man in the city of Antwerp asked him to paint pictures of the whole year, from winter to summer and back again. This one is winter. Bruegel painted it after a very hard, cold winter, and you can almost feel the frost.

We are standing high on a hill, like a bird looking down. Hunters are coming home through the deep snow, and down below the whole village is out on the ice.

Look closely

- Find the hunters and their dogs. Are they walking toward us or away from us? Do they look tired?
- Look down at the frozen ponds. What are the tiny people doing on the ice?
- Find the birds sitting in the bare trees. Can you find one bird flying through the sky?
- Find the fire near the house on the left. Why would people want a fire on a day like this?

Talk about it

1. What is the weather in this picture? How can you tell it is cold?
2. What color is the sky? Do you think more snow is coming?
3. If you were in this village, would you rather skate on the ice or warm up by the fire?

PROJECT: MY WEATHER WEEK CHART

For one week you will be the family weather watcher. Each morning you will look outside and draw the weather on a picture chart. A ribbon on a stick will be your wind finder.

You will need

- A large sheet of paper or poster board
- Crayons or markers (yellow, gray, blue and black are helpful)
- A ruler for the parent to draw boxes
- A ribbon or strip of cloth about as long as your arm, tied to a stick or pencil, or a pinwheel
- Tape

Steps

1. Parent: draw seven big boxes in a row and write the day names above them (Monday through Sunday). Your child does not need to read them; just point to the right box each day.
2. Before you start, practice the symbols together: a yellow sun for sunny, a gray cloud for cloudy, a cloud with blue drops for rainy, a snowflake for snowy and curly lines for windy.
3. Each morning, look out the window or step outside. Hold up your ribbon. If it flaps and points, it is windy. If it hangs down, the air is still.
4. Your child draws the weather symbol in today's box. If it is both sunny and windy, draw both.
5. Tape the chart to the refrigerator or a wall so everyone can see it.
6. At the end of the week, count together: how many suns, how many clouds, how many rainy days? Which kind of weather came most often?

Tips

- Look at the same time each day, such as right after breakfast, so the chart is fair.
- A child who does not yet draw well can color a ready-made symbol cut from paper and glue it in the box.
- Snow is rare in many places. If no snow comes this week, that is fine: the chart tells what really happened.

Check your work

- My child can name the weather each morning and draw the matching symbol.
- My child can count the sunny days and the rainy days on the chart.
- My child can tell which kind of weather came most often this week.

MAP NOTEBOOK

1. Draw yourself outside on a sunny day, and draw yourself again on a rainy day. What are you wearing in each picture?
2. Draw the five weather symbols in a row: sun, cloud, rain, snow and wind.
3. Draw a kite flying high on a windy day, with its tail blowing.

From history. George Washington was a weather watcher too. At his farm at Mount Vernon in Virginia, he wrote a few words about the weather in his diary almost every day: rain, snow, wind and how warm or cold it was. One of the very last things he wrote in his diary, in December 1799, was a note about snow and cold weather.

WORKED EXAMPLES

Example 1. Look at the weather chart for one week. How many days were sunny?

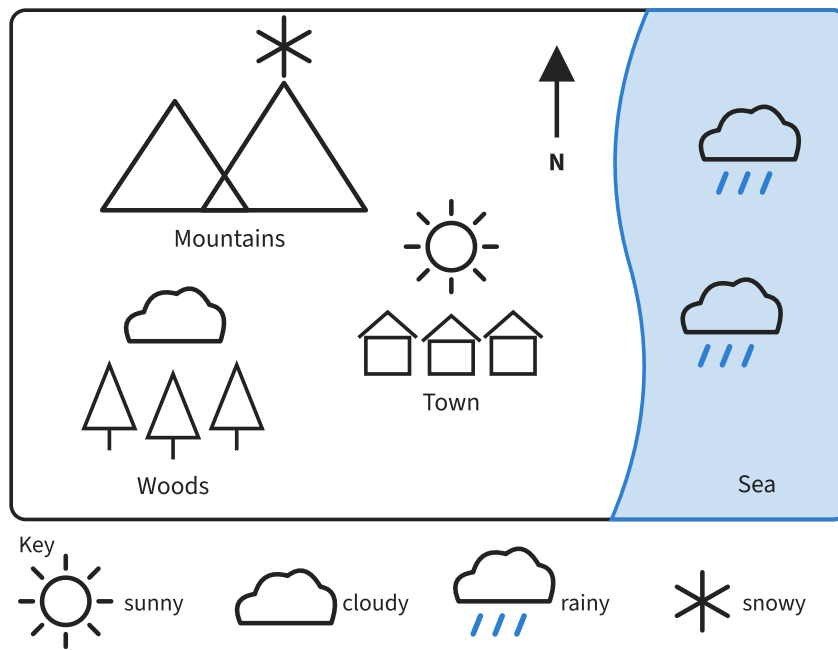
(Use the map or drawing “Count the suns on the weather chart.” shown earlier in this lesson.)

1. Start at the first box on the left. Touch each box and say its weather: sunny, sunny, cloudy, rainy, rainy, sunny, windy.
2. Now find only the suns. Touch each sun and count out loud: one, two, three.
3. There are no more suns, so we stop at three.

Answer: 3 sunny days.

PRACTICE

1. **EASY** Look at the weather chart. Point to each rainy day and count them.
(Use the map or drawing “Find the rain clouds.” shown earlier in this lesson.)
2. **EASY** On the same chart, were there more sunny days or more rainy days?
3. **EASY** Look at the weather map. Point to the place where it is snowing. What is there?



A weather map with sun, cloud, rain and snow symbols.

4. **MEDIUM** On the weather map, how many rain clouds are over the sea? Where is it sunny?
(Use the map or drawing "Count the rain clouds over the sea." shown earlier in this lesson.)
5. **MEDIUM** Act it out: show what you would put on to go outside on a snowy day, and then on a rainy day.

COMMON MISTAKES

- Thinking clouds are made of cotton or smoke. Clouds are made of tiny drops of water (or tiny bits of ice) floating in the air.
- Thinking there is no wind because we cannot see it. We see what wind does: moving leaves, flags and ribbons.
- Drawing the weather from memory at night. A weather watcher looks at the sky and draws what is really there, at the same time each day.

Make it a game • Weather Wiggles. The parent calls out a kind of weather and the child acts it out. Sunny: stretch your arms up wide like sunbeams. Rainy: wiggle your fingers down like falling drops. Windy: sway like a tree and say "whoosh." Snowy: twirl slowly like a snowflake and sink to the floor. Cloudy: puff out your cheeks and float around the room. Then switch: the child acts, and the parent guesses the weather.

Scripture. "He giveth snow like wool: he scattereth the hoarfrost like ashes." (Psalm 147:16, KJV)

The snow in Bruegel's painting and the snow outside our window are gifts from God. He covers the ground with snow like a soft wool blanket.

Practice answers

1. 2 rainy days (the fourth and fifth boxes, Thursday and Friday).
2. More sunny days: 3 sunny days and 2 rainy days.
3. The mountains (the snowflake is over the mountains).
4. 2 rain clouds are over the sea. It is sunny over the town.
5. Snowy day: a warm coat, hat, mittens and boots. Rainy day: a raincoat or umbrella and rain boots.

5.2 THE FOUR SEASONS

OBJECTIVES

- Name the four seasons in order (spring, summer, fall, winter) and tell one thing that happens in each.
- Retell God’s promise to Noah that seedtime and harvest, summer and winter will not cease.
- Make a seasons wheel that shows one tree through the whole year.

Warm-up. Look out the window at one tree, or go and stand under it. Ask: Does it have leaves? What color are they? Are any falling? Is there fruit, or blossoms, or nothing at all? Pick up a leaf (or a twig) and bring it inside. Tell your child, “This tree is telling us what season it is.”

Video. Coming soon. Search SciShow Kids for a short video on the four seasons and why they change, and NASA for a simple animation of the earth going around the sun; candidate (needs vetting): a Brightly Storytime-style read-aloud of Gail Gibbons’s *The Reasons for Seasons* or Thomas Locker’s *Sky Tree*. Keep each video under about 8 minutes.

KEY TERMS

season

One of the four parts of the year: spring, summer, fall and winter. Each one has its own kind of weather.

seedtime

The time, mostly in spring, when farmers plant seeds in the ground.

harvest

The time, in late summer and fall, when farmers gather the ripe food from their fields.

fall (autumn)

The season after summer, when days get cooler and many leaves turn red, yellow and orange and drop to the ground.

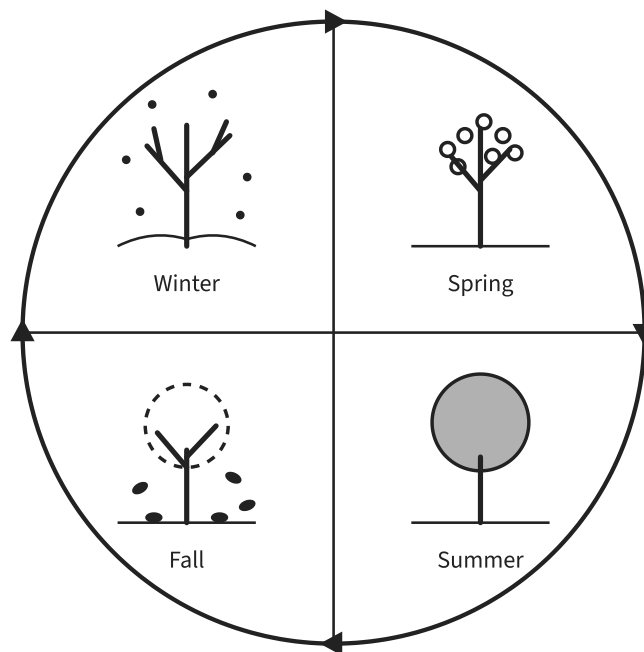
CORE IDEAS

The story. Long ago, God told Noah to build an ark. The rain fell, and the flood covered the earth. At last the water went down, and Noah and his family and all the animals stepped out onto dry land. Noah built an altar and thanked God. Then God made a promise that still holds today: “While the earth remaineth, seedtime and harvest, and cold and heat, and summer and winter, and day and night shall not cease” (Genesis 8:22). Every spring and every winter since then is God keeping His promise.

The big idea. The year has four **seasons**. In **spring**, the days grow warmer. Seeds sprout, buds pop open and baby animals are born. In **summer**, the days are long and hot, and gardens grow tall. In **fall**, the air turns cool. Farmers bring in the **harvest**, and many trees turn red, yellow and orange and drop their leaves. In **winter**, it is cold. Many trees are bare, and in many places snow falls. Then spring comes again. The seasons go around and around like a wheel.

How it works. Watch the sun. In summer the sun climbs high in the sky at noon, and it stays up until late in the evening. Long, sunny days warm the ground. In winter the sun stays low in the sky, and it goes down early. Short days cannot warm the ground as much, so it gets cold. The earth takes one whole year to travel around the sun, and as it goes, our part of the earth gets more sunshine and then less, and then more again.

On the map. A tree is a good season clock. In spring it has tiny new leaves or blossoms. In summer it is thick and green. In fall its leaves change color and float down. In winter its branches are bare. In this lesson you will make a **seasons wheel** with the same tree in all four seasons. Turn the wheel, and the year goes around in your hands.



A seasons wheel: one tree through the whole year. Follow the arrows around.

PICTURE STUDY



The Harvesters, Pieter Bruegel the Elder, 1565 · Oil on wood panel · The Metropolitan Museum of Art, New York

Remember Bruegel's snowy *Hunters in the Snow*? Bruegel painted it in the same year as this picture, 1565, as part of a set of pictures of the whole year. In the winter painting everything is white and cold. In this one it is late summer, and the wheat is ripe and gold.

It is harvest time. The workers have been cutting wheat since early morning, and now it is time to rest and eat.

Look closely

- Find the men cutting the tall wheat. What tool are they using?
- Find the bundles of wheat standing up in the field. Who is tying them?
- Look under the tree. What are the people eating? Can you find the man taking a nap?
- Look far away into the picture. Can you find a village and water?

Talk about it

1. What season is it in this picture? How can you tell?
2. How is this picture different from *Hunters in the Snow*? Think about colors, the trees and what the people are doing.
3. What will the farmers make from all this wheat?

PROJECT: A SEASONS WHEEL

You will make a wheel that turns through the year. Under a little window you will see one tree in spring, summer, fall and winter. Turn the top plate, and the seasons change.

You will need

- Two paper plates
- Crayons or markers (green, pink or white, red, orange, yellow, brown and blue)
- A brass paper fastener (brad)
- Child-safe scissors (the parent cuts the window)
- A pencil and a ruler

Steps

1. Parent: on the first plate, draw a line straight across the middle, and another line the other way, so the plate is cut into four equal parts like a pie.
2. In each part, your child draws the same tree: a brown trunk and branches. Go around the plate in order.
3. Spring part: add tiny green leaves or pink and white blossoms. Summer part: color a big, thick green top and a bright sun. Fall part: add red, orange and yellow leaves, with some falling to the ground. Winter part: leave the branches bare and add snow on the ground.
4. Parent: on the second plate, cut out one pie-shaped window the same size as one part.
5. Parent: poke the brad through the middle of both plates (window plate on top) and open its legs in the back.
6. Turn the top plate and say the seasons as each tree shows: spring, summer, fall, winter, spring again.
7. Draw a happy face or a small picture on the top plate for what your family loves to do in each season, if you like.

Tips

- Use the leaf you brought in during the warm-up to help choose your colors for fall.
- Extra: choose one real tree near your home. Take a photo or draw it once each season this year, and add the pictures to your notebook. By next summer you will have a real tree through the year.
- If you live where winters are warm and few trees lose their leaves, draw the tree you really see, and talk about how winter is cooler and the days are shorter.

Check your work

- My child can name the four seasons in order while turning the wheel.
- My child can tell what the tree looks like in each season.
- My child can say God's promise to Noah in his or her own words.

MAP NOTEBOOK

1. Draw something you love to do in each season: one picture for spring, summer, fall and winter.

2. Draw Noah's ark on the mountain after the flood, with a rainbow and a tiny green plant growing.
3. Draw a farmer planting seeds in spring and gathering a basket of food at harvest.

From history. Bruegel painted a set of six pictures of the year in 1565 for Nicolaes Jonghelinck, a rich man in Antwerp who loved art. One of the six has been lost, but five still hang in museums today: three in Vienna (including *The Hunters in the Snow*), one in Prague and *The Harvesters* in New York.

WORKED EXAMPLES

Example 1. Look at the seasons wheel. Which season comes after summer?

(Use the map or drawing "Follow the arrow from summer to the next season." shown earlier in this lesson.)

1. Find summer. It is the tree with the big, full, thick top.
2. Find the arrows on the circle. They show which way the year goes.
3. Follow the arrow from summer to the next part. The tree there is dropping its leaves.
4. A tree dropping its leaves means fall.

Answer: Fall (autumn) comes after summer.

PRACTICE

1. **EASY** Count the parts of the seasons wheel. How many seasons are in one year?
(Use the map or drawing "Count the seasons." shown earlier in this lesson.)
2. **EASY** Point to the tree with bare branches and snow on the ground. Which season is it?
3. **EASY** Which season comes after winter?
4. **MEDIUM** In Bruegel's *The Harvesters*, the farmers are cutting ripe wheat. Is that seedtime or harvest?
5. **MEDIUM** Look outside. What season is it right now? Tell one thing you see that shows it.

COMMON MISTAKES

- Thinking the seasons come in any order. They always go spring, summer, fall, winter, and then spring again.
- Thinking every tree loses its leaves in fall. Pine trees and other evergreens stay green all winter.
- Thinking winter will last forever. God promised that summer and winter would keep taking turns as long as the earth remains.

Make it a game • Season Corners. Name the four corners of a room: spring, summer, fall and winter (tape a drawing in each corner to help). The parent gives a clue, such as "I

see pumpkins,” “We are building a snowman,” “Baby birds are hatching” or “We are swimming at the lake.” The child hops to the right corner. Then the child gives a clue and the parent hops.

Scripture. “While the earth remaineth, seedtime and harvest, and cold and heat, and summer and winter, and day and night shall not cease.” (Genesis 8:22, KJV)

God made this promise to Noah after the flood. Every time spring follows winter, God is keeping His word.

Practice answers

1. 4 seasons.
2. Winter.
3. Spring.
4. Harvest (late summer).
5. Answers vary. Example: “It is fall, because the leaves are turning yellow and falling.”

5.3 HOT PLACES AND COLD PLACES

OBJECTIVES

- Point to the equator and the two poles on a globe and tell which places are hot all year and which are cold all year.
- Dress a paper doll for the equator and another for the poles and explain each choice.
- Show with a flashlight why sunshine that comes straight down is warmer than sunshine that comes in slanting.

Warm-up. Fill one cup with cool water and one with warm (not hot) tap water. Let your child put a finger in each and say which is warm and which is cold. Then ask: “Are there places on the earth that are warm almost all the time? Are there places that are cold almost all the time?” Bring out the globe and say, “Let’s find them.”

Video. Coming soon. Search NASA for a short clip of the earth from space showing the white ice at the poles and the green rain forests near the equator, and SciShow Kids for a short video on hot and cold places; candidate (needs vetting): National Geographic Kids footage of rain-forest animals and of penguins in Antarctica. Keep each video under about 8 minutes.

KEY TERMS

equator

A pretend line drawn around the middle of the earth, like a belt. Places near it are hot all year.

North Pole

The very top of the earth. It is cold there all year, and the sea is covered with ice.

South Pole

The very bottom of the earth, in the middle of the frozen land of Antarctica. Antarctica is the coldest land on earth.

in-between places

Places between the equator and the poles. They have a warm summer and a cold winter, like most of America.

CORE IDEAS

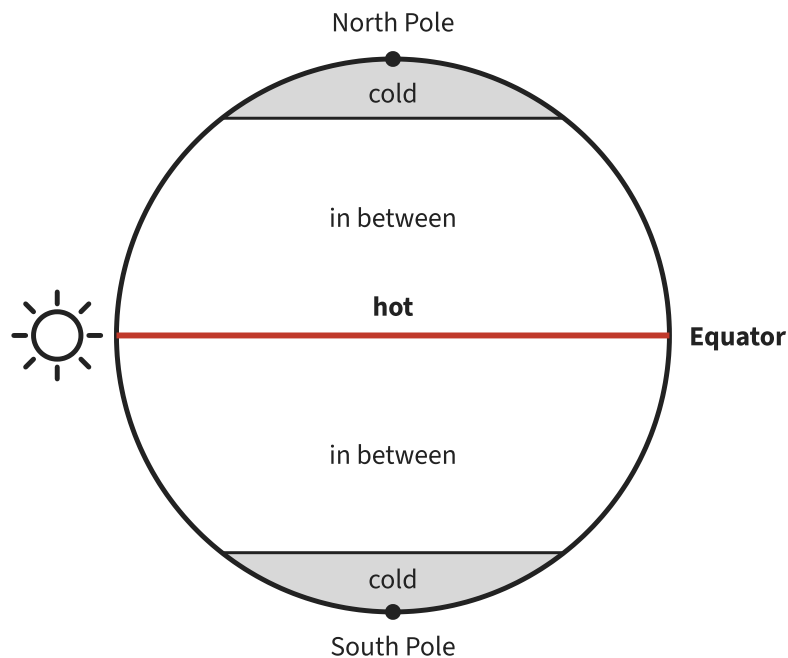
The story. In 1853, and again in 1857, a young American painter named Frederic Church sailed to the land of Ecuador in South America. *Ecuador* is the Spanish word for “equator,” because the equator runs right through it. Church found steamy jungles, palm trees and bright birds. It was warm all year long. Far away, at the other end of the earth, a Norwegian explorer named Roald Amundsen went the other way. On December 14, 1911, he and four friends, with sleds pulled by dogs, became the first people to reach the South Pole. They

wore thick fur clothes, the kind Amundsen had learned to make from the Inuit people of the far north.

The big idea. God made the earth with hot places and cold places. Around the middle of the earth runs a pretend line called the **equator**. Near the equator it is hot all year, and it never snows, except on the tops of the very tallest mountains. At the top and bottom of the earth are the **North Pole** and the **South Pole**. There it is cold all year, and the ground and sea are covered with snow and ice. Most of us live in the **in-between places**, where we have a warm summer and a cold winter.

How it works. Try this in a dark room. Shine a flashlight straight down onto a sheet of paper. You get a small, bright circle. Now tip the flashlight so the light slants across the paper. The light spreads out and looks weaker. The sun does the same thing. At the equator the sun shines almost straight down, so the ground gets very warm. At the poles the sunshine slants in low and weak, so the land stays cold.

On the map. Find the equator on your globe: it is the line around the middle. Put one finger on it and move up to the North Pole. It gets colder and colder. Go back to the equator and move down to the South Pole. It gets colder that way too! Here is a surprise: when it is winter in America, it is summer in Australia, on the other side of the equator. Then you will dress two paper dolls, one for a trip to the equator and one for a trip to the poles.



Hot near the equator, cold at the poles, and in-between places with summer and winter.

PICTURE STUDY



Heart of the Andes, Frederic Edwin Church, 1859 · Oil on canvas · The Metropolitan Museum of Art, New York

Frederic Church painted this enormous picture, almost ten feet wide, after his trips to Ecuador and the mountains called the Andes. When it was first shown in New York in 1859, thousands of people waited in line and paid to see it. Some brought opera glasses to look at the tiny leaves and birds up close.

Church put both hot and cold into one picture. In front is the warm, green land near the equator. Far in the back, a mountain is so tall that its top is covered with snow.

Look closely

- Find the waterfall. Where does the water go?
- Look at the trees and plants in front. Do they look like plants from a hot place or a cold place?
- Find the white mountain far in the back. Why is there snow up there, even near the equator?
- Look very carefully for tiny people near a cross on the path. How small they are next to the mountains!

Talk about it

1. Would you wear a fur coat or a sun hat to walk through the green jungle in this picture?
2. What would you wear to climb all the way up the snowy mountain?
3. Why do you think so many people wanted to see this painting?

PROJECT: DRESS A DOLL FOR THE EQUATOR AND THE POLES

You will make two paper dolls and two sets of clothes. One doll is going on a trip to a hot jungle near the equator. The other is going to the icy South Pole, like Amundsen. Which clothes will each one need?

You will need

- Card stock or a cereal box, cut flat
- Paper, crayons or markers
- Child-safe scissors and a glue stick
- Scraps of cotton balls, felt or fake fur (optional, for the polar coat)
- A globe or a world map

Steps

1. Parent: trace two simple doll shapes (your child can lie on a small sheet to help you picture it, or use a gingerbread-man shape) on card stock and cut them out.
2. Your child colors a face and hair on each doll.
3. Make the hot-place clothes: a light shirt, short pants or a light dress, sandals and a wide sun hat. Color them in bright, light colors.
4. Make the cold-place clothes: a long, thick coat with a hood, mittens, warm pants and big boots. Glue cotton balls or fur scraps around the hood.
5. Dress each doll with glue dots or folded paper tabs so the clothes can come off and switch.
6. Stand the equator doll next to the equator on the globe, and the polar doll next to the South Pole. Ask: "What would happen if they traded clothes?"

Tips

- Talk about why: a sun hat keeps the strong sun off your face, and a hood keeps your ears warm in the icy wind.
- Make a third set of clothes for your own home in winter and summer, since we live in an in-between place.
- Keep the dolls for Unit 7, when you will meet the animals and people of every continent.

Check your work

- My child can point to the equator and both poles on the globe.
- My child can choose the right clothes for each doll and say why.
- My child can tell which way on the globe gets colder.

MAP NOTEBOOK

1. Draw a circle for the earth. Draw a line across the middle for the equator, color a hot sun next to it, and color white ice at the top and bottom.

2. Draw yourself in a jungle near the equator, and then on the ice at the South Pole. What are you wearing in each picture?
3. Draw Amundsen's dog sled crossing the snow.

From history. When Amundsen reached the South Pole in December 1911, he and his men put up a small tent there and called it *Polheim*, which means "Pole Home." They planted the flag of Norway beside it and left a letter inside the tent, in case they did not make it home. Then they turned their dog sleds around and raced back to their ship. All five men made it home safely.

WORKED EXAMPLES

Example 1. Put your finger on the equator on the picture of the globe. Move it up to the North Pole. Does it get warmer or colder?

(Use the map or drawing "Trace from the equator to the North Pole." shown earlier in this lesson.)

1. Find the line across the middle of the globe. That is the equator, where it is hot.
2. Move your finger up. First you pass the in-between places, with summer and winter.
3. Keep going to the very top. That is the North Pole, with its shaded cold cap of ice.
4. Hot, then in-between, then cold.

Answer: It gets colder as you go from the equator to the pole.

PRACTICE

1. **EASY** On a real globe, point to the equator. Is it at the top, the middle or the bottom?
2. **EASY** Point to the poles on the picture of the globe. How many poles are there?
(Use the map or drawing "Count the poles." shown earlier in this lesson.)
3. **EASY** Which doll needs mittens, boots and a fur hood: the equator doll or the pole doll?
4. **MEDIUM** Start at the equator and move your finger down to the South Pole. Does it get warmer or colder?
5. **MEDIUM** When it is winter where we live in America, what season is it in Australia?

COMMON MISTAKES

- Thinking only the top of the earth is cold. Both poles are cold, the North Pole at the top and the South Pole at the bottom.
- Thinking the equator is a real line painted on the ground. It is a pretend line that mapmakers draw to help us find places.
- Thinking it is summer everywhere at the same time. When it is winter in America, it is summer in Australia.

Make it a game · Equator or Pole? Put a globe or world map on the floor. The parent holds up or names a thing: a sun hat, mittens, sandals, a fur hood, a swimsuit, snow boots, a parrot, a penguin, a palm tree, an iceberg. The child says “Equator!” or “Pole!” and points to the right place on the globe. For an extra point, the child says why.

Scripture. “Thou hast set all the borders of the earth: thou hast made summer and winter.” (Psalm 74:17, KJV)

God made the hot lands near the equator and the icy lands at the poles. He set each place where it is and gave it its own weather.

Practice answers

1. The middle of the globe.
2. 2 (the North Pole and the South Pole).
3. The pole doll.
4. Colder. It gets colder going toward either pole.
5. Summer.

5.4 MEASURING THE RAIN

OBJECTIVES

- Tell how King Sejong’s helpers in Korea measured the rain in 1441 and why farmers needed to know.
- Make a rain gauge from a straight-sided jar and a ruler and set it in a good, open place.
- Read the rain gauge with a parent’s help and tell which day had more rain.

Warm-up. Set out two clear cups. Pour a little water into one and a lot into the other while your child watches. Ask: “Which cup got more rain?” Then hold a ruler beside each cup and look at how high the water comes. Say, “We can measure water with a ruler. Today we will measure real rain.”

Video. Coming soon. Search SciShow Kids for a short video on rain and how to make a rain gauge, and NASA for a short clip of rain clouds and storms seen from space; candidate (needs vetting): a Brightly Storytime-style read-aloud of Karen Hesse’s *Come On, Rain!* and NOAA SciJinks for a simple animation of rain. Keep each video under about 8 minutes.

KEY TERMS

rain gauge

A cup or jar with straight sides that catches rain so we can measure how much fell.

measure

To find out how big, how long or how much something is.

inch

A small length, about as long as the top part of a grown-up’s thumb. Rulers are marked in inches.

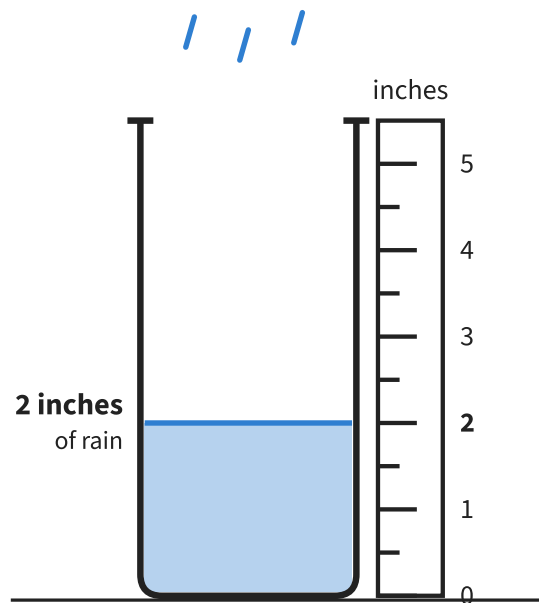
CORE IDEAS

The story. Long ago in Korea there lived a wise king named Sejong. Most of his people were farmers who grew rice, and rice needs plenty of water. Too little rain, and the rice dries up. Too much, and the fields flood. King Sejong wanted to know how much rain fell all over his land. So in 1441 his helpers made a metal rain gauge: a tall cup with straight sides. Soon rain gauges were sent to towns all over the kingdom. After each rain, an officer measured the water in the cup with a ruler and sent the number to the king. This is one of the oldest known sets of rain gauges spread across a whole land anywhere in the world.

The big idea. We can **measure** rain. A **rain gauge** is a jar with straight sides that sits out in the open and catches the rain. The more it rains, the higher the water climbs in the jar. We measure how high it is with a ruler, in **inches**. A soft little shower may leave only a thin layer of water at the bottom. A big storm may fill it up an inch or more.

How it works. The jar must have straight sides, like a tall cup, not a jar that bulges out in the middle. Then every inch up the jar holds the same amount of water. The jar must sit in an open place, away from trees and roofs. Leaves and roofs can drip extra water in or block the rain from falling in. And after you read it, you must empty it, so that it is ready to measure the next rain.

On the map. One rain gauge tells about one yard. Many rain gauges tell about a whole land. King Sejong could look at the numbers from all his towns and see which places were dry and which were wet. Weather watchers still do this today. Thousands of families and schools across America read their backyard rain gauges each morning and send in the numbers. The numbers go onto a rain map, so farmers and weather forecasters can see where the rain fell.



A jar-and-ruler rain gauge. The water comes up to 2 on the ruler: 2 inches of rain.

PICTURE STUDY



Sudden Shower over Shin-Ōhashi Bridge and Atake, Utagawa Hiroshige, 1857 · Color woodblock print · Library of Congress, Washington, D.C. (one of many prints made from the same carved wood blocks; other copies are in the Brooklyn Museum and elsewhere)

Hiroshige was an artist in Japan who drew pictures for woodblock prints. Skilled carvers cut his drawings into blocks of wood, and printers brushed color onto the blocks and pressed paper onto them. This print shows a bridge in the city we now call Tokyo, just as a sudden rain begins to pour. It was part of a set called *One Hundred Famous Views of Edo*, which actually has more than one hundred pictures of famous places in his city.

Hiroshige drew the rain as thousands of thin, straight lines. Thirty years later, the Dutch painter Vincent van Gogh liked this picture so much that he painted his own copy of it.

Look closely

- Find the lines of rain. Do they go straight down or slant a little?
- Find the people on the bridge. How are they keeping dry? Are they walking slowly or hurrying?
- Look under the bridge. What is the man on the river doing?
- Find the dark cloud at the top of the picture.

Talk about it

1. Do you think this is a soft little shower or a big, heavy rain? Why?
2. If you put a rain gauge on this bridge, would it catch a little water or a lot?
3. What do you like to do when a sudden rain comes?

Safety first. A parent should handle any glass jar and set it outside where it will not be knocked over. A clear plastic jar or bottle with straight sides is safer for small hands. Empty the rain gauge after every reading so standing water does not invite mosquitoes, and do not go out to read it during thunder or lightning.

PROJECT: A JAR-AND-RULER RAIN GAUGE

You will make a rain gauge like King Sejong's, but from a jar and a ruler. Then you will measure the real rain that falls on your yard and color a rain chart.

You will need

- A clear jar or plastic container with straight sides and a flat bottom (a tall peanut-butter jar or an olive jar works well)
- A plastic ruler marked in inches
- Waterproof tape (packing tape or duct tape)
- A few rocks, bricks or a flower pot to keep the jar from tipping
- Paper and crayons for a rain chart

Steps

1. Parent: tape the ruler to the outside of the jar, standing straight up, with the 0 at the inside bottom of the jar. (If the jar has a thick bottom, slide the ruler down a little so the 0 lines up with the inside floor.)
2. Your child can wrap tape around the ruler and jar to hold it tight.
3. Walk around the yard together and look for a good open spot, away from trees, roofs and fences. Ask: "Will anything drip into the jar or block the rain here?"
4. Set the jar in the spot and pile rocks or bricks around it so the wind cannot knock it over.
5. After a rain, go out together. Your child points to the top of the water. The parent reads the number on the ruler and says it out loud.
6. On the rain chart, your child draws a raindrop for the day and colors a bar as tall as the water in the jar.
7. Empty the jar and set it back, ready for the next rain.

Tips

- Read the gauge at about the same time each morning, the way real weather watchers do.
- Most rains leave less than an inch. Your parent can show you the small marks between the numbers for half an inch and a quarter inch.
- If it snows, bring the jar inside, let the snow melt and see how little water a tall pile of snow makes.

Check your work

- My child can tell why the jar must have straight sides and sit in an open place.
- My child can point to the top of the water, and with help, tell how many inches of rain fell.
- My child can compare two rains and say which day had more.

MAP NOTEBOOK

1. Draw your rain gauge in its spot in the yard, with rain falling into it.
2. Draw King Sejong's helper measuring the rain in a tall metal cup.
3. Draw two jars side by side: one after a little shower and one after a big storm.

From history. The Scottish writer Robert Louis Stevenson wrote a little poem about rain in his book *A Child's Garden of Verses* (1885). Here it is, all four lines: "The rain is raining all around, / It falls on field and tree, / It rains on the umbrellas here, / And on the ships at sea." Say it together the next time you go out to read your rain gauge.

WORKED EXAMPLES

Example 1. Look at the rain gauge. How many inches of rain fell?

(Use the map or drawing "Read the ruler at the top of the water." shown earlier in this lesson.)

1. Find the top of the blue water in the jar.
2. Slide your finger straight across from the top of the water to the ruler.
3. Your finger lands on the number 2.
4. So the water is 2 inches deep. That was a big rain!

Answer: 2 inches of rain.

PRACTICE

1. **EASY** Point to the 0 on the ruler in the picture. Is it at the top or the bottom of the jar?
(Use the map or drawing "Find the 0." shown earlier in this lesson.)
2. **EASY** After a rain on Monday, the water comes up to the 1 on the ruler. How many inches of rain fell?
3. **EASY** Monday's rain filled the jar to 1 inch. Thursday's rain filled it to 3 inches. Which day had more rain?
4. **MEDIUM** Where should the rain gauge go: under a big tree, next to the roof or out in the open yard?
5. **MEDIUM** It rained 1 inch on Tuesday and 1 inch on Wednesday. Hold up fingers: how many inches of rain fell in the two days together?

COMMON MISTAKES

- Forgetting to empty the jar. Then tomorrow's reading adds yesterday's rain too.

- Using a jar that bulges in the middle or is narrow at the top. The water climbs unevenly, and the ruler gives the wrong answer.
- Putting the gauge under a tree or by the house, where leaves and roofs drip extra water in or block the rain.

Make it a game · Rain Guess. The parent secretly spoons some water into one clear cup and a different amount into another, while the child closes their eyes. The child opens their eyes and guesses which cup got more “rain,” then checks by holding a ruler beside each cup. Take turns being the cloud. For a bonus, line the cups up from least rain to most rain.

Scripture. “Who covereth the heaven with clouds, who prepareth rain for the earth, who maketh grass to grow upon the mountains.” (Psalm 147:8, KJV)

God gets the rain ready and sends it to water the earth. When we measure the rain, we are counting one of His good gifts.

Practice answers

1. At the bottom of the jar.
2. 1 inch.
3. Thursday (3 is more than 1).
4. Out in the open yard, so nothing drips in or blocks the rain.
5. 2 inches.

UNIT 5 REVIEW

This review is said aloud. The parent asks each question and the child answers by talking, pointing, drawing or acting it out. Have the weather chart, the seasons wheel, a globe and the rain gauge nearby. The review is worth 20 points.

1. (3 pts) Name or act out three kinds of weather. Then draw the symbol for sunny and the symbol for rainy.
2. (3 pts) Show the weather map (or the weekly weather chart). Point to the rain clouds and count them. Point to where it is sunny.
3. (2 pts) What is wind? How can we tell it is windy if we cannot see it?
4. (3 pts) Turn the seasons wheel and name the four seasons in order. What does the tree look like in winter?
5. (2 pts) What did God promise Noah after the flood?
6. (3 pts) On the globe, point to the equator, the North Pole and the South Pole. Which place is hot all year?
7. (2 pts) Show which paper doll is ready for the South Pole. Tell one thing it is wearing and why.
8. (2 pts) Point to the top of the water in a rain gauge (a parent may pour in water to 1 inch in one jar and 3 inches in another). Which jar shows more rain? Where should a rain gauge sit?

UNIT PROJECT: MY WEATHER AND SEASONS BOOK

Gather the work from this unit into a simple book or folder: the weather week chart, a picture weather map of your own yard or town with sun, cloud, rain and snow symbols and a north arrow, the seasons wheel (or a drawing of it), the two paper dolls dressed for the equator and the pole, and the rain chart from your rain gauge. The parent writes a short label on each page as the child explains it.

Then the child gives a “weather report” for the family, standing beside the book: telling today’s weather, the season, and how much rain fell the last time it rained, and saying Genesis 8:22 in their own words.

- **Weather watching:** The weather chart has a symbol for each day of the week, and the child can count and compare the kinds of days.
- **Map and globe:** The weather map uses clear symbols in the right places, and the child can point to the equator and both poles and tell which are hot and cold.
- **Seasons and rain:** The seasons wheel shows the four seasons in order, and the rain chart shows real readings the child helped take.
- **Telling and care:** The child explains each page clearly in the weather report, and the work is colorful and done with care.

1. Any three of sunny, cloudy, rainy, windy and snowy. Sunny: a sun with rays. Rainy: a cloud with drops falling from it.
2. On the Lesson 5.1 weather map: 2 rain clouds over the sea, and the sun is over the town. (On the weekly chart: 2 rainy days and 3 sunny days.)
3. Wind is moving air. We see what it does: leaves move, flags flap, a ribbon blows and kites fly.
4. Spring, summer, fall, winter (then spring again). In winter many trees are bare, with no leaves.
5. That as long as the earth remains, seedtime and harvest, cold and heat, summer and winter, and day and night will not stop (Genesis 8:22).
6. The equator is the line around the middle; the North Pole is at the top; the South Pole is at the bottom. The places near the equator are hot all year.
7. The doll with the warm coat: a fur hood, mittens or boots, because the South Pole is cold and icy all year.
8. The 3-inch jar shows more rain. A rain gauge should sit out in the open, away from trees and roofs.

MY TOWN AND THE PEOPLE WHO HELP

God did not make us to live alone. He set us in families, and families live together in towns. In this unit the child steps out the front door and looks around: at the post office, the store, the church, the fire station and the library, and at the helpers who work there. We will meet Benjamin Franklin, who helped give his city a library, a fire company and a post office, and the painter Luke Fildes, who never forgot the kind doctor who cared for his son.

Then we will follow a loaf of bread all the way back to a wheat field, as Ruth gathered grain near Bethlehem, and we will see why roads go around hills and how bridges, like the great Brooklyn Bridge, carry people over rivers. Along the way the child builds a play-mat town, grinds grain, makes a thank-you card and builds a block bridge. By the end, the child will have a cardboard-box town on a floor map and a first map of the home street, with a key of three symbols.

BEFORE YOU BEGIN

- Knows that a map is a bird's-eye view from above (Unit 1)
- Knows his or her own street and town name (Lesson 1.4)
- Can count objects to 10 by touching each one
- Knows what a river is (Unit 4)

MASTERY CHECKLIST

- I can name five places in a town and tell what happens at each one.
- I can name four helpers and tell how each one helps.
- I can tell how bread comes from a wheat field to my table.
- I can tell why roads go around hills and why we build bridges.
- I can use a map key with three symbols and count things on a map.
- I can say thank you to God and to the people who help me.

6.1 PLACES IN MY TOWN ★

OBJECTIVES

- Name five places in a town (post office, store, church, fire station and library) and tell what happens at each one.
- Find places on a simple picture map and count squares to tell how far apart they are.
- Build a play-mat town and point to where each place belongs.

Warm-up. Lay out five things from around the house: an envelope, an apple, a small cross or a picture of a church, a toy fire truck (or a red block), and a book. Hold up each one and ask, “Where in town would we go for this?” Let the child guess: the post office, the store, church, the fire station and the library.

Video. Coming soon. Search for a short (under 8 minutes) read-aloud of a picture book about a town or neighborhood (such as Joan Sweeney’s *Me on the Map*, Brightly Storytime-style read-alouds, candidate needs vetting) and a short Homeschool Pop (Alternate) video on places in a community.

KEY TERMS

town

A place where many families live close together, with roads, stores and buildings where people work and help each other.

community

The people who live near us and help each other: our neighbors, our church, our helpers.

building

A house or other place with walls and a roof that people make, like a store or a library.

map

A picture of a place as a bird sees it from above.

CORE IDEAS

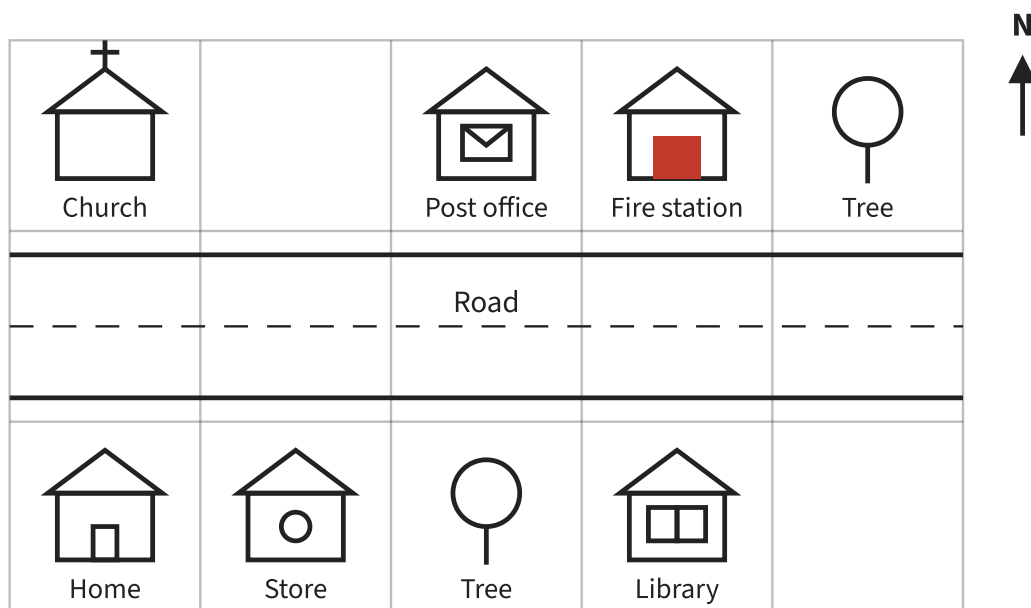
The story. Long ago, in the city of Philadelphia, there lived a printer named Benjamin Franklin. Books cost a lot of money then, and most people had only a few. So in 1731 Franklin and his friends put their money together and started a library. Now anyone who joined could borrow a book, read it and bring it back. A few years later, in 1736, Franklin helped start a fire company. The men kept leather buckets ready, and when a house caught fire they ran to help put it out. Then in 1737 Franklin became the postmaster of Philadelphia, the man in charge of the town’s mail. One man helped give his town a library, firefighters and a post office!

The big idea. A **town** is a place where many families live close together. A town has houses where people live. It also has special places where people go for things they need. We go to

the **post office** to send letters and packages. We go to the **store** to buy food and shoes. We go to **church** to worship God with our church family. The **fire station** is where firefighters wait with their trucks, ready to help. The **library** is where we borrow books and bring them back. Each place has a job, and each one helps the whole town.

On the map. Remember the bird's-eye view? A town map shows the town from above, like a bird flying over it. Roads look like long stripes. Buildings look like little boxes. On our town map (see the picture), the road runs across the middle. Put your finger on the church. Now find the fire station on the same side of the road. Can you hop your finger from square to square to get there? A map helps us see where each place is and how to get from one place to another.

God's good gift. God did not make people to live all alone. He gave us families, neighbors and towns so we can help one another. When you walk past the fire station or the library, you can thank God for the people who work there. And you can pray for your town, as God told His people long ago to pray for the city where they lived.



A town map on a grid. The road runs across the middle. N points north.

PICTURE STUDY



Winter Scene in Brooklyn, Francis Guy, about 1819–1820 · Oil on canvas · Brooklyn Museum, New York

Francis Guy was a painter who lived in Brooklyn, New York, when it was still a small village across the river from New York City. One snowy winter day he looked down from the window of his upstairs studio on Front Street. He painted the corner below him: the houses, shops and barns of his neighbors.

He painted real people he knew. He even made a chart telling which families lived in many of the houses. Look for the butcher, Mr. Patchen, carrying meat, and the carpenter, Mr. Meeker, holding his tools. In front, a man is cutting wood to keep a home warm.

Look closely

- Find the houses and the shops. Which ones look like homes? Which ones look like stores or barns?
- Find the man cutting wood. Why would people need wood in the winter?
- Look for the butcher carrying meat and the carpenter holding his measuring pole. They were real neighbors in this town.
- Find a street. Put your finger on it and follow it. Where does it go?

Talk about it

1. Is this a big city or a small town? How can you tell?
2. Which people in this picture are doing work that helps their neighbors?
3. If you painted your own town from a window, what places would you see?

PROJECT: MY PLAY-MAT TOWN

You will build a little town on the floor, with a road, houses and five special places. Then you will drive a toy car from place to place.

You will need

- Masking tape or painter's tape (for roads)
- Blocks, small boxes or milk cartons (for buildings)
- Crayons and paper scraps
- A toy car and a few small toy people or animals

Steps

1. Make a road on the floor or on a big sheet of paper with tape. A long straight road is fine. A crossroad is even better.
2. Set your home beside the road. Put a toy person in front of it.
3. Build the five town places: a post office, a store, a church, a fire station and a library. The child chooses where each one goes.
4. Mark each building with a picture the child draws: an envelope for the post office, an apple for the store, a cross for the church, a red door for the fire station and a book for the library.
5. Play "Errands." The parent says, "We need to mail a letter." The child drives the car from home to the right building.
6. Stand up and look down at the town like a bird. Talk about what you see from above.

Tips

- Keep the town set up if you can. You will add to it all unit and use it for the unit project.
- Use the real names of places in your own town if the child knows them ("Main Street," "our church").

Check your work

- The child can name and point to all five places.
- The child can tell what people do at each place.
- The child can drive the car along the road to a place the parent names.

MAP NOTEBOOK

1. Draw your house and one town place you visit often. Draw a road between them.
2. Draw the picture symbols for the five places: envelope, apple, cross, red door, book.
3. Draw the checkered house from Grandma Moses's painting, with squares on its walls.

From history. The library Benjamin Franklin and his friends started in 1731 is called the Library Company of Philadelphia, and it is still open today, almost 300 years later.

Franklin later wrote that these lending libraries helped ordinary tradesmen and farmers become as well-informed as most gentlemen from other countries.

WORKED EXAMPLES

Example 1. Look at the town map. Put your finger on the church. Hop one square at a time to the right until you reach the fire station. How many hops?

(Use the map or drawing “Count the hops from the church to the fire station.” shown earlier in this lesson.)

1. Find the church. It is in the top row, at the far left.
2. Hop one square to the right. That is an empty square: 1.
3. Hop again. That is the post office: 2.
4. Hop again. That is the fire station: 3.

Answer: 3 hops. The fire station is 3 squares to the right of the church.

PRACTICE

1. **EASY** Point to the place where we go to mail a letter. What is it called?
(Use the map or drawing “Find the post office.” shown earlier in this lesson.)
2. **EASY** On the town map, what is right across the road from Home?
(Use the map or drawing “Look across the road from Home.” shown earlier in this lesson.)
3. **EASY** Count the buildings with roofs on the town map. How many are there?
(Use the map or drawing “Count the roofs.” shown earlier in this lesson.)
4. **MEDIUM** Which is closer to Home: the store or the library? Point and show.
(Use the map or drawing “Which is closer to Home?” shown earlier in this lesson.)
5. **MEDIUM** Match the thing to the place: a book, an apple, a fire truck. Where does each one belong?

COMMON MISTAKES

- Thinking the map shows the side of a building. Remind the child that a map is a bird’s-eye view from above.
- Mixing up the library and the store. At the store we pay and keep things; at the library we borrow books and bring them back.
- Rushing the counting. Have the child touch each square out loud: one, two, three.

Make it a game • Where Am I Going?. The parent gives a clue: “I need a new storybook.” “I need to send a card to Grandma.” “I smell smoke!” The child runs a toy car on the play-mat town to the right place and says its name. Then switch: the child gives the clue and the parent drives.

Scripture. “And seek the peace of the city whither I have caused you to be carried away captives, and pray unto the LORD for it: for in the peace thereof shall ye have peace.”
(Jeremiah 29:7, KJV)

God told His people to pray for the city where they lived and to seek its good. We can pray for our own town and the people who work in it.

Practice answers

1. The post office (the building with the envelope).
2. The church.
3. 6 (church, post office, fire station, home, store and library).
4. The store. It is right next to Home.
5. Book: library. Apple: store. Fire truck: fire station.

6.2 PEOPLE WHO HELP

OBJECTIVES

- Name four helpers (the mail carrier, the farmer, the firefighter and the doctor) and tell how each one helps.
- Read a simple map key with three picture symbols and count the symbols on a street map.
- Thank a real helper with a card or a visit.

Warm-up. Play “Whose Hat?” Set out a cap, a straw hat (or a gardening hat), a red bowl or pot for a fire helmet, and a toy stethoscope or a string necklace. The child puts on each “hat” and the parent guesses the helper. Then switch.

Video. Coming soon. Search Homeschool Pop (Alternate) and SciShow Kids for short community-helpers videos (under 8 minutes), and look for kid-friendly footage of a fire station tour or a mail carrier’s route from a local fire department or the U.S. Postal Service (candidates need vetting).

KEY TERMS

helper

A person whose work makes life better for other people.

mail carrier

The helper who brings letters and packages to our homes.

firefighter

The helper who puts out fires and rescues people in danger.

map key

A little box on a map that tells what each picture symbol means.

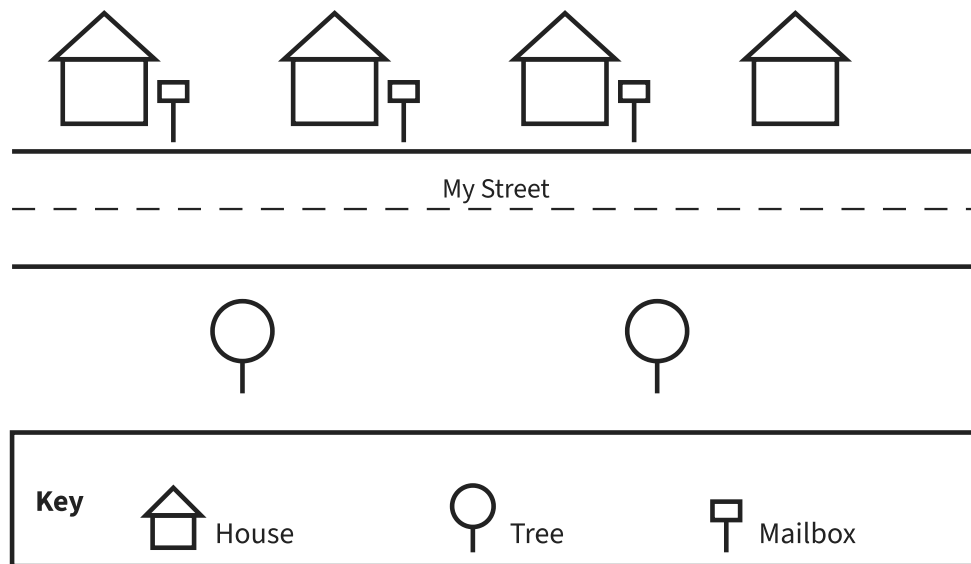
CORE IDEAS

The story. Over a hundred years ago in England there was a painter named Luke Fildes. When his own little boy was very sick, a kind doctor came to the house to care for him. Fildes never forgot that doctor. Years later he painted a picture called *The Doctor*. It shows a doctor sitting beside a sick child through the night, watching and caring, while the worried mother and father wait. Many, many people came to see the painting, and it reminded them how much a good helper matters.

The big idea. A town needs many **helpers**. The **mail carrier** brings letters and packages to every house, in sun, rain and snow. The **farmer** plants seeds, cares for animals and grows the food we eat. The **firefighter** puts out fires and rescues people in danger. The **doctor** helps sick people get well and helps healthy people stay strong. No one can do every job alone. So God gives each person work to do, and we help each other.

On the map. The mail carrier must know every house on every street. A map can help. Look at the street map in the picture. It has a little box called a **map key**. The key shows three symbols: a house, a tree and a mailbox. A symbol is a small picture that stands for a real thing. Use the key to find each mailbox on the street. The mail carrier stops at each one!

Saying thank you. The Bible tells us to carry one another's burdens, which means helping each other with heavy things. Helpers do that every day. One of the best ways to answer their help is to say thank you. This week you will make a thank-you card for a helper, or visit one and say thank you in person.



A street map with a key of three symbols: house, tree and mailbox.

PICTURE STUDY



The Doctor, Sir Luke Fildes, 1891 · Oil on canvas · Tate Britain, London

Luke Fildes was an English painter. When his own young son was very ill, a doctor cared for the boy with great kindness. Fildes remembered him when he painted this picture. He wanted to honor doctors who give their time and care to the sick.

Look closely

- Find the doctor. What is he doing with his hands and his eyes?
- Find the child. Where is the child lying?
- Find the mother and father in the dark part of the room. How do you think they feel?
- Find the lamp and the window. Where does the light come from?

Talk about it

1. How is the doctor helping, even though he is sitting still?
2. Who is a helper who has taken care of you?
3. What could you say to thank a doctor or a nurse?

PROJECT: A THANK-YOU FOR A HELPER

Choose one helper in your town: the mail carrier, a farmer, a firefighter or a doctor. Make a card, then give it, or visit the helper at work and say thank you.

You will need

- Heavy paper folded in half
- Crayons or markers, stickers

- An envelope (for the mail carrier, tape the card to the mailbox)
- A plate of cookies or fruit if you visit (optional)

Steps

1. Talk together: which helper will we thank? What does that helper do for us?
2. On the front of the card, the child draws the helper at work: the mail truck, the tractor, the fire truck or the doctor's office.
3. Inside, the parent writes the child's words exactly as the child says them: "Thank you for ..."
4. The child signs a name, a mark or a handprint.
5. Deliver it. Tape it to the mailbox for the mail carrier, bring it to the fire station or the doctor's office, or mail it to a farm family you know.
6. If you visit, let the child hand over the card and say "thank you" out loud. Ask the helper to show one tool of the job.

Tips

- Call ahead before visiting a fire station. Many stations welcome young visitors when the crew is not on a call.
- Afterward, ask the child, "How did the helper feel when you said thank you?"

Check your work

- The child can name four helpers and tell what each one does.
- The child made and gave a thank-you card or said thank you in person.

MAP NOTEBOOK

1. Draw a map of your own street. Add a key with three symbols: a house, a tree and a mailbox (or a symbol you choose).
2. Draw a helper you saw this week and the tool that helper uses.
3. Draw the doctor from Luke Fildes's painting sitting by the child.

From history. For many years, families on farms had to ride into town to pick up their mail at the post office. In 1896 the U.S. Post Office began trying Rural Free Delivery in West Virginia, bringing mail right to farm families' mailboxes. It worked so well that soon mail carriers were driving country roads all over America.

WORKED EXAMPLES

Example 1. Look at the street map and its key. How many mailboxes are on the street?

(Use the map or drawing “Use the key to find the mailboxes.” shown earlier in this lesson.)

1. Look at the key first. Find the mailbox symbol: a small box on a post.
2. Now look at the street. Touch each mailbox as you find it.
3. Count out loud: one, two, three.

Answer: 3 mailboxes.

PRACTICE

1. **EASY** On the street map, how many houses are there?
(Use the map or drawing “Count the houses.” shown earlier in this lesson.)
2. **EASY** How many trees? Are there more houses or more trees?
(Use the map or drawing “Count the trees.” shown earlier in this lesson.)
3. **EASY** Point to the map key. What does it tell us?
4. **EASY** Match each helper to a tool: hose, tractor, mailbag, stethoscope.
5. **MEDIUM** Which house has no mailbox? Point to it. Who would bring its mail?

COMMON MISTAKES

- Counting the mailbox symbol in the key as one on the street. Count only the street, not the key.
- Thinking helpers are only people in uniforms. Moms, dads, neighbors, pastors and store clerks help too.
- Being afraid of firefighters in full gear. Show pictures of a firefighter putting on the mask so the child knows a helper is inside.

Make it a game • Helper Charades. Take turns acting out a helper without words: carrying a mailbag, milking a cow, spraying a hose, listening to a heartbeat. The other player guesses the helper and says one way that helper makes the town better.

Scripture. “Bear ye one another's burdens, and so fulfil the law of Christ.” (Galatians 6:2, KJV)

To bear a burden is to help carry something heavy. Helpers in our town carry heavy loads for us, and we can help others too.

Practice answers

1. 4 houses.
2. 2 trees. There are more houses (4).

3. It tells what each symbol means: house, tree, mailbox.
4. Firefighter: hose. Farmer: tractor. Mail carrier: mailbag. Doctor: stethoscope.
5. The house on the far right (the fourth house). The mail carrier would still bring its mail; it might have a mail slot in the door.

6.3 WHERE FOOD COMES FROM

OBJECTIVES

- Tell the four steps of bread in order: wheat, grain, flour, bread.
- Name the helpers who bring bread to our table: the farmer, the miller, the baker and the store.
- Grind grain and help make a simple bread.

Warm-up. Set a slice of bread on a plate. Ask, “Where did this come from?” The child will likely say, “The store!” Then ask, “And where did the store get it?” Keep asking “And before that?” as far back as the child can go. Today we will find the whole answer, all the way back to a field.

Video. Coming soon. Search for short (under 8 minutes) kid-friendly footage of a wheat harvest with a combine and of flour being milled, and a read-aloud of *The Little Red Hen* (Brightly Storytime-style read-alouds or Free School, candidates need vetting); The Henry Ford may have short clips of historic farm machines.

KEY TERMS

wheat

A tall grass that farmers grow. Its seeds, called grain, are used to make flour.

harvest

The time when farmers gather in the ripe crops from the fields.

flour

Soft white or brown powder made by grinding grain. We use it to make bread.

mill

A place with big machines (long ago, big stones) that grind grain into flour.

CORE IDEAS

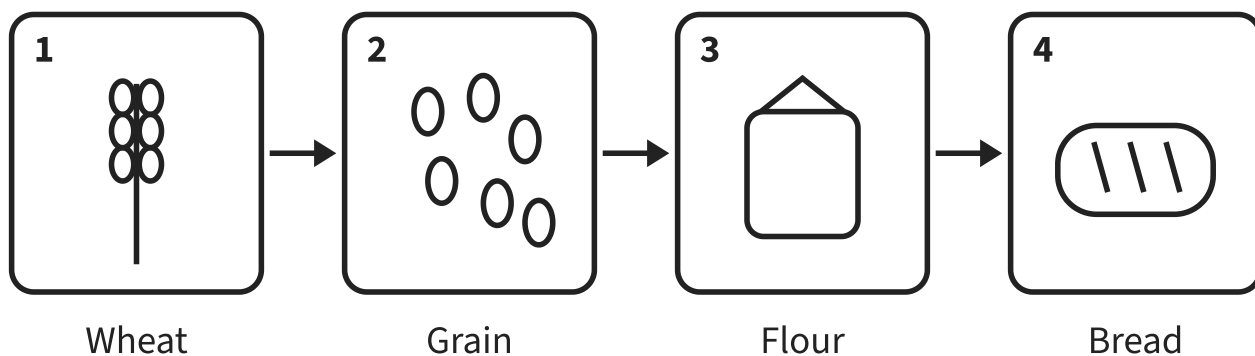
The story. Long ago, in Bible times, a young woman named Ruth went out to the fields near the town of Bethlehem. It was harvest time. The workers were cutting the ripe barley with sickles and tying it in bundles. Ruth walked behind them and picked up the stalks they dropped, so that she and her mother-in-law Naomi would have grain to make bread. The owner of the field, a kind man named Boaz, told his workers to leave extra stalks for her. That grain became bread for Ruth’s family. (You can read the story in the Book of Ruth, chapter 2.)

The big idea. Bread does not start at the store. It starts in a field. First, a farmer plants **wheat** seeds. God sends sun and rain, and the wheat grows tall and turns golden. Second, at the **harvest**, the farmer cuts the wheat and shakes out the little seeds, called grain. Today a big machine called a combine does this. Third, the grain goes to a **mill**, where it is ground

into soft **flour**. Fourth, a baker mixes the flour with water, yeast and salt, and bakes a loaf of bread. Then a truck carries the bread to the store, and we bring it home to our table.

On the map. Wheat needs lots of flat land and sunshine. In America, many wheat farms are on the wide, flat Great Plains in the middle of the country, in states like Kansas and North Dakota. The bread on your table may have traveled hundreds of miles, from a farm to a mill to a bakery to your store! Look at the picture of the four steps. Put your finger on each one and say it: wheat, grain, flour, bread.

God's good gift. Many people help make one loaf of bread: the farmer, the miller, the baker, the truck driver and the store clerk. But it is God who makes the seed grow. That is why Jesus taught us to pray, "Give us this day our daily bread." When we pray before a meal, we thank God and all the helpers He used.



From field to table: wheat, grain, flour, bread.

PICTURE STUDY



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

Jean-François Millet was a French painter who grew up on a farm. He loved to paint country people at work. In this painting three poor women are gleaning: picking up the stalks of wheat left behind after the harvest, just as Ruth did in the Bible. Each stalk they find will help make bread for their families.

Look closely

- Find the three women. What are their hands doing?
- Look far in the back. Find the big haystacks and the wagon. What are those workers doing?
- What colors did Millet use for the field and the sky? Does it look like a warm day?
- Compare the little bits the women hold with the giant haystacks behind them. Which is more?

Talk about it

1. Why do the women need to bend down so low?
2. How is this picture like the story of Ruth?
3. What would these stalks of wheat become after the mill and the oven?

Safety first. A grown-up handles the hot pan or oven. Keep small grains away from babies and toddlers.

PROJECT: FROM GRAIN TO BREAD

You will grind grain into flour with your own hands, then help make a quick flatbread from flour, so you can see and taste every step.

You will need

- A handful of wheat berries (from a health-food store or bulk bin), or rolled oats if you cannot find wheat
- A zipper bag and a rolling pin (or two clean smooth stones)
- For the flatbread: 1 cup flour, a pinch of salt, about 1/3 cup water, 1 spoonful of oil
- Bowl, spoon and a frying pan (grown-up only at the stove)
- A wheat stalk or a picture of a wheat field if you have one

Steps

1. Look at the wheat berries (or oats). These are the seeds of the plant. Count out ten into the child's hand.
2. Put a spoonful of grain in the zipper bag. The child rolls and pounds with the rolling pin. This is being the mill! Look at the powder: it is rough flour.
3. Compare your rough flour with flour from the bag in the kitchen. Feel both. Which is softer?

4. Now make flatbread. The child pours the flour and salt in the bowl, adds the oil and water and stirs. Knead it with clean hands until it is a soft ball.
5. Pat it into small flat circles. A grown-up cooks them in a dry hot pan, about 1 to 2 minutes on each side.
6. Before eating, pray together and thank God and the farmer, the miller and the baker.

Tips

- Hand-ground flour will be lumpy. That is fine. It shows how hard the millers of long ago worked.
- Read *The Little Red Hen* together while the bread cools. Who helped the hen? Who should get to eat?

Check your work

- The child can say the steps in order: wheat, grain, flour, bread.
- The child can name at least two helpers who bring bread to the table.

MAP NOTEBOOK

1. Draw the four steps in four boxes: wheat, grain, flour, bread. Draw arrows between them.
2. Draw a farmer's field of tall golden wheat with the sun above it.
3. Draw your family's table with a loaf of bread on it.

From history. The name Bethlehem means "house of bread" in Hebrew. Ruth gathered grain in its fields, and many years later her great-grandson David grew up there as a shepherd. Later still, Jesus, who called Himself "the bread of life," was born in Bethlehem.

WORKED EXAMPLES

Example 1. Look at the four pictures. Which comes first, flour or wheat? Which comes last?

(Use the map or drawing "Follow the arrows from field to table." shown earlier in this lesson.)

1. Put your finger on box 1. It is a wheat plant growing in the field.
2. Follow the arrow to box 2: the grain from the wheat.
3. Follow the arrow to box 3: the grain is ground into flour.
4. Follow the arrow to box 4: the flour is baked into bread.

Answer: Wheat comes first (before flour). Bread comes last.

PRACTICE

1. **EASY** Who plants the wheat?
2. **EASY** Where is grain ground into flour?
3. **EASY** Count the grains in box 2 of the picture. How many?
(Use the map or drawing "Count the grains in box 2." shown earlier in this lesson.)
4. **MEDIUM** The parent mixes up four cards (or says the words out of order): bread, wheat, flour, grain. Put them in the right order.
5. **MEDIUM** Name one more food that comes from a farm. Draw where it grows.

COMMON MISTAKES

- Thinking food is made at the store. The store sells food; the farm grows it.
- Mixing up grain and flour. Grain is the hard little seed; flour is the soft powder after grinding.
- Forgetting God's part. Farmers plant and water, but God gives the sun, the rain and the growth.

Make it a game • Pass the Loaf. Stand in a line: one person is the farmer, one the miller, one the baker, one the store clerk (stuffed animals can fill in). Pass a ball or a bread roll down the line. Each one says a job as they pass it: "I grow the wheat!" "I grind the flour!" "I bake the bread!" "I sell the bread!" The last person says, "Thank you, God, for our daily bread!" Then mix up the line and try again.

Scripture. "Give us this day our daily bread." (Matthew 6:11, KJV)

Jesus taught us to ask God for our bread each day. Many hands help make bread, but every good gift comes from God.

Practice answers

1. The farmer.
2. At a mill.
3. 6 grains.
4. Wheat, grain, flour, bread.
5. Any farm food, for example: milk from a cow, eggs from a hen, apples from a tree, corn from a field.

6.4 ROADS AND BRIDGES IN MY TOWN

OBJECTIVES

- Tell why roads often go around hills, along rivers and toward the places people need to go.
- Explain that a bridge lets people cross water without a boat.
- Build a block bridge over a pretend river and test it with a toy car.

Warm-up. Lay a blue towel or a strip of blue paper across the floor: this is a river. Put a toy car on one side and a toy house on the other. Ask, “How can the car get to the house without getting wet?” Let the child try ideas with whatever is nearby.

Video. Coming soon. Search for a short (under 8 minutes) kid-friendly video on how bridges work (Practical Engineering has short bridge demonstrations, best watched with a parent; SciShow Kids) and historic photos or footage of the Brooklyn Bridge (Library of Congress, Smithsonian); a read-aloud of a picture book about the Brooklyn Bridge (Brightly Storytime-style, candidate needs vetting).

KEY TERMS

road

A smooth, wide path that people make so walkers, wagons and cars can travel from place to place.

bridge

A road built up high to carry people over water, a valley or another road.

river

Water that flows across the land in a long path, downhill toward the sea.

engineer

A person who plans and builds useful things like roads and bridges.

CORE IDEAS

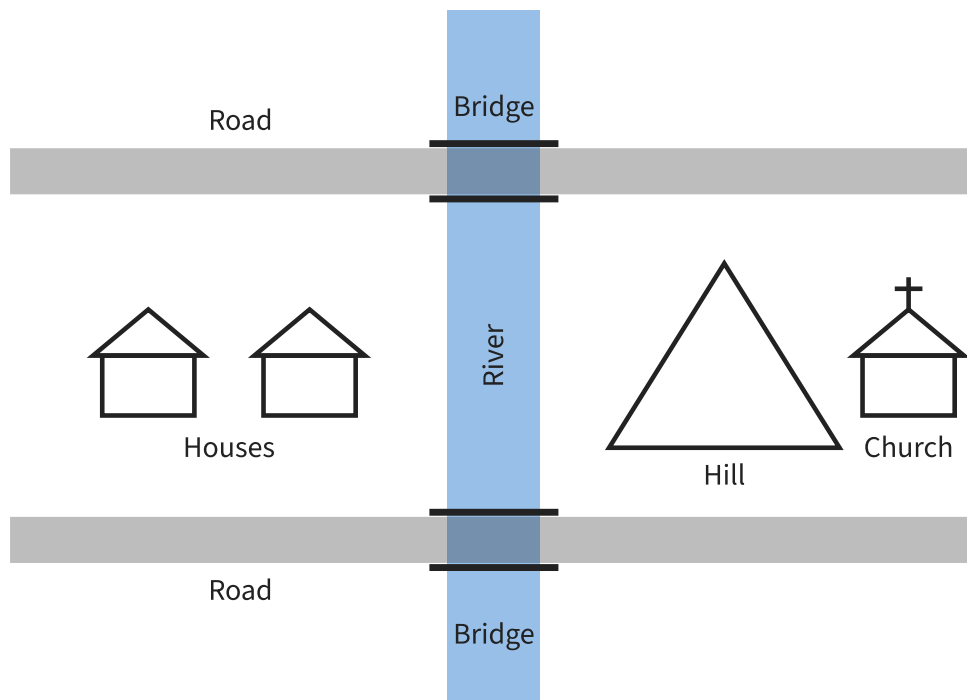
The story. Long ago, the big city of New York and the city of Brooklyn sat on two sides of a wide river. To cross, people had to ride a ferry boat. In winter, ice could block the boats. So an engineer named John Roebling drew plans for a giant bridge. He died before it was built, so his son Washington took over. When Washington became very sick, his wife, Emily Roebling, carried his messages to the workers and helped finish the job. On May 24, 1883, the Brooklyn Bridge opened, after fourteen years of work. Emily was the first person to ride across it in a carriage. Now people could walk or ride over the river any day, in any weather.

The big idea. God made hills, valleys and rivers. People build **roads** to get from place to place across that land. Roads do not go just anywhere. They often go *around* a steep hill, because climbing is hard work for feet, horses and cars. They often follow a **river** or a flat

valley, because the land there is low and level. And roads always lead to the places people need: homes, stores, churches, farms and other towns.

Technology overcoming geography. What happens when a road comes to a river? Long ago, people waded across a shallow spot or rode a boat. Then people learned to build **bridges**. A bridge is a road up high that carries people over the water. The simplest bridge is a log across a creek. The greatest bridges are made of stone, steel and strong cables. Bridges let towns on both sides of a river become neighbors.

On the map. Look at the map picture. Find the river running down the middle. Find the roads. Where a road meets the river, there is a bridge. Count the bridges. Now find the hill. Does a road climb over it, or do the roads go past it on the flat land? Next time you ride in the car, watch for the bridges and hills in your own town.



Roads cross the river on bridges and pass by the hill on flat land.

PICTURE STUDY



The Langlois Bridge at Arles with Women Washing, Vincent van Gogh, March 1888 · Oil on canvas · Kröller-Müller Museum, Otterlo, Netherlands

Vincent van Gogh was a Dutch painter who lived for a while in the town of Arles in the south of France. Near the town, a canal (a river that people dug) had a little wooden bridge that could be lifted up to let boats pass. Van Gogh loved its shape and painted it several times in bright, sunny colors.

Look closely

- Find the bridge. What is crossing over it?
- Find the water under the bridge. What are the women doing at the edge?
- Find the tall wooden posts and the ropes or chains. They help lift the bridge for boats.
- What colors did Van Gogh use most? How does the picture make you feel?

Talk about it

1. How would the cart get across if there were no bridge?
2. Why might a bridge need to lift up to let a boat go by?
3. Is there a bridge near your home? What does it cross?

PROJECT: BUILD A BLOCK BRIDGE

You will be the engineer! You will build a bridge over a pretend river and test it with toy cars.

You will need

- A blue towel, blue paper or blue painter's tape for the river
- Wooden blocks (or books and boxes)

- Flat strips: a ruler, a thin book, a piece of cardboard or a long block
- Toy cars and a few small heavy things (pennies, small toys) for testing

Steps

1. Lay the river across the floor. Make it about as wide as the child's hand is long.
2. Stack blocks on each bank to make two towers the same height.
3. Lay a flat strip from one tower to the other. That is your bridge!
4. Drive a toy car across. Did the bridge hold?
5. Make the river wider. Does the strip still reach? What happens when it sags? Add a block tower in the middle of the river to hold it up (engineers call this a pier).
6. Add the bridge to your play-mat town from Lesson 6.1 so a road crosses the river.

Tips

- Let the bridge fall down sometimes. Engineers learn by testing and trying again.
- Count how many cars or pennies the bridge holds before it bends. Try a thicker piece of cardboard and count again.

Check your work

- The child built a bridge that a toy car can cross.
- The child can say why roads go around hills and why we need bridges.

MAP NOTEBOOK

1. Draw a river with a bridge over it and a car crossing.
2. Draw a hill with a road curving around it.
3. Draw the road from your home to church or the store. Put an X on every bridge you cross.

From history. The Romans were great road builders. Their most famous road, the Appian Way, was begun in 312 BC to connect Rome with the south of Italy. Romans laid it with big flat stones, and parts of it can still be walked on today, more than 2,000 years later.

WORKED EXAMPLES

Example 1. Look at the map. How many bridges cross the river?

(Use the map or drawing “Count the bridges.” shown earlier in this lesson.)

1. Find the river. It is the blue stripe running from top to bottom.
2. Put your finger on the top road. Slide it across until it meets the river. There is a bridge: 1.
3. Now do the same on the bottom road. Another bridge: 2.

Answer: 2 bridges.

PRACTICE

1. **EASY** Point to the river on the map. Which way does it run: from top to bottom, or from side to side?
(Use the map or drawing “Find the river.” shown earlier in this lesson.)
2. **EASY** Count the houses on the map.
(Use the map or drawing “Count the houses.” shown earlier in this lesson.)
3. **MEDIUM** Trace with your finger: start at a house and go to the church. What do you have to cross?
(Use the map or drawing “Go from a house to the church.” shown earlier in this lesson.)
4. **MEDIUM** Why don’t the roads go straight over the top of the hill?
5. **EASY** Before the Brooklyn Bridge, how did people cross the river?

COMMON MISTAKES

- Thinking the river goes under the whole town. On a map, water and land are side by side; the bridge only goes over the water.
- Building towers of different heights so the bridge tilts. Count blocks on each side so they match.
- Thinking roads were always there. People planned and built every road and bridge.

Make it a game • Bridge Keeper. One player is the bridge keeper and stands by the block bridge. The other drives toy cars up to it and must answer a question to cross: “Name a place in our town.” “Name a helper.” “Where does bread come from?” A right answer lets the car cross. Then switch keepers.

Scripture. “Every valley shall be exalted, and every mountain and hill shall be made low: and the crooked shall be made straight, and the rough places plain:” (Isaiah 40:4, KJV)

Isaiah spoke of preparing a smooth highway for the Lord: filling the low places, cutting down the hills and straightening the crooked paths. That is just what road builders do to make a good road.

Practice answers

1. From top to bottom.
2. 2 houses.
3. The river, on a bridge.
4. Because climbing a steep hill is hard; it is easier to go around it on flat land.
5. On a ferry boat.

UNIT 6 REVIEW

This is an oral review. The parent reads each question aloud, and the child answers by saying, pointing, drawing or acting it out. Use the town map, the street map and the play-mat town from this unit. The review is worth 20 points.

1. (3 pts) Name three places in a town and tell what we do at each one.
2. (3 pts) On the town map from Lesson 6.1, put your finger on Home. Hop to the right to the store. How many hops? Then point to the library.
3. (3 pts) Who brings our letters? Who puts out fires? Who helps us when we are sick?
4. (3 pts) Show the street map with its key from Lesson 6.2. What is a map key? How many mailboxes are on the street?
5. (3 pts) Put these in order: flour, bread, wheat, grain.
6. (2 pts) Who plants the wheat, and who makes the seeds grow?
7. (3 pts) What is a bridge for? On the river map from Lesson 6.4, how many bridges are there?

UNIT PROJECT: MY CARDBOARD-BOX TOWN AND MY STREET MAP

Lay a big sheet of paper or an old sheet on the floor and draw roads and a blue river on it with the child. Build a town from small boxes and cartons: home, post office, store, church, fire station and library, plus a block bridge over the river. Add toy helpers at their places. Then the child draws a map of the home street from above, with a key of three symbols (for example house, tree and mailbox). The child gives a “tour” of the town to a grandparent or friend, naming each place and helper.

- **Places:** The town has at least five places, and the child can name each one and tell what happens there.
- **Helpers:** The child places at least three helpers at the right buildings and tells how each one helps.
- **Roads and bridge:** Roads connect the places, and a bridge crosses the river so cars can get to both sides.
- **Street map and key:** The street map is drawn from above, has a key with three symbols, and the child can find each symbol on the map.

Answer key

1. Any three, for example: post office (send letters), store (buy food), church (worship God), fire station (firefighters wait to help), library (borrow books).
2. 1 hop. The library is in the bottom row, below the fire station.
3. The mail carrier; the firefighter; the doctor (or nurse).
4. A box that tells what each symbol on the map means. 3 mailboxes.
5. Wheat, grain, flour, bread.
6. The farmer plants it; God makes it grow.

7. A bridge carries a road over water (or a valley) so people can cross. 2 bridges.

SEVEN CONTINENTS, FIVE OCEANS

In the beginning God gathered the waters together and made the dry land appear (Genesis 1:9–10). In this unit your child steps back to see the whole earth at once: seven big pieces of land called **continents** and five great **oceans** joined into one world sea. We will sing the continents, pour the oceans into cups, and build a puzzle map that gets used again and again.

We will look at a beautiful old world map made by Joan Blaeu in Amsterdam in 1662 and an even older globe from 1492 that has no Americas on it at all. We will meet the kangaroo that Captain Cook’s sailors saw hop along an Australian river in 1770, and we will hear how Magellan named the Pacific the “peaceful sea.” Then your child puts a sticker on home and lays a piece of yarn across an ocean to a far-away land, ready for Unit 8, where we learn how people make those long trips.

Everything in this unit is said, sung, pointed to, colored or built. Your child does not need to read. The main tools are a globe (a beach-ball globe works well), a printed world outline map, crayons, stickers and some blue paper.

BEFORE YOU BEGIN

- Knows that a globe is a round model of the earth (Unit 2)
- Can tell land from water on a globe or map
- Can count to 10
- Knows the name of our town and state (Unit 1)

MASTERY CHECKLIST

- I can sing the names of the seven continents.
- I can point to each continent and show the biggest (Asia) and the smallest (Australia).
- I can name the five oceans and show that the Pacific is the biggest.
- I can put a kangaroo, a llama and an elephant on their home continents.
- I can find my home on the globe and name the ocean I would cross to reach another continent.
- I can say that God made the land, the seas and all the animals.

OPTIONAL BOOKS AND RESOURCES

- **David Rumsey Map Collection** (<https://www.davidrumsey.com/>): Free. A huge online collection of old maps. Search “Blaeu” to zoom in on Blaeu’s world maps and look for the little pictures together (parent browses).
- **NASA Earth Observatory** (<https://earthobservatory.nasa.gov/>): Free. Real pictures of the earth from space. Look for pictures of the continents and oceans with your child and find them on your globe.

- **Library of Congress: Maps** (<https://www.loc.gov/maps/>): Free. Old world maps and globes to look at together; good for comparing an old map with a new one.

7.1 SEVEN CONTINENTS ★

OBJECTIVES

- Say the names of the seven continents in a song.
- Point to each continent on a globe and a world map, and show the biggest (Asia) and the smallest (Australia).
- Tell that God gathered the waters and made the dry land appear.

Warm-up. Spread a blue towel or blanket on the floor. It is the sea. Hand your child seven pillows, socks or crackers and let them place each one on the “sea” as a piece of land. Count them together: one, two, three, four, five, six, seven. Say: “The whole world has seven big pieces of land like this. Today we will learn their names.”

Video. Coming soon. A short, cheerful seven continents song or simple animation (under about 8 minutes): search Homeschool Pop (Alternate) for “seven continents song”; also Free School and National Geographic Kids (candidates, need vetting). Preview first.

KEY TERMS

continent

One of the seven biggest pieces of land on the earth.

globe

A round model of the earth that you can spin.

world map

A flat picture of the whole earth, with all the land and all the water.

CORE IDEAS

The story. Long ago, in the city of Amsterdam, there lived a mapmaker named Joan Blaeu. In 1662 he printed the biggest book of maps anyone had ever made. Sailors came home from far away and told what they had seen. Blaeu drew it all. On the very first page he put the whole world, drawn in two big circles. If you look closely, you will see that a piece is missing! There is no Antarctica at the bottom. Nobody had seen it yet.

The big idea. When God made the world, He gathered the waters together, and the dry land came up (Genesis 1:9–10). Most of the land is in seven very big pieces. We call each big piece a **continent**. Let’s sing their names to the tune of “Are You Sleeping?”: *North America, South America, Europe, Asia, Europe, Asia, Africa, Australia, Africa, Australia, Antarctica! Antarctica!* Hold up a finger for each new name. Seven fingers, seven continents.

On the map. Now find them on a **globe**. Spin it slowly. Asia is the biggest continent of all. It is so big you have to turn the globe to see it all. Australia is the smallest. Antarctica is at the very bottom, white with ice. North America and South America hold hands in the middle, and

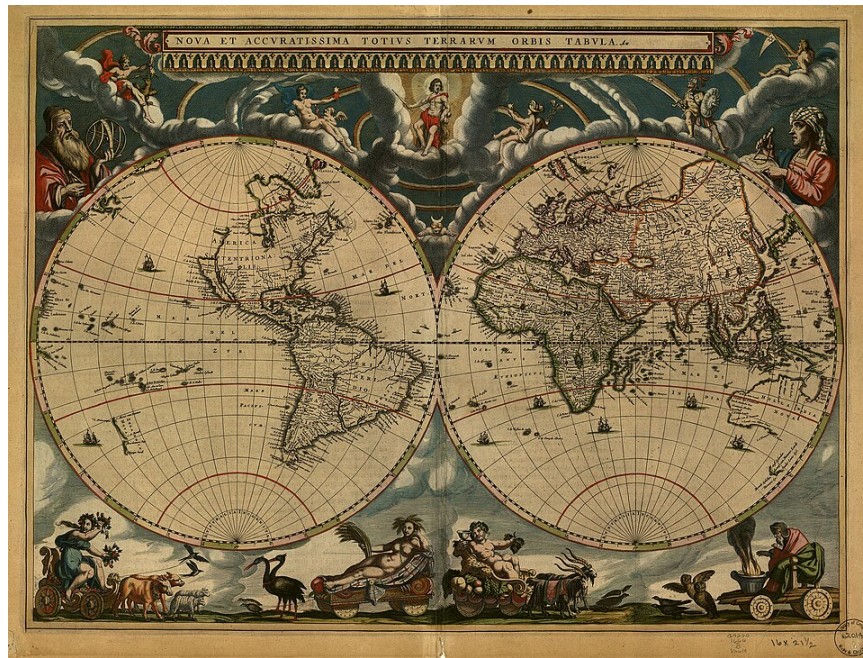
Africa sits right on the middle line of the earth. Europe and Asia sit side by side with no ocean between them. Which continent do we live on? Find it and pat it.

A flat world. A **world map** shows the same seven continents, but flat, so you can see them all at once. Today you will make a puzzle map. When you take it apart and put it back, you will learn the shape of every continent, like the shape of a friend's face.



The seven continents. Point to each one as you sing its name.

PICTURE STUDY



Nova et Accuratissima Totius Terrarum Orbis Tabula (A New and Very Exact Map of All the Lands of the World), Joan Blaeu, 1662 · Hand-colored copperplate engraving · Printed in Amsterdam in Blaeu's great atlas, the Atlas Maior; this copy is in the Library of Congress, Washington, D.C.

Joan Blaeu and his father, Willem, made maps and globes in Amsterdam, a busy city full of ships. This map was the first page of Joan's giant atlas. He drew the round world as two circles, like two halves of an orange laid side by side.

Blaeu drew only what sailors had seen. Part of Australia is there, but only part. Antarctica is not there at all. No one saw it until 1820, more than 150 years later.

Look closely

- Find the two big circles. Spin your globe and see how they are like the two sides of it.
- Put your finger on Africa. Now find Africa on the globe.
- Look at the bottom of the circles. What continent is missing?
- Look around the circles. What little pictures did the mapmaker add to make his map beautiful?

Talk about it

1. Why do you think Blaeu's map has no Antarctica?
2. How is this old map like our globe? How is it different?
3. If you made a map of the world, what pictures would you draw around it?

Safety first. A grown-up does all the cutting with scissors or a craft knife.

PROJECT: MY CONTINENT PUZZLE

You will color the seven continents, and a grown-up will cut them out of cardboard. Then you will put the world back together on a blue "ocean."

You will need

- A printed outline map of the world (one page)
- Crayons in seven colors
- Glue stick and an empty cereal box
- Scissors (for the grown-up)
- A sheet of blue paper or a blue towel for the ocean

Steps

1. Sing the continent song together while you point to each continent on the outline map.
2. Color each continent a different color. The parent names it and the child picks the crayon. Leave the ocean white.
3. The grown-up glues the map onto the flat cereal-box cardboard and lets it dry.
4. The grown-up cuts out the seven continents. (Keep Europe and Asia as two pieces, cut along the Ural Mountains, or as one piece for small hands.)
5. Lay the blue paper on the table. The child puts each continent back in its place while saying its name.

6. Mix them up and play again. Can you do it with the globe as your helper?

Tips

- Keep the pieces in a zip bag. You will use them again in Lessons 7.2, 7.3 and 7.4, and in the Map Lab.
- Islands like Greenland and Japan can stay on the paper or ride along with the nearest continent.

Check your work

- My child can sing the seven continents.
- My child can place each puzzle piece and name it.
- My child can show the biggest (Asia) and the smallest (Australia).

MAP NOTEBOOK

1. Draw seven circles and color each one a different continent color from your puzzle.
2. Draw the globe and color the land green and the water blue.
3. Draw yourself standing on our continent and waving.

From history. Joan Blaeu's Atlas Maior had almost 600 maps in many heavy books. It was one of the most costly books of its day, and it was sometimes given as a gift to kings and princes. Joan and his father, Willem, were also the official mapmakers for the Dutch East India Company, so the captains of its ships brought their sea charts back to the Blaeu shop.

WORKED EXAMPLES

Example 1. Look at the map of the seven continents. Which is bigger, Asia or Australia?

(Use the map or drawing "Cover Asia and Australia with your hand. Which is bigger?" shown earlier in this lesson.)

1. Put one hand on Asia. It is so big your hand cannot cover it.
2. Put one hand on Australia. Your hand covers it easily.
3. The one that is harder to cover is bigger.

Answer: Asia is bigger. Asia is the biggest continent, and Australia is the smallest.

PRACTICE

1. **EASY** How many continents are there? Show me on your fingers.
2. **EASY** Point to the continent at the very bottom of the globe, covered with ice. What is its name?
3. **EASY** Point to the continent we live on. Say its name.

4. **MEDIUM** Find the two continents with “America” in their names. Which one is on top?
5. **MEDIUM** Find the continent that sits right on the middle line of the globe and is shaped a little like a big pear. Say its name.

COMMON MISTAKES

- Thinking a country or a state is a continent. A continent is much bigger; many countries can fit on one continent.
- Forgetting Antarctica because no one lives there all the time. It is still a continent.
- Thinking Europe and Asia have water between them. They are joined together on one big piece of land.

Make it a game • Continent Hop. Put the seven puzzle pieces (or seven papers, each with a continent drawn on it) on the floor. The parent calls out a continent, and the child hops to it. Then the parent calls “Biggest!” or “Smallest!” or “Coldest!” and the child hops to Asia, Australia or Antarctica. Finish by singing the song while hopping to each one in order.

Scripture. “And God called the dry land Earth; and the gathering together of the waters called he Seas: and God saw that it was good.” (Genesis 1:10, KJV)

The seven continents are the dry land God made appear. He looked at it and called it good.

Practice answers

1. Seven.
2. Antarctica.
3. Most families using this course live in North America; accept the child’s own continent.
4. North America and South America; North America is on top.
5. Africa.

7.2 FIVE OCEANS

OBJECTIVES

- Name the five oceans: Pacific, Atlantic, Indian, Southern and Arctic.
- Point to each ocean on a globe and show that the Pacific is the biggest.
- Tell that all five oceans are joined together, so a ship can sail from one to the next.

Warm-up. Fill a bowl with water and float your continent puzzle pieces (or seven little paper scraps) on top. Push one piece gently with a spoon. Ask: “Can the water go all the way around every piece?” Yes! The water is all joined together. That joined-up water is the ocean.

Video. Coming soon. Short ocean footage and a simple five oceans song or animation for young children (under about 8 minutes): search NASA (“ocean from space”), Smithsonian (ocean animals) and Homeschool Pop (Alternate) “five oceans”; National Geographic Kids is a candidate (needs vetting).

KEY TERMS

ocean

One of the five very big parts of the salty sea that covers most of the earth.

Pacific Ocean

The biggest ocean. Its name means “peaceful.”

coast

The edge of the land, where it meets the sea.

CORE IDEAS

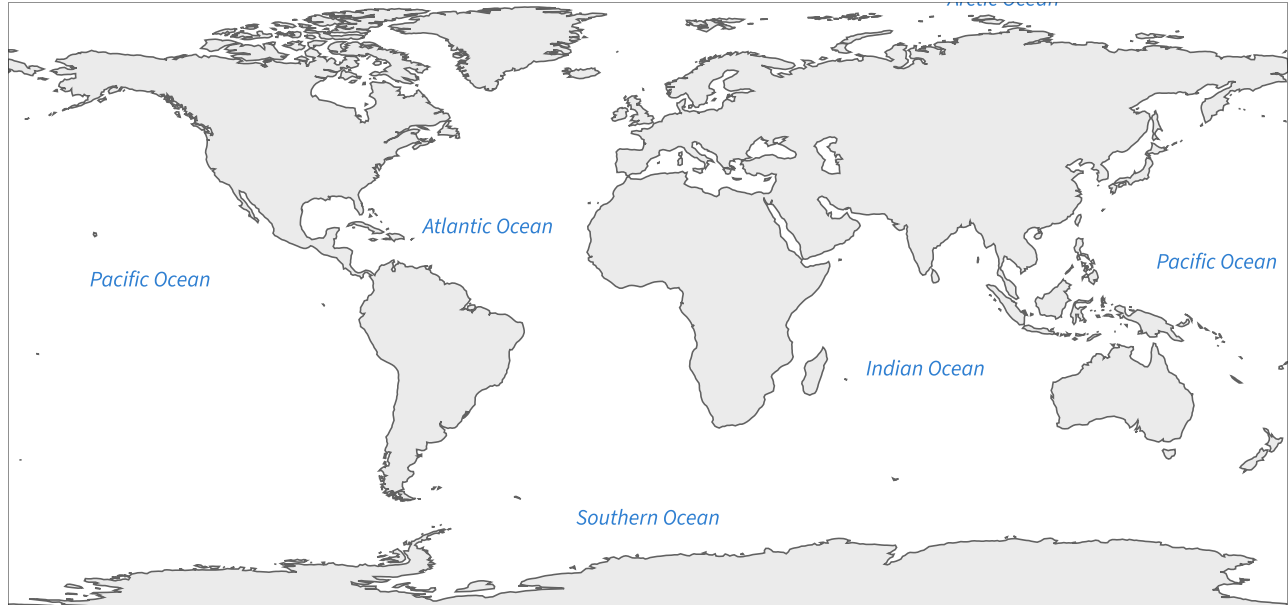
The story. About five hundred years ago, in 1520, a sea captain named Ferdinand Magellan sailed his ships through a narrow, stormy, rocky passage at the bottom of South America. Big waves crashed. Cold winds howled. Then the ships came out into a wide, open sea, and the water was calm and gentle. Magellan named it the *Mar Pacífico*, the “peaceful sea.” We still call it the **Pacific Ocean**.

The big idea. On the third day of creation God gathered the waters together and called them Seas (Genesis 1:10). The salty sea covers most of the earth. It is all joined together, but we give its big parts five names. These are the five **oceans**: the Pacific, the Atlantic, the Indian, the Southern and the Arctic. Say them with five fingers, one finger for each.

On the map. The **Pacific** is the biggest. It is so big that all the land in the whole world could fit inside it, with room to spare! The **Atlantic** lies between the Americas on one side and Europe and Africa on the other. The **Indian Ocean** is between Africa, Asia and Australia.

The **Southern Ocean** goes all the way around Antarctica. The **Arctic Ocean** is the smallest and coldest, at the top of the world, and much of it is frozen into ice where polar bears walk.

Look closely. Find the place where the land meets the water. That edge is called the **coast**. Run your finger along a coast on the globe. If you went to the beach, which ocean would you splash in?



The five oceans. The Pacific is so wide it shows on both sides of the map.

PICTURE STUDY



Under the Wave off Kanagawa (The Great Wave), Katsushika Hokusai, about 1830-1832 · Color woodblock print · Many prints were made; one is at the Metropolitan Museum of Art, New York

Hokusai was an artist in Japan, an island country in Asia, with the Pacific Ocean all around it. He carved his picture into blocks of wood, put ink on them and pressed them onto paper, so many copies could be printed. This is his most famous picture.

Look closely

- Find the giant wave. What does the white foam at the top look like to you?
- Count the boats. Can you see the rowers holding on?
- Find the little mountain far away. It is Mount Fuji, with snow on top.
- Find the colors. How many kinds of blue can you see?

Talk about it

1. The sea in this picture is part of the Pacific. Does it look peaceful today?
2. How do you think the rowers feel? What would you do if you were in the boat?

PROJECT: OCEAN CUPS: WHICH OCEAN IS BIGGEST?

You will pour spoonfuls of water into five cups to see how big each ocean is compared with the others.

You will need

- Five clear cups or jars, all the same size
- A tablespoon and a pitcher of water
- A few drops of blue food coloring (optional)
- Five slips of paper and a crayon (the grown-up writes the ocean names)
- A towel for spills

Steps

1. The grown-up labels the cups: Pacific, Atlantic, Indian, Southern, Arctic.
2. Color the water in the pitcher blue.
3. Count spoonfuls into each cup: Pacific 9, Atlantic 5, Indian 4, Southern 1, Arctic 1.
4. Line the cups up from the most water to the least. Which ocean is biggest? Which are the smallest?
5. Now pour all five cups into one big bowl. All the oceans are really one big sea that God gathered together.

Tips

- These numbers are rounded so small hands can count them; together they make 20 spoonfuls. They show about how much of the sea's surface each ocean covers.
- Keep the bowl of "world ocean" to float your continent puzzle pieces in the game.

Check your work

- My child can name the five oceans.

- My child can show that the Pacific is the biggest.
- My child can tell that all the oceans are joined together.

MAP NOTEBOOK

1. Draw a big blue wave like Hokusai's, with a little boat under it.
2. On your world map, color the oceans blue and help a grown-up write P for Pacific in the biggest one.
3. Draw a polar bear on ice in the Arctic Ocean and a fish in the Pacific.

From history. For a long time most maps showed only four oceans. Many scientists also named the cold water around Antarctica the Southern Ocean, and in 2021 the National Geographic Society began showing it on its maps as the fifth ocean. That is why some older books and globes show only four.

WORKED EXAMPLES

Example 1. Look at the map of the oceans. Count the oceans. How many oceans are there, and which one is biggest?

(Use the map or drawing "Count the five oceans." shown earlier in this lesson.)

1. Touch each ocean and count: Pacific (1), Atlantic (2), Indian (3), Southern (4), Arctic (5). The Pacific's name is on the map twice, but it is one ocean, so count it only once.
2. Look for the ocean with the most blue around it. The Pacific is so big that it shows on both sides of the flat map.
3. Check with your ocean cups: the Pacific cup has the most water.

Answer: There are 5 oceans. The Pacific is the biggest.

PRACTICE

1. **EASY** How many oceans are there? Hold up that many fingers.
2. **EASY** Which ocean is the biggest?
3. **EASY** Point to the cold ocean at the top of the globe, where polar bears live on the ice. What is its name?
4. **MEDIUM** Point to the ocean that goes all the way around Antarctica.
5. **MEDIUM** Put one finger on North America and one on Africa. What ocean is between your fingers?

COMMON MISTAKES

- Thinking the oceans are separate pools with walls between them. They are all joined into one great world sea.

- Mixing up “ocean” and “continent.” Oceans are water; continents are land.
- Thinking the Atlantic is the biggest because it is near us. The Pacific is the biggest by far.

Make it a game • Ocean Says. Lay five blue papers on the floor, one for each ocean, roughly where they belong around your continent puzzle. The parent says, “Swim to the biggest ocean!” and the child “swims” with their arms to the Pacific. Try “the coldest,” “the one around Antarctica,” “the one between us and Africa,” and the child’s own beach ocean.

Scripture. “So is this great and wide sea, wherein are things creeping innumerable, both small and great beasts.” (Psalm 104:25, KJV)

The oceans are so wide and full of life that no one can count all the creatures God put in them.

Practice answers

1. Five.
2. The Pacific Ocean.
3. The Arctic Ocean.
4. The Southern Ocean.
5. The Atlantic Ocean.

7.3 ANIMALS AROUND THE WORLD

OBJECTIVES

- Match animals to their home continents: kangaroos to Australia, llamas to South America, elephants to Africa and Asia.
- Place animal stickers or pictures on the right continents of a world map.
- Tell that God made each animal and gave it a home where it can live.

Warm-up. Gather a few toy animals or animal pictures from around the house. Ask your child to sort them: “Which ones live near our home? Which ones live far away?” Talk about how they know. Save the far-away animals for today’s map.

Video. Coming soon. Short real-animal footage for young children (under about 8 minutes): search Smithsonian (National Zoo kangaroos, elephants) and SciShow Kids for kangaroos, llamas and elephants; also a read-aloud of a simple picture book about animals of the continents; National Geographic Kids is a candidate (needs vetting).

KEY TERMS

habitat

The home where an animal lives and finds its food, water and shelter.

kangaroo

An animal from Australia that hops on strong back legs and carries its baby in a pouch.

llama

A woolly animal from the mountains of South America that helps people carry loads.

CORE IDEAS

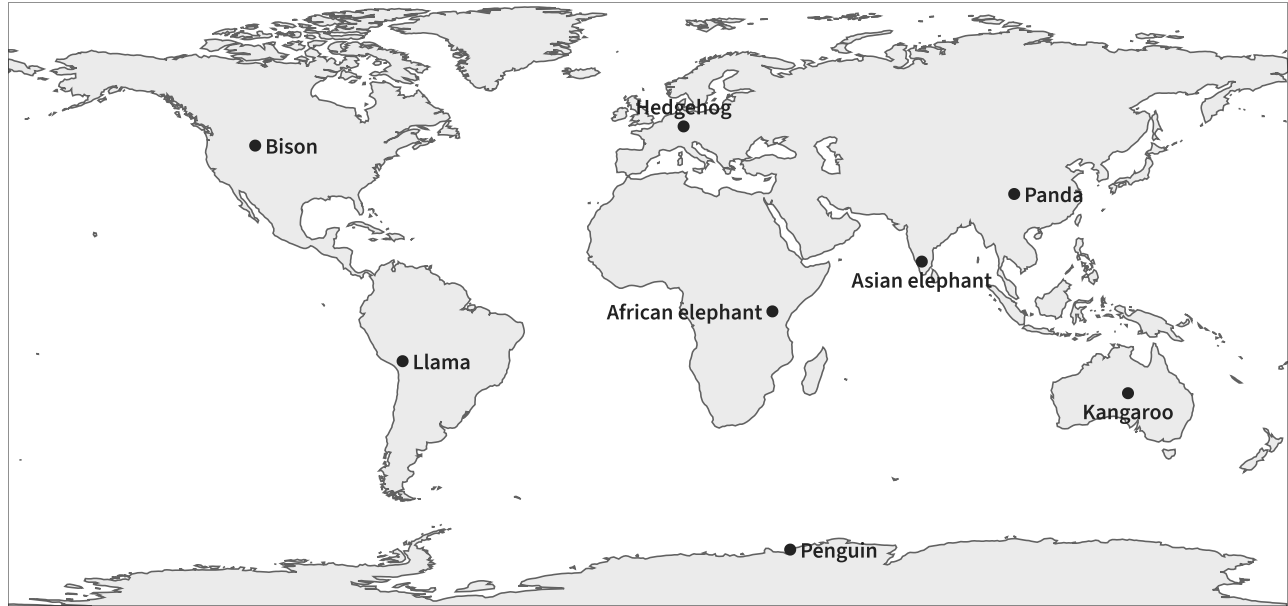
The story. In 1770, Captain James Cook’s ship, the *Endeavour*, bumped onto a coral reef off the coast of Australia. The sailors pulled the ship up on a beach by a river to fix it. While they worked, they saw a strange animal. It had a small head, a long tail and big back legs, and it did not run. It hopped! The people who lived there called it something like “gangurru.” The sailors wrote it down as **kangaroo**. Back in England, a painter named George Stubbs painted it, and people saw a kangaroo for the very first time.

The big idea. God made every animal “after his kind” (Genesis 1:25), and He gave each one a **habitat**, a home where it can find food, water and shelter. Many animals live on only one or two continents. Kangaroos and koalas live in Australia. **Llamas** live high in the Andes Mountains of South America. Their thick wool keeps them warm in the cold mountain air, and people use them to carry loads up and down the steep paths.

Two kinds of elephants. Elephants live on two continents: Africa and Asia. The African elephant is bigger and has very big ears. Some people say its ears are shaped a little like the

map of Africa! The Asian elephant has smaller ears. In Asia, people have trained elephants to carry logs and people for a very long time.

On the map. Let's visit every continent. In North America, bison graze on the plains. In South America, llamas climb. In Europe, hedgehogs snuffle in gardens. In Africa, giraffes and elephants walk on the grasslands. In Asia, pandas munch bamboo. In Australia, kangaroos hop. And in icy Antarctica, penguins slide on their tummies. Today you will put each one on your world map.



Animals around the world. Which animals live on our continent?

PICTURE STUDY



The Kongouro from New Holland, George Stubbs, 1772 · Oil painting on panel · National Maritime Museum, Greenwich, London

George Stubbs was an English painter who loved to paint animals, especially horses. He had never been to Australia and never saw a live kangaroo. Joseph Banks, a scientist who sailed with Captain Cook, brought a kangaroo skin home, and Stubbs painted from it and from the sailors' drawings and stories. "New Holland" was an old name for Australia.

Look closely

- Find the kangaroo's back legs. Why do you think they are so big?
- Find the long tail. What do you think a kangaroo uses its tail for?
- Look at the kangaroo's face. Which way is it looking?
- Look at the land behind it. Is it a city, a forest or open country?

Talk about it

1. How do you think people in England felt when they saw this picture for the first time?
2. If you could paint one animal from far away, which would you choose?

PROJECT: ANIMALS ON MY WORLD MAP

You will stick animals on the continents where God made them to live, so your map is full of life.

You will need

- Your colored world map or continent puzzle from Lesson 7.1, laid on blue paper
- Animal stickers, or animal pictures cut from old magazines or drawn by the child

- Glue stick or tape
- Toy animals (optional)

Steps

1. Sing the continent song and point to each continent.
2. Look at the kangaroo picture. Find Australia and stick a kangaroo there.
3. Find South America and the long Andes Mountains down its side. Stick a llama there.
4. Find Africa and Asia. Stick an elephant on each one. Show which elephant has bigger ears.
5. Add more animals: a bison in North America, a hedgehog in Europe, a giraffe in Africa, a panda in Asia, a penguin in Antarctica.
6. Add one animal that lives near your own home on your own continent.

Tips

- Toy animals work well for children who are not ready for stickers. Set them on the puzzle pieces instead.
- Zoos have animals from every continent. If you visit one, look for the signs that show where each animal comes from.

Check your work

- My child put the kangaroo on Australia and the llama on South America.
- My child knows elephants live in Africa and Asia.
- My child can name one animal that lives on our continent.

MAP NOTEBOOK

1. Draw a kangaroo with a baby peeking out of its pouch.
2. Draw two elephants side by side: one with big ears (Africa) and one with smaller ears (Asia).
3. Draw an animal that lives near your home and show where it sleeps.

From history. Long before Stubbs painted his kangaroo, another artist drew an animal he had never seen. In 1515 a rhinoceros from India in Asia was brought by ship to Lisbon in Portugal. The German artist Albrecht Dürer read a letter about it and saw a small sketch, and from those he made a famous woodcut picture. He gave his rhinoceros a coat of armor plates and a little extra horn on its back. People copied his picture for more than two hundred years.

WORKED EXAMPLES

Example 1. A kangaroo got lost! Look at the map. Which continent is its home?

(Use the map or drawing “Find the kangaroo’s home.” shown earlier in this lesson.)

1. Remember: a kangaroo hops and carries its baby in a pouch.
2. Find the word “Kangaroo” on the map.
3. Find the continent it sits on. It is the smallest continent, down near the bottom, between the Indian and Pacific Oceans.

Answer: Australia.

PRACTICE

1. **EASY** Point to the continent where llamas live.
2. **EASY** Elephants live on two continents. Point to both.
3. **EASY** Which animal hops and carries its baby in a pouch?
4. **MEDIUM** Which animal lives on the ice of Antarctica: a penguin, a llama or a giraffe?
5. **MEDIUM** Count the animals you stuck on your map. How many did you put on Africa?

COMMON MISTAKES

- Thinking a zoo animal lives wild near our home. Zoos bring animals from all over the world.
- Putting penguins and polar bears together. Polar bears live in the far north (the Arctic), and penguins live in the far south.
- Thinking all elephants are the same. African and Asian elephants are two different kinds.

Make it a game · Where Do I Live?. The parent acts like an animal (hopping like a kangaroo, swinging an arm like an elephant’s trunk, waddling like a penguin). The child guesses the animal and then runs to put a finger on its continent on the map or puzzle. Switch places: the child acts, and the parent guesses.

Scripture. “And God made the beast of the earth after his kind, and cattle after their kind, and every thing that creepeth upon the earth after his kind: and God saw that it was good.” (Genesis 1:25, KJV)

Kangaroos, llamas and elephants were all God’s idea. He made each kind and gave each one a home on His earth.

Practice answers

1. South America (in the Andes Mountains).

2. Africa and Asia.
3. The kangaroo.
4. A penguin.
5. Answers vary; count together (for example, an elephant and a giraffe make 2).

7.4 WHERE I AM ON THE GLOBE

OBJECTIVES

- Find our own continent and country on the globe and mark home with a sticker.
- Trace a way from home across an ocean to another continent and name the ocean crossed.
- Tell that God made all the nations and set each family in its place (Acts 17:26).

Warm-up. Play “Where Am I?” Ask your child: “Where are you?” (on the couch). “Where is the couch?” (in our house). “Where is our house?” (on our street, in our town). Keep going: our state, our country, our continent, the earth. Stack cups or blocks, one for each step, from small to big.

Video. Coming soon. A read-aloud of Joan Sweeney’s picture book *Me on the Map* (Brightly Storytime-style channels, candidate, needs vetting) and short NASA footage of the earth turning seen from space (under about 8 minutes).

KEY TERMS

home

The place where my family lives. I can find it on a map and a globe.

country

A land with its own name, leaders and flag. Our country is part of a continent.

route

The way you go to get from one place to another.

CORE IDEAS

The story. In the city of Nuremberg, in Germany, there is a very old globe. A man named Martin Behaim had it made in 1492. It is the oldest globe in the world that is still here today. But if you look for North and South America on it, you will not find them! In 1492 Columbus was just sailing across the Atlantic for the first time, and the people in Europe did not know the Americas were there. On Behaim’s globe, the ocean simply goes from Europe all the way to Asia.

The big idea. Today our globes show all seven continents, and we can find our own **home**. First find our continent. Then find our **country** on it. Then find the place where our state or town is. Put a little sticker there. That tiny dot is you! The Bible says God “hath made of one blood all nations of men” and set “the bounds of their habitation” (Acts 17:26). God knows where every family lives, and He put your family right where you are.

On the map. Now let’s take a trip. Put your finger on the sticker. Pick a continent far away, maybe Africa to see the elephants or Australia to see the kangaroos. Move your finger slowly

toward it. What do you cross? An ocean! A way from one place to another is a **route**. To go from North America to Europe or Africa, you cross the Atlantic. To go to Asia or Australia, you can cross the Pacific.

How we get there. Long ago, people crossed the ocean in sailing ships. It took weeks or months. In 1854 a young missionary named Hudson Taylor reached China in Asia after almost six months at sea. Today a big airplane can fly across an ocean in less than a day. In our next unit we will learn about all the ways people travel over land and sea.



One route from a home in North America, across the Atlantic Ocean, to London in Europe.

PICTURE STUDY



The Erdapfel (Behaim Globe), Martin Behaim, with the painter Georg Glockendon, 1492-1494 · Hand-painted globe · Germanisches Nationalmuseum, Nuremberg, Germany

The people of Nuremberg called this globe the *Erdapfel*, which means “earth apple.” It is about as wide as a big beach ball. Painters covered it with land, sea, flags, ships and little pictures of kings and animals.

It was finished just as Columbus was making his first voyage, so it shows Europe, Africa and Asia, but no Americas, no Australia and no Antarctica.

Look closely

- Find the round shape. How is it like your globe at home?
- Look at the colors. Is it bright blue and green like our globe, or more brown and gold?
- Look for little ships and pictures painted on the sea.
- Think: which continents are missing?

Talk about it

1. Why do you think the Americas are not on this old globe?
2. Where would our home be on this globe if the painters had known about it?

PROJECT: MY STICKER HOME AND YARN TRIP

You will put a sticker on your home on a globe or world map and lay a piece of yarn from home across an ocean to another continent.

You will need

- A globe, a world map or a beach-ball globe
- A small round sticker (a star or a smiley face)
- A piece of red yarn or string about as long as your arm
- Tape
- Paper and crayons for a pretend ticket

Steps

1. Do the warm-up stack again: room, house, town, state, country, continent, earth.
2. Find our continent on the globe. The grown-up helps the child find our country and the place where we live.
3. Put the sticker on home.
4. Choose a far-away continent to “visit.” Tape one end of the yarn to the sticker.
5. Lay the yarn along the globe to the other continent and tape the other end there. Name the ocean the yarn crosses.
6. Draw a pretend ticket for the trip, with a picture of the animal you hope to see when you get there.

Tips

- A string pulled tight over a globe shows a short way to go. Your yarn may curve up toward the north; that is fine.
- If you have family or missionaries you pray for in another land, make your trip go to them.

Check your work

- My child can point to our home sticker and name our continent.
- My child can name the ocean the yarn crosses.
- My child can tell one way to travel across an ocean.

MAP NOTEBOOK

1. Draw circles inside circles: me, my house, my town, my country, my continent, the earth.
2. Draw the globe with a star on home and a line to another continent.
3. Draw the ship or airplane you would take on your trip.

From history. Hudson Taylor grew up in England and longed to tell the people of China about Jesus. In September 1853 he set sail on a small ship, and he reached Shanghai in March 1854, after almost six months at sea. Later he started the China Inland Mission, which sent hundreds of missionaries deep into China, far from the coast.

WORKED EXAMPLES

Example 1. A family lives in North America. They want to visit London, in Europe. Look at the route on the map. Which ocean do they cross?

(Use the map or drawing “Follow the route across the ocean.” shown earlier in this lesson.)

1. Put your finger on the home dot in North America.
2. Follow the red line toward the east, toward the sunrise side of the map.
3. Look at the blue water the line goes over. Find its name: the Atlantic Ocean.
4. The line ends at London, on the continent of Europe.

Answer: They cross the Atlantic Ocean.

PRACTICE

1. **EASY** Put your finger on your home sticker. What continent is it on?
2. **EASY** Stack the blocks again from small to big: me, house, town, state, country, continent, earth. How many blocks did you use?
3. **MEDIUM** From North America, which ocean would you cross to go to Africa?
4. **MEDIUM** From North America, which big ocean would you cross to go to Australia?
5. **MEDIUM** Tell me two ways people can cross an ocean.

COMMON MISTAKES

- Thinking the sticker marks only our house. On a globe, a little sticker covers a whole town or more.
- Thinking you can walk or drive to every continent. To reach most other continents you must cross an ocean by ship or plane.
- Forgetting the order from small to big: house, town, state, country, continent, earth.

Make it a game • Spin and Travel. Close your eyes, spin the globe and stop it with one finger. Open your eyes. Did you land on land or water? If land, name the continent and an animal that lives there. If water, name the ocean. Then trace a way back home to your sticker. Take turns; each right answer earns one point. Play to 10.

Scripture. “And hath made of one blood all nations of men for to dwell on all the face of the earth, and hath determined the times before appointed, and the bounds of their habitation;” (Acts 17:26, KJV)

God made every people on every continent, and He knows where each family lives. Your home sticker is a place God chose for you.

Practice answers

1. Our own continent (for most families using this course, North America).
2. 7 (count with the child; the number matches the steps you named).
3. The Atlantic Ocean.
4. The Pacific Ocean.
5. By ship (or boat) and by airplane.

UNIT 7 REVIEW

This review is said aloud. The parent asks each question, and the child answers by saying, pointing, singing or placing a puzzle piece or sticker. Keep the globe and the continent puzzle nearby. The review is worth 20 points.

1. (3 pts) Sing or say the names of the seven continents.
2. (3 pts) Put the continent puzzle together on the blue paper. Then point to the biggest continent and the smallest one.
3. (2 pts) Point to the icy continent at the bottom of the globe. What is its name?
4. (3 pts) How many oceans are there? Say their names.
5. (2 pts) Which ocean is the biggest? Point to it on the globe.
6. (3 pts) Put each animal on its home: a kangaroo, a llama and an elephant.
7. (2 pts) Point to your home sticker on the globe. What continent do we live on?
8. (2 pts) We want to visit the elephants in Africa. Which ocean do we cross?

UNIT PROJECT: MY WORLD MAP

Make one big world map that shows everything from this unit. The child colors the seven continents in seven colors on a large outline map and colors the oceans blue. The parent writes the names the child says. Then the child adds animal stickers or drawings on their home continents, a star sticker on home, and a red yarn or crayon route from home across an ocean to another continent. Hang it on the wall and let the child give a short “map tour” to a grandparent or friend.

- **Continents:** All seven continents are colored, each a different color, and the child can name each one when asked.
- **Oceans:** The oceans are colored blue, and the child can point to the Pacific, Atlantic and at least one more ocean.
- **Animals and home:** At least five animals are on the right continents, and the home star is on our continent and country.
- **Map tour:** The child tells the route from home across an ocean and names one animal they would see there.

Answer key

1. North America, South America, Europe, Asia, Africa, Australia, Antarctica (any order). Give 3 points for all seven, 2 for five or six, 1 for three or four.
2. The puzzle is put together; the biggest is Asia and the smallest is Australia.
3. Antarctica.
4. Five: Pacific, Atlantic, Indian, Southern and Arctic. Give 1 point for “five” and 2 more for naming at least four.
5. The Pacific Ocean.
6. Kangaroo on Australia; llama on South America; elephant on Africa or Asia. 1 point each.
7. Our own continent (for most families, North America).

8. From North America, the Atlantic Ocean.

HOW WE GET THERE

God made a big, wide world of hills and plains, rivers and oceans. “And hath made of one blood all nations of men for to dwell on all the face of the earth, and hath determined the times before appointed, and the bounds of their habitation;” (Acts 17:26). People live all over the face of the earth, so people have always needed ways to travel. In this unit your child will ride, in imagination, every way people go: on feet, on wheels, in boats, on trains and in airplanes.

Your child will see old Jacob’s joy when the wagons came to carry him to Egypt, sail with the Pilgrims on the *Mayflower* in 1620, hear the golden spike tapped in at Promontory Summit in 1869, and run beside the Wright brothers’ plane at Kitty Hawk on December 17, 1903. Along the way your child will roll a book on pencils, sail a sponge boat, build a block train on a paper track and fold and fly a paper airplane.

Each lesson shows how people, using the wisdom God gives, found ways to cross land and sea. The unit ends with a happy map of a trip to Grandma’s house that uses three different kinds of travel.

BEFORE YOU BEGIN

- Can point to land and water on a globe or simple map
- Can count objects to 10
- Knows that a line on a map can show a path or route
- Can tell which of two things is bigger

MASTERY CHECKLIST

- I can tell how people traveled long ago: walking and carrying, then wheels and wagons.
- I can tell how boats cross the water and that the *Mayflower* sailed across the ocean.
- I can tell that trains roll on tracks and stop at stations.
- I can tell the story of the Wright brothers’ first flight at Kitty Hawk.
- I can sort ways to travel into land, water and sky.
- I can draw a route on a map and follow it with my finger.

OPTIONAL BOOKS AND RESOURCES

- **The Henry Ford (Dearborn, Michigan)** (<https://www.thehenryford.org/>): A museum of American travel and invention. Its Greenfield Village holds the Wright brothers’ bicycle shop, moved there from Dayton, along with old carriages, steam trains and a working railroad. Its website has free photos and short videos of wagons, locomotives and early airplanes to show your child.
- **Smithsonian National Air and Space Museum** (<https://airandspace.si.edu/>): Home of the real 1903 Wright Flyer. The website has free pictures of the Flyer and other

famous airplanes to look at together after Lesson 8.4.

8.1 FEET AND WHEELS ★ ⚙️

OBJECTIVES

- Tell how people first traveled by walking and carrying, and how the wheel made heavy loads easier to move.
- Show with pencils and a book that round things roll and make pushing easier.
- Count the squares along a route on a simple map grid.

Warm-up. Ask your child to carry a heavy book (or a small bag of potatoes) across the room. Now put the same load in a toy wagon, a laundry basket on a skateboard or a toy truck, and push it back. Which way was easier? Which way was faster? Say together: “Wheels help us carry!”

Video. Coming soon. Short kid-friendly videos (under 8 minutes) on the invention of the wheel and old wagons and carriages, simple animations or museum footage; search The Henry Ford (carriages and wagons), Smithsonian, Homeschool Pop (Alternate) transportation for kids; candidate (needs vetting): a picture-book read-aloud about wheels.

KEY TERMS

load

Something heavy that we carry or move, like a sack of food or a basket of apples.

roll

To turn over and over like a ball, instead of sliding or being lifted.

wheel

A round circle that turns on a stick in the middle so a cart or car can roll.

wagon

A big box on wheels for carrying people and loads, often pulled by horses or oxen.

CORE IDEAS

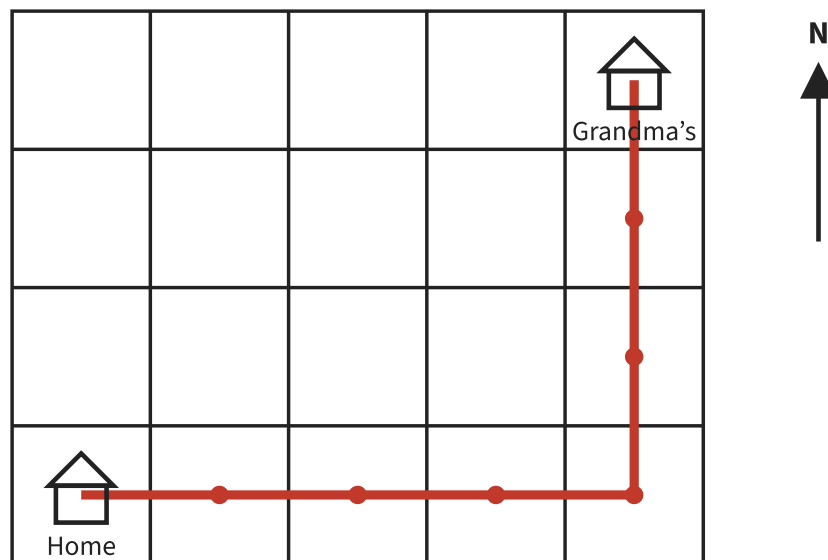
The story. Long ago, the Bible tells us, Joseph lived in the land of Egypt. His old father Jacob lived far away in the land of Canaan. That was a long, long walk for an old man and for all the little children in the family. So Pharaoh, the king of Egypt, told Joseph to send **wagons** to bring them. The wagons rolled across the dry land on their wheels. When old Jacob saw the wagons, he was so happy that his heart came alive again (Genesis 45:27). Now he knew he could make the trip and see his son.

How it worked. The very first way people traveled was on their own two feet. They walked, and they carried their **loads** on their backs, on their heads and in their arms. Later they let donkeys, camels and oxen carry the heavy things. Then people found something wonderful: round things **roll**. Long, long ago, people made the first **wheels**. They were round pieces of

wood with a stick through the middle. Put two wheels on each end of a box, and you have a cart or a wagon!

Technology overcoming geography. God made the land wide and long. With wheels, people could carry much more than they could on their backs, and go much farther. A horse pulling a wagon could carry a whole family, their food, their pots and their beds. Long ago, families in America rode in big covered wagons across the plains to find new homes. Today, cars, buses, trucks and bicycles all roll on wheels too. Look around your house. How many wheels can you find?

On the map. When we go somewhere, the way we go is called a **route**. On a map we can draw it with a line. Feet can walk on a skinny path through the woods. Wheels like a smooth road. So people built roads where wagons needed to go, and many of our roads today follow those old wagon roads.



A picture map. Follow the red route from Home to Grandma's.

PICTURE STUDY



The Hay Wain, John Constable, 1821 · Oil on canvas · The National Gallery, London

John Constable was an English painter who loved the fields and rivers where he grew up. A “wain” is an old word for a wagon. In this painting a farm wagon has rolled right into the shallow water of a river. Maybe the horses are getting a drink, and the water cools the wooden wheels on a hot summer day.

Look closely

- Find the wagon. Point to its big wooden wheels. How many wheels can you see?
- Find the horses pulling the wagon. Who is riding on the wagon?
- Find the little dog on the bank and the cottage on the left.
- Look at the sky. Is it a sunny day or a stormy day?

Talk about it

1. What do you think this wagon carries when it is full?
2. Why is it easier for the horses to pull a wagon than to carry the load on their backs?

PROJECT: ROLL A LOAD ON PENCILS

Long ago, people learned that heavy things move more easily when they roll. Today your child will find out how it feels, using pencils as rollers and a heavy book as the load.

You will need

- A big, heavy book
- 6 round pencils, markers or paper towel tubes (round ones roll best)
- A smooth table or floor

- A toy car or wagon

Steps

1. Lay the book flat on the table. Ask your child to push it with one finger. Is it hard? It drags and slides.
2. Now lay the pencils in a row, side by side, a little apart, like the rungs of a ladder.
3. Set the book on top of the pencils. Push it with one finger again. Does it roll more easily?
4. As the book rolls forward, a pencil pops out the back. Pick it up and put it in front. Keep going across the table!
5. Now push the toy car. Point to its wheels. The wheels stay with the car, so you never have to move the pencils again.
6. Talk about it: Which was hardest, pushing the book, rolling it on pencils, or pushing the car?

Tips

- Six-sided pencils bump along. Round markers, dowels or tubes roll more smoothly, and your child may notice the difference.
- Let your child be the “worker” who carries pencils from back to front. It shows why a wheel that stays on the cart is so clever.

Check your work

- My child pushed the book flat and on rollers and said which was easier.
- My child can point to a wheel and say that it rolls.
- My child can name two things at home that have wheels.

MAP NOTEBOOK

1. Draw yourself walking and carrying a big bag.
2. Draw a wagon with four round wheels. Color the wheels.
3. Draw a line from your front door to your car or your mailbox. That line is a route!

From history. In the 1700s, farmers near the Conestoga River in Pennsylvania built big, strong wagons called Conestoga wagons. The bottom of the wagon was curved up at both ends, a bit like a boat, so the barrels and sacks inside would not slide out when the wagon went up and down hills. Teams of horses pulled these wagons full of flour, iron and other goods along the roads between farms and cities.

WORKED EXAMPLES

Example 1. Look at the picture map. The red route goes from Home to Grandma's. How many squares does it go?

(Use the map or drawing "Count the squares along the red route." shown earlier in this lesson.)

1. Put your finger on Home.
2. Slide your finger along the red line to the right and count each square: 1, 2, 3, 4.
3. Now the line turns up. Keep counting: 5, 6, 7.
4. Your finger is on Grandma's house. Stop!

Answer: 7 squares (4 squares to the right and 3 squares up).

PRACTICE

1. **EASY** Walk around the house. Point to three things that have wheels.
2. **EASY** How many wheels does a bicycle have? A tricycle? A wagon?
3. **EASY** Which is easier to push: a box on the floor or the same box in a wagon?
4. **MEDIUM** Draw a wheel. What shape is it?
5. **MEDIUM** On the picture map, which way does the arrow marked N point: up or down? Which house is at the top of the map?

(Use the map or drawing "Find the N arrow and the house at the top." shown earlier in this lesson.)

COMMON MISTAKES

- Thinking wheels have always been here. Wheels are a tool people had to invent, and for a long time people only walked and carried.
- Thinking any shape will roll. Only round things roll smoothly; a square block slides or tips.
- Thinking a route is a road. A route is the way you go; it can follow a road, a path or even a river.

Make it a game • Walk, Carry, Roll. The parent calls out a way to travel and the child acts it out across the room. "Walk!" (march on your feet). "Carry!" (walk slowly holding a pillow). "Roll!" (roll a ball, or roll on the floor like a log). "Wagon!" (crawl while the parent holds your ankles like a wheelbarrow, if you like). Then swap and let the child call out the moves.

Scripture. "And they told him all the words of Joseph, which he had said unto them: and when he saw the wagons which Joseph had sent to carry him, the spirit of Jacob their father revived:" (Genesis 45:27, KJV)

Old Jacob could not walk all the way to Egypt, but the wagons could carry him. God gave people the wisdom to make wheels and wagons, and Jacob was glad because they brought

him to his son.

Practice answers

1. Any three, such as a toy car, a stroller, an office chair, a bicycle or a vacuum cleaner.
2. A bicycle has 2, a tricycle has 3 and a wagon has 4.
3. The box in the wagon, because the wheels roll.
4. A circle (round).
5. Up. Grandma's house is at the top.

8.2 BOATS AND SHIPS

OBJECTIVES

- Tell how people cross water in boats, from the small canoe pushed by paddles to the big ship pushed by the wind.
- Tell the story of the Mayflower's long trip across the ocean in 1620 and point to England, the ocean and America on a map.
- Make a little sailboat and see that wind can push it across the water.

Warm-up. Float a plastic lid in a sink or a bowl of water. Ask your child to move it without touching it. Let them try blowing on it. Now tape a small square of paper standing up on the lid and blow again. Does it move faster? The paper caught the wind, just like a sail.

Video. Coming soon. Short kid-friendly videos (under 8 minutes) on canoes and sailing ships and the Mayflower voyage, such as a tour of the Mayflower II replica or a simple animation; search Smithsonian, Library of Congress, Drive Thru History (Pilgrims, parent preview), Homeschool Pop (Alternate) Mayflower for kids; candidate (needs vetting): Plimoth Patuxet Museums.

KEY TERMS

canoe

A long, narrow little boat that people push through the water with paddles.

sail

A big piece of cloth on a boat that catches the wind so the wind pushes the boat along.

ship

A very big boat that can sail across the ocean.

ocean

The biggest, widest water of all, so wide you cannot see the other side.

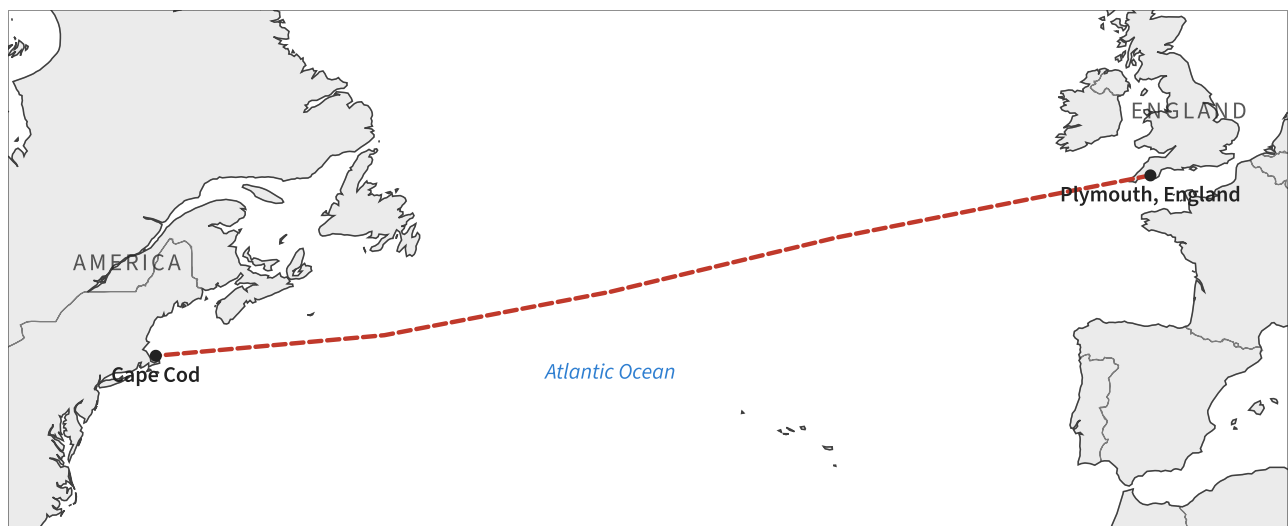
CORE IDEAS

The story. In September 1620, a small wooden **ship** called the *Mayflower* left the town of Plymouth in England. About 100 passengers were on board: mothers, fathers and children. Sailors were on board too. Many of them were Pilgrims who wanted a new home where they could worship God as they believed the Bible taught. They sailed across the wide Atlantic **Ocean** for about two months. Big storms tossed the ship, and once a great wooden beam cracked. The people pushed it back with a big iron screw they had brought along. A baby boy was even born on the way, and his parents named him Oceanus! In November 1620 the sailors saw land at last. It was Cape Cod, in America.

How it worked. The first boats were simple. People sat on floating logs, then hollowed out a big log to make a **canoe**. In America, many Native peoples made light canoes from the bark of birch trees. A canoe is pushed by paddles, so it goes only as far as strong arms can paddle. A big ship like the *Mayflower* has tall poles called masts and big cloth **sails**. The wind blows into the sails and pushes the ship across the sea, day and night.

Technology overcoming geography. On the third day of creation, God gathered the waters together and made the dry land appear (Genesis 1:9-10). Feet and wagons can cross the land, but they cannot cross the sea. Boats can! With boats, people crossed rivers, lakes and even the great ocean. A trip that no one could walk took the *Mayflower* about two months.

On the map. Look at the map of the *Mayflower's* trip. England is on the right side. America is on the left side. The big ocean is in between. The red line shows the ship's route. It sailed from right to left, toward the side where the sun sets. That way is called **west**.



The Mayflower sailed from Plymouth, England, across the Atlantic Ocean to Cape Cod in 1620.

PICTURE STUDY



The Mayflower in Plymouth Harbor, William Formby Halsall, 1882 · Oil on canvas · Pilgrim Hall Museum, Plymouth, Massachusetts

William Halsall was a painter who loved ships and the sea. More than 250 years after the Pilgrims came, he painted the *Mayflower* resting in the harbor at Plymouth after its long trip. No one living then had ever seen the real ship, so he studied old ships to paint it as well as he could.

Look closely

- Find the ship. Point to its tall masts. How many can you count?
- Find the sails. Are they full of wind, or are they tied up?
- Look at the water. Is it rough and stormy, or calm?
- Find the front of the ship and the back of the ship.

Talk about it

1. How do you think the children felt after two months on this ship?
2. Why do you think the ship is resting now?

Safety first. Stay with your child at all times during water play, even with a shallow tub.

PROJECT: MAKE A LITTLE SAILBOAT

Your child will build a small boat, give it a sail and use their own breath as the wind to sail it across a “sea.”

You will need

- A clean kitchen sponge or a piece of a foam tray (the boat)
- A drinking straw (the mast)
- A small square of paper, about the size of your child's hand (the sail)
- Tape and crayons
- A baking pan, tub or bathtub with a little water (the ocean)

Steps

1. Let your child color the paper sail. They might draw a cross or a star on it.
2. Tape the sail to the straw so it stands like a flag.
3. Poke the straw into the middle of the sponge. (A parent can make a small hole first.)
4. Put the boat at one end of the tub. Call that end "England." Call the other end "America."
5. Blow gently into the sail. Count how many big breaths it takes to cross to America.
6. Take the sail off and try again with no sail. Is it harder? Put the sail back on.

Tips

- If the boat tips over, use a wider sponge or a shorter mast.
- Make waves with your hand to show the storms the Mayflower sailed through.

Check your work

- My child built a boat with a sail.
- My child can say that the wind pushes a sailboat.
- My child can say that the Mayflower crossed the ocean.

MAP NOTEBOOK

1. Draw a canoe with a person holding a paddle.
2. Draw the Mayflower with big sails full of wind. Add blue waves underneath.
3. Draw England on one side of the page, America on the other, and a blue ocean in between. Draw a red line for the ship's route.

From history. The real Mayflower is gone, but in 1957 a copy of the ship called Mayflower II, built in Brixham, England, sailed across the Atlantic to Plymouth, Massachusetts. Families can still climb aboard it there and see how small and crowded the ship was for about 100 passengers.

WORKED EXAMPLES

Example 1. Look at the map. Where did the Mayflower start, and where did it stop? What is in between?

(Use the map or drawing “Trace the Mayflower’s route with your finger.” shown earlier in this lesson.)

1. Put your finger on the dot on the right side. That is Plymouth, England. The trip started here.
2. Slide your finger along the red line across the blue water.
3. Stop at the dot on the left side. That is Cape Cod, in America.
4. Point to the big water you crossed. That is the Atlantic Ocean.

Answer: The Mayflower started in Plymouth, England, and stopped at Cape Cod in America. The Atlantic Ocean is in between.

PRACTICE

1. **EASY** Which is bigger, a canoe or the Mayflower? Show me with your arms.
2. **EASY** What pushes a canoe? What pushes a sailboat?
3. **EASY** Point to the ocean on the Mayflower map. What is its name?
(Use the map or drawing “Find the ocean.” shown earlier in this lesson.)
4. **MEDIUM** How long did the Mayflower’s trip take: two days or two months?
5. **MEDIUM** How many breaths did it take your sailboat to cross the tub? Count them again.

COMMON MISTAKES

- Thinking the ocean is small because it looks small on a map. It took the Mayflower about two months to cross.
- Thinking big ships had motors long ago. The Mayflower had no engine; only the wind pushed it.
- Thinking boats only float on the sea. Canoes and boats travel on rivers and lakes too.

Make it a game • Captain’s Orders. The parent is the captain and calls out orders. “Paddle the canoe!” (sit and paddle). “Raise the sails!” (stretch arms high). “Storm!” (rock side to side). “Land ho!” (shade your eyes and point). If the captain says “Man overboard!” the child must sit very still. Then let the child be the captain.

Scripture. “They that go down to the sea in ships, that do business in great waters; These see the works of the LORD, and his wonders in the deep.” (Psalm 107:23-24, KJV)

Sailors on the great sea see the waves, the whales and the wide water God made. Boats let people go where feet cannot, and see His wonders on the way.

1. The Mayflower (arms stretched wide).
2. People with paddles push a canoe. The wind pushes a sailboat.
3. The big water in the middle. It is the Atlantic Ocean.
4. About two months.
5. Any honest count (often 3 to 10).

8.3 TRAINS

OBJECTIVES

- Tell how trains ride on tracks and how the railroad joined the east and west of America in 1869.
- Build a block train and drive it on a paper track map from station to station.
- Point to stations on a simple track map and count the stops.

Warm-up. Line up three or four kitchen chairs in a row. Your child is the engine in front, and stuffed animals ride in the “cars.” Say “All aboard!” and let the engine chug around the room in a line. Ask: Can a train turn anywhere it wants, or does it follow a path?

Video. Coming soon. Short kid-friendly videos (under 8 minutes) of real steam trains running, and simple animations of how a steam engine works and of the golden spike in 1869; search The Henry Ford (steam locomotives), Smithsonian, Library of Congress, Homeschool Pop (Alternate) trains for kids; candidate (needs vetting): National Park Service Golden Spike National Historical Park.

KEY TERMS

train

A long line of cars pulled by an engine along a track.

track

Two long steel rails on the ground that the train’s wheels roll on.

engine

The strong machine at the front of the train that pulls all the cars.

station

A stopping place where people and loads get on and off the train.

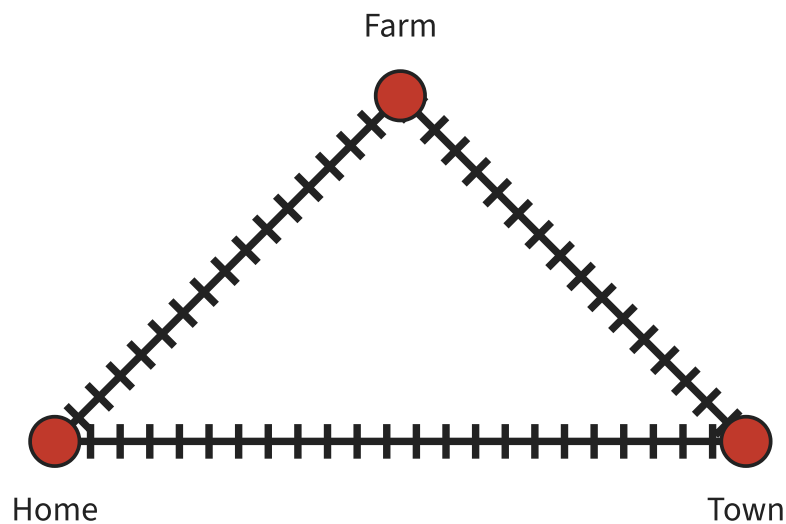
CORE IDEAS

The story. On May 10, 1869, a crowd stood on a dry hill called Promontory Summit in Utah. From the east, workers had laid railroad **track** across the plains. From the west, other workers had laid track over the high, snowy mountains. Many of the western workers came from China, and many of the eastern workers came from Ireland. Now the two tracks met. Two **engines** rolled up nose to nose. A special golden spike was tapped in, and the news flashed across the land: the railroad went all the way across America!

How it worked. A **train** is a line of cars pulled by an engine. Its wheels roll on two steel rails, and a little lip on each wheel keeps the train from sliding off. The old engines were steam engines. A fire burned inside, the fire boiled water, and the hot steam pushed the wheels around. Chug, chug, chug! The engine puffed big clouds of smoke and steam into the sky.

Technology overcoming geography. Before the railroad, a family in a covered wagon needed months to cross America. On the train, the trip took about a week! But trains do not like steep hills. So workers dug tunnels through mountains and built long bridges over rivers and valleys to make the way as flat as they could. One engine could pull more than many wagons, so farmers could send their wheat and cattle far away to the cities.

On the map. On a map, a railroad is drawn as a line with little marks across it, like a ladder lying down. The marks stand for the wooden ties that hold the rails. Stations are dots along the line. A train can only go where the track goes, so the track map shows every place the train can stop.



A track map with three stations.

PICTURE STUDY



Rain, Steam and Speed – The Great Western Railway, J. M. W. Turner, 1844 · Oil on canvas · The National Gallery, London

Joseph Mallord William Turner was an English painter who loved storms, light, the sea and new machines. Railroads were new and exciting when he painted this picture. A steam train of the Great Western Railway is racing across a bridge over the River Thames, near a town called Maidenhead, in the rain.

Turner did not paint every little detail. He painted how it *felt* to see a train rush by in the rain: fast, wet, misty and loud.

Look closely

- Find the dark engine coming toward you. Point to its chimney.
- Find the long bridge under the train and the river under the bridge.
- Find the little boat on the water. Is it faster or slower than the train?
- Look very closely in front of the train. Some people see a little hare running on the tracks. Can you find it?

Talk about it

1. Is this a sunny day or a rainy day? How can you tell?
2. How does this painting make you feel: sleepy, or fast and excited?
3. Why did the railroad need a bridge here?

PROJECT: A BLOCK TRAIN AND A PAPER TRACK MAP

Your child will make a big track map on paper, then drive a block train along it from station to station, carrying “loads” as real trains do.

You will need

- A big sheet of paper, or several sheets taped together (a paper grocery bag cut open works well)
- Crayons or markers
- Building blocks or small boxes for the engine and cars
- Cotton balls, dry beans or small toys for loads

Steps

1. With your child, draw a big loop of track on the paper. Draw two long lines side by side for the rails.
2. Draw short lines across the rails all the way around for the ties. Your child can do this part.
3. Pick three stops along the track. Draw a little house for Home, a barn for Farm and some buildings for Town.
4. Build a train from blocks: one engine and as many cars as your child likes. Count the cars together.
5. Load the cars at the Farm with “wheat” (beans or cotton balls). Drive the train along the track to Town and unload.
6. Add a river across the track with a blue crayon. How will the train get across? Build a block bridge!

Tips

- Keep the track map for the unit’s final map of the trip to Grandma’s.
- Let your child call out “All aboard!” and the name of each station.

Check your work

- My child drew a track with rails and ties.
- My child drove the train only on the track, stopping at the stations.
- My child counted the cars on the train.

MAP NOTEBOOK

1. Draw a steam engine with a tall chimney and a big puff of smoke.
2. Draw a track like a ladder lying down: two long rails and lots of little ties.
3. Draw a train going over a bridge, with blue water underneath.

From history. The golden spike from May 10, 1869, was not left in the ground. It was taken out after the ceremony and an ordinary iron spike was put in its place. Today the

golden spike is kept at the Cantor Arts Center at Stanford University in California, and the place where the tracks met is Golden Spike National Historical Park in Utah.

WORKED EXAMPLES

Example 1. Look at the track map. The train starts at Home. It goes to the Farm and then to Town. How many stations does it stop at after Home?

(Use the map or drawing “Follow the track from Home to the Farm to Town.” shown earlier in this lesson.)

1. Put your finger on Home.
2. Slide along the track to the Farm. That is 1 stop.
3. Keep sliding along the track to Town. That is 2 stops.
4. Count the stops: 1, 2.

Answer: 2 stations: the Farm and Town.

PRACTICE

1. **EASY** What do a train’s wheels roll on?
2. **EASY** Point to the station at the top of the track map. What is it called?
(Use the map or drawing “Which station is at the top?” shown earlier in this lesson.)
3. **EASY** Count the cars on your block train. Now add one more. How many now?
4. **MEDIUM** Can a train go where there is no track? Why not?
5. **MEDIUM** Which is faster across America: a covered wagon or a train?

COMMON MISTAKES

- Thinking trains can drive on roads like cars. Trains need tracks.
- Thinking the smoke makes the train go. The fire boils water, and the steam pushes the wheels.
- Thinking the railroad was built by one or two people. Thousands of workers from many lands built it with picks, shovels and hard work.

Make it a game • All Aboard!. Put three pillows around the room and name them Home, Farm and Town. The child is the train and must chug along an imaginary track (a line of string or tape works well). The parent calls out a station: “Next stop, Farm!” The train chugs there, toots, and picks up a “load” (a sock or a toy). At the end, count how many loads the train carried. Swap so the child is the station master.

Scripture. “Every valley shall be exalted, and every mountain and hill shall be made low: and the crooked shall be made straight, and the rough places plain:” (Isaiah 40:4, KJV)

Isaiah is speaking of making a straight, smooth road ready for the Lord. Railroad builders did something like this on a small scale: they filled in low places, cut through hills and made the way as straight and smooth as they could.

Practice answers

1. The track (two steel rails).
2. The Farm.
3. One more than the first count (for example, 4 cars, then 5).
4. No. Its wheels must roll on the rails.
5. A train (about a week instead of months).

8.4 AIRPLANES ★ ⚙️

OBJECTIVES

- Tell the story of Orville and Wilbur Wright and the first airplane flight at Kitty Hawk on December 17, 1903.
- Fold and fly a paper airplane and count how many steps it flies.
- Sort ways to travel into land, water and sky.

Warm-up. Hold up two sheets of paper. Crumple one into a ball. Drop both at the same time. Which one floats down slowly? The flat sheet! The air pushes up under it. Then go to a window and watch for birds. How do they hold their wings when they glide?

Video. Coming soon. Short kid-friendly videos (under 8 minutes) about the Wright brothers' first flight at Kitty Hawk, the 1903 Wright Flyer in the museum, and how to fold a simple paper airplane; search Smithsonian (National Air and Space Museum), The Henry Ford (Wright Cycle Shop), NASA (how wings work, for kids), Library of Congress (first flight photograph), Homeschool Pop (Alternate) Wright brothers for kids.

KEY TERMS

airplane

A machine with wings and an engine that flies people through the sky.

wing

The long, flat part of a bird or airplane that the air holds up.

pilot

The person who steers and flies an airplane.

CORE IDEAS

The story. Two brothers named Orville and Wilbur Wright lived in Dayton, Ohio. They had a bicycle shop, and they loved to build things. They watched birds and wondered, “Could people fly too?” They built a flying machine with long **wings** and a little engine. They took it to the windy sand hills near Kitty Hawk, North Carolina, by the sea. On the cold, windy morning of December 17, 1903, Orville lay down on the wing to be the **pilot**. The engine roared. The machine slid along a wooden rail, and then it lifted into the air! It flew for 12 seconds and landed on the sand. Wilbur ran beside it. Later that day, Wilbur flew almost a whole minute. People could fly!

How it worked. An **airplane** needs wings and speed. The engine spins the propellers, and the propellers push air back so the plane rushes forward. When the plane moves fast, the air pushes up under the wings and holds the plane up, like the flat paper floating down slowly. The pilot steers the plane up, down, left and right.

Technology overcoming geography. Feet walk on land. Wheels roll on roads and tracks. Boats float on water. But an airplane flies over everything: over tall mountains, wide deserts and the great ocean. The *Mayflower* needed about two months to cross the Atlantic Ocean. An airplane today crosses it in less than a day! The world God made is just as big, but planes help us cross it fast.

On the map. Look at the map. Dayton, Ohio, where the brothers lived, is far from the sea. Kitty Hawk is right by the ocean, toward the side where the sun rises. That way is called **east**. To get there, the brothers rode a train and then a boat. Feet, wheels, boats and wings all helped make the first flight!



The Wright brothers lived in Dayton, Ohio, and flew at Kitty Hawk, North Carolina, by the sea.

PICTURE STUDY



First Flight, John T. Daniels (camera set up by Orville Wright), December 17, 1903 · Photograph (glass-plate negative) · Library of Congress, Washington, D.C.

This is one of the most famous photographs in the world. Orville Wright set up his camera on the sand and asked John T. Daniels, a man from the nearby lifesaving station, to squeeze the button at just the right moment. Daniels had never taken a picture before, but he caught the very first airplane flight just as it left the ground.

Look closely

- Find the flying machine in the air. How many long wings does it have, one on top of the other?
- Find the man standing on the right. That is Wilbur, who had been running beside the plane.
- Find the long wooden rail on the sand. The plane slid along it to start.
- Look at the ground. Is it grass, or sand?

Talk about it

1. How do you think Wilbur felt when he saw his brother flying?
2. Why do you think they chose a windy place with soft sand?

Safety first. Fly paper airplanes away from faces and never throw them at people or pets.

PROJECT: FOLD AND FLY A PAPER AIRPLANE

Your child will help fold a simple paper airplane, then fly it like the Wright brothers and measure each flight in footsteps.

You will need

- A sheet of printer paper
- Crayons for decorating
- A long hallway or yard
- A small toy or sock to mark where the plane lands

Steps

1. Fold the paper in half the long way, then open it again. The fold line is the middle.
2. Fold the two top corners down to the middle line, making a point like a roof.
3. Fold the two slanted edges to the middle line again, making a sharper point.
4. Fold the plane in half along the middle line, with the folds inside.
5. Fold each side down to make the wings, lining the wing edge up with the bottom of the plane.
6. Let your child color the wings and give the plane a name.
7. Stand at a starting line. Gently push the plane forward, a little upward. Mark where it lands and count your child's footsteps to it.
8. Fly three times. Which flight went the most steps?

Tips

- A parent should crease the folds firmly while the child presses them down; sharp creases fly better.
- If the plane dives into the ground, bend the back edges of the wings up just a little.
- Throw gently. A soft, level push flies farther than a hard throw.

Check your work

- My child helped fold and decorate a paper airplane.
- My child flew it and counted the footsteps.
- My child can tell who made the first airplane flight and where.

MAP NOTEBOOK

1. Draw a bird flying with its wings spread wide.
2. Draw the Wright brothers' plane over the sand with Wilbur running beside it.
3. Draw the sky, the sea and the land. Put an airplane in the sky, a boat on the sea and a train on the land.

From history. The real Wright Flyer from December 17, 1903, still exists. It is on display in the National Air and Space Museum in Washington, D.C., where families can see it. When the astronaut Neil Armstrong flew to the Moon in 1969, he carried along a small piece of the Wright Flyer's wood and cloth, to honor the first flight.

WORKED EXAMPLES

Example 1. Look at the map. Which place is right by the ocean: Dayton or Kitty Hawk?

(Use the map or drawing "Which place is by the ocean?" shown earlier in this lesson.)

1. Find the blue ocean on the map. It is on the right side.
2. Put your finger on Dayton. Is it next to the blue water? No, it is far away.
3. Put your finger on Kitty Hawk. Is it next to the blue water? Yes!

Answer: Kitty Hawk is right by the ocean. Dayton is far away from it.

PRACTICE

1. **EASY** How many Wright brothers were there? Hold up that many fingers.
2. **EASY** What animals did the Wright brothers watch to learn about flying?
3. **EASY** Sort these: airplane, canoe, train, wagon, ship. Which go on land? On water? In the sky?
4. **MEDIUM** How many footsteps did your best paper airplane fly?
5. **MEDIUM** Which is the fastest way to cross the ocean: a sailing ship or an airplane?

COMMON MISTAKES

- Thinking the first airplane flew high and far. It flew only a few feet off the ground for 12 seconds, but it was a true flight.
- Thinking the paper airplane flies best when you throw it very hard. A gentle, level push works better.
- Thinking planes can fly without moving fast. The wings only hold the plane up when air rushes past them.

Make it a game • Land, Sea or Sky Sorting Game. Make a set of picture cards with your child: draw or cut from old magazines a foot, a wagon, a bicycle, a car, a canoe, a sailing ship, a train and an airplane. Lay three big papers on the floor: a brown one for Land, a blue one for Sea and a white or light blue one for Sky. Shuffle the cards. Your child picks a card, says what it is and makes its sound (vroom, chug, whoosh), then places it on Land, Sea or Sky. When all are sorted, count the cards on each paper. Which pile has the most?

Scripture. “But they that wait upon the LORD shall renew their strength; they shall mount up with wings as eagles; they shall run, and not be weary; and they shall walk, and not faint.” (Isaiah 40:31, KJV)

This verse names flying, running and walking, all the ways we have traveled in this unit. However we go, the Lord gives us strength for the journey.

Practice answers

1. 2 (Orville and Wilbur).
2. Birds.
3. Land: train and wagon. Water: canoe and ship. Sky: airplane.
4. Any honest count (often 5 to 15 steps).
5. An airplane (less than a day instead of about two months).

UNIT 8 REVIEW

Ask each question aloud. Your child answers by saying, pointing, sorting or drawing; no reading or writing is needed. The review is worth 20 points.

1. (3 pts) How did people first travel and carry things, before wheels? Show me.
2. (3 pts) Draw a wheel. Why is it easier to push a wagon than to drag a box?
3. (3 pts) What pushes a canoe? What pushes a sailing ship like the Mayflower?
4. (3 pts) On a globe or the Mayflower map, point to England, to America and to the ocean the Pilgrims crossed.
5. (3 pts) What does a train roll on? What do we call a place where the train stops to let people on and off?
6. (3 pts) Who made the first airplane flight? Where did they fly?
7. (2 pts) Sort these picture cards into Land, Water and Sky: wagon, ship, train, airplane, canoe.

UNIT PROJECT: MY TRIP TO GRANDMA'S

On a big sheet of paper, your child draws a picture map of a trip from home to Grandma's house (or another loved one's home), real or make-believe. The route must use three kinds of travel, such as walking to the car, riding a train across the land, and sailing a boat across a lake, or flying in an airplane over the mountains. Draw Home at one end and Grandma's at the other, a red line for the route, and a little picture of each way to travel along it. Add a north arrow at the top.

Beside the map, keep the paper airplane from Lesson 8.4 and the Land, Sea or Sky sorting cards. Your child then "takes the trip" by tracing the route with a finger and telling the story of the journey aloud.

- **Route:** The map shows Home and Grandma's with one clear line joining them.
- **Three kinds of travel:** At least three ways to travel are drawn along the route and placed sensibly (boats on water, trains on tracks, planes in the sky).
- **Telling the trip:** The child traces the route and tells the trip in order, naming each way to travel.
- **Care:** The map is colorful, has a north arrow and shows the child's best effort.

Answer key

1. They walked on their feet and carried loads on their backs, heads and arms (or used donkeys and camels).
2. A circle. The wheels roll, so the load moves more easily.
3. Paddles (people paddling) push a canoe. The wind in the sails pushes a sailing ship.
4. Points correctly to England, to North America and to the Atlantic Ocean between them.
5. A track (rails). A station.
6. The Wright brothers (Orville and Wilbur), at Kitty Hawk, North Carolina, in 1903.

7. Land: wagon, train. Water: ship, canoe. Sky: airplane.

BONUS: MAP LAB

Map Lab is a bonus unit of map games for any week off. There is nothing new to memorize. Instead, your child gets to **use** everything they have learned this year: seeing from above, finding landmarks, naming the continents and telling which way to go. Each lesson is a game you can play in the yard, on the floor or at the kitchen table.

Your child will follow a treasure map like the one Robert Louis Stevenson drew for *Treasure Island*, put the world back together like the first puzzle maps made in London around 1766, play Simon Says with left, right, forward and back, and finally hide a toy and make a map for someone else, the way young George Washington mapped his brother's turnip field. By the end, your child will not only read maps. They will make maps that work.

BEFORE YOU BEGIN

- Has drawn a simple map of a room from above (Unit 1)
- Can find land and water on a globe (Unit 2)
- Has heard the names of the seven continents (Unit 7)
- Can count to 10

MASTERY CHECKLIST

- I can follow a map from landmark to landmark to find a hidden prize.
- I can put the seven continents back in their places on a puzzle map.
- I can move left, right, forward and back when someone tells me.
- I can hide a toy and draw a map that helps someone else find it.

OPTIONAL BOOKS AND RESOURCES

- ***Treasure Island* by Robert Louis Stevenson (free at Project Gutenberg)** (<https://www.gutenberg.org/ebooks/120>): Free. The full book is for older children, but parents can show the treasure map and read the opening chapter aloud to curious young listeners (Lesson 9.1).
- **Library of Congress: Maps collection** (<https://www.loc.gov/maps/>): Free. Browse old maps of the world, towns and farms with your child, including maps drawn by George Washington (Lesson 9.4).

9.1 TREASURE HUNT

OBJECTIVES

- Follow a simple picture map of the yard, one landmark at a time, to find a hidden prize.
- Match pictures on a map to real things: a tree, a house, a gate, a swing.
- Count squares on a map grid to tell how far to go.

Warm-up. Hide a spoon somewhere in the kitchen while your child covers their eyes. Then give clues without pointing: “Walk to the big white box that keeps food cold. Now look on the low shelf next to it.” When the spoon is found, ask: “Was it easier with my words, or would a picture help?”

Video. Coming soon. A short read-aloud of a picture book about treasure maps or reading a map (Brightly Storytime-style read-alouds, candidate needs vetting), or a short “what is a map” animation for young children from Homeschool Pop (Alternate) or Free School (candidate needs vetting); under 8 minutes.

KEY TERMS

map

A picture of a place that shows where things are.

landmark

Something big and easy to spot, like a tree or a gate, that helps you know where you are.

X marks the spot

An X drawn on a map to show where something is hidden.

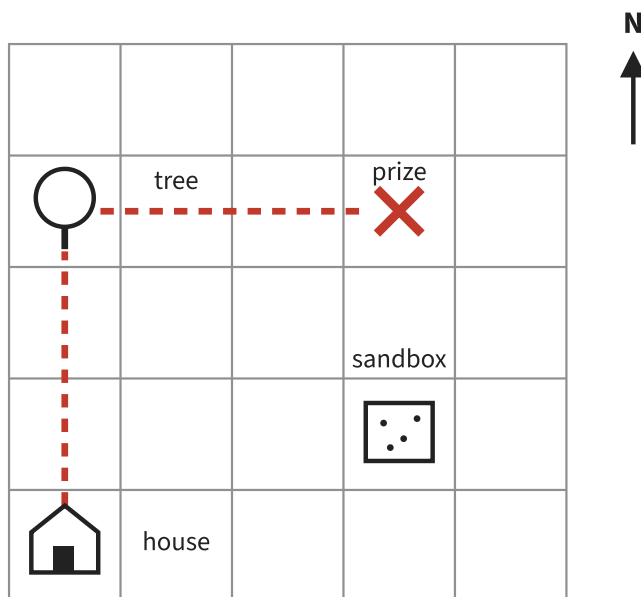
CORE IDEAS

The story. Long ago, in the summer of 1881, a Scottish writer named Robert Louis Stevenson was stuck indoors on a rainy holiday with his family. His stepson Lloyd, a boy of about thirteen, was painting pictures. Stevenson picked up a pen and drew a map of a pretend island. He drew hills, a bay, a little fort and woods. Then he marked a red X where treasure was buried. Looking at that map gave him an idea for a story, and he wrote a whole book about it: *Treasure Island*. It all started with one map drawn for a boy on a rainy day.

How it works. A treasure map is a real map. It shows a place from above, like a bird would see it. It shows **landmarks**, big things that are easy to spot, like a tree, a fence or a swing. You find the first landmark, then the next one, then the next. You keep looking from the map to the yard and back again. When you reach the **X**, you dig, or look under, or peek behind, and there is your prize!

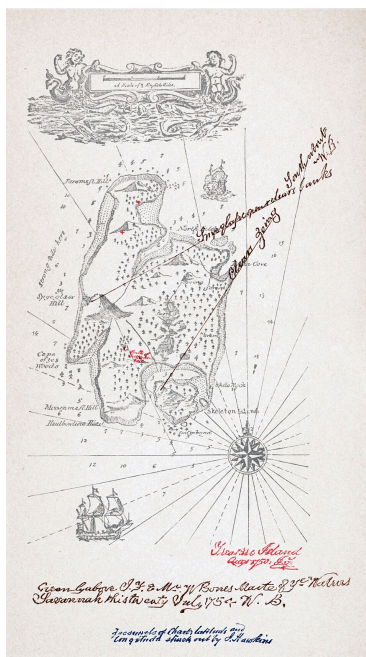
On the map. Some maps have little squares on them, like a checkerboard. The squares help you count. If the map says the tree is three squares from the house, you count three squares

with your finger, then walk that far the same way in the yard. Turn the map so the house on the paper points the same way as the real house. Then the map and the yard match, and you will not get lost.



A yard map on a grid. Follow the dotted path from the house to the tree, then to the X.

PICTURE STUDY



Map of Treasure Island, Robert Louis Stevenson, drawn 1881; printed in the first edition of *Treasure Island*, 1883 · Printed map (engraving after the author's drawing) · Printed in the book *Treasure Island* (London: Cassell, 1883); copies are in many libraries

This is the most famous pretend treasure map in the world. Robert Louis Stevenson drew the first one for fun with his stepson. The first one was lost when it was sent to the printer, so Stevenson drew it again for the book. The island is made up, but the map is drawn the way real sea maps of that time were drawn, with hills, bays, a compass rose and the depth of the water.

Look closely

- Find the shape of the island. What animal or thing does it look like to you?
- Find the hills. Can you find the tallest one?
- Find the compass rose, the star with points. Put your finger on the point that shows north.
- Look for the X. Where is the treasure hidden?

Talk about it

1. If you landed your boat on this island, which landmark would you walk to first?
2. Why do you think a map makes a story about treasure so exciting?

PROJECT: THE BACKYARD TREASURE HUNT

The parent draws a simple map of the yard (or one room, if it is cold or wet) and hides a small prize. The child follows the map from landmark to landmark until they find the X.

You will need

- A large sheet of paper and crayons or markers
- A small prize: a sticker, a cookie in a bag, or a toy
- Optional: a paper bag or box to be the “treasure chest”
- Optional: tea or coffee to stain the map brown so it looks old (parent only)

Steps

1. Parent: walk the yard and choose three or four landmarks the child knows, such as the back door, a tree, the swing and the fence.
2. Parent: draw the yard from above. Draw each landmark as a simple picture: a box with a triangle roof for the house, a green ball on a stick for a tree. Draw a big X where you hide the prize.
3. Parent: draw a dotted line from the door to the first landmark, then the next, then the X.
4. Child: stand at the back door holding the map. Turn the map so the house on the paper is next to you, just like the real house.
5. Child: point to the first landmark on the map, then point to it in the yard. Walk there.
6. Keep going, one landmark at a time, until you reach the X. Find the treasure!
7. Second session: use a map with grid squares. Count the squares between the landmarks, and take two big steps for each square.

Tips

- Keep the first map very simple: three landmarks and an X. Add more next time.
- If the child gets lost, ask, “Where are you on the map? Put your finger there.”
- Let the child stain or crumple the finished map and keep it in a treasure box.

Check your work

- The child matched each picture on the map to a real thing in the yard.
- The child turned the map to match the yard.
- The child found the prize by following the map.

MAP NOTEBOOK

1. Draw the treasure you found and the place where it was hidden.
2. Draw a tree, a house and a swing the way they look on a map, from above.
3. Draw your own pretend island with hills and a big X for treasure.

From history. Stevenson’s first map of Treasure Island was lost when he mailed it to his publishers, so he had to draw it again from the book he had already written. He later said that it was much harder to make a map fit a story than to make a story grow out of a map.

WORKED EXAMPLES

Example 1. Look at the yard map. How many squares do you go from the house up to the tree? Then how many squares from the tree over to the X?

(Use the map or drawing “Count the squares along the dotted path.” shown earlier in this lesson.)

1. Put your finger on the house in the bottom corner.
2. Slide your finger up along the dotted line, counting each square as you enter it: 1, 2, 3. Now you are at the tree.
3. Now slide your finger along the dotted line toward the X, counting: 1, 2, 3. Now you are on the X.
4. Add them: 3 squares up and 3 squares over make 6 squares in all.

Answer: 3 squares up to the tree, then 3 squares over to the X: 6 squares in all.

PRACTICE

1. **EASY** On the yard map, point to the tree. Now point to the X. Which one is closer to the house?

(Use the map or drawing “Which is closer to the house?” shown earlier in this lesson.)

2. **EASY** On the yard map, how many squares is the sandbox below the X?

(Use the map or drawing “Count from the X down to the sandbox.” shown earlier in this lesson.)

3. **EASY** Think of our real yard, not the map. Your parent says, “The prize is by the biggest landmark in our yard.” Name it and point to it.
4. **MEDIUM** What mark do people often draw on a map to show where treasure is hidden? Draw it in the air with your finger.

COMMON MISTAKES

- Holding the map upside down. Turn the map until the house on the paper is on the same side as the real house.
- Running straight for where you think the prize is. Go one landmark at a time and check the map at each one.
- Looking only at the map and not at the yard. Look at the map, then look up, then look at the map again.

Make it a game • Hot and Cold. One player hides a small toy in a room. The finder walks around while the hider says “warmer” when the finder gets closer and “colder” when they move away. When the toy is found, the finder draws a quick X on a simple room map to show where it was. Take turns.

Scripture. “Again, the kingdom of heaven is like unto treasure hid in a field; the which when a man hath found, he hideth, and for joy thereof goeth and selleth all that he hath, and buyeth that field.” (Matthew 13:44, KJV)

Jesus told a story about a man who found treasure in a field and was full of joy. Finding a prize is happy, but Jesus told this story to show that the kingdom of heaven is the best treasure of all.

Practice answers

1. The tree is closer to the house.
2. 2 squares.
3. Answers will vary: for example, the big tree, the shed or the swing set.
4. An X.

9.2 PUZZLE MAP

OBJECTIVES

- Put a cut-apart paper world map back together, naming the seven continents.
- Point to the biggest continent (Asia) and the smallest (Australia), and find the Atlantic Ocean between the Americas and Europe and Africa.
- Hear how a London mapmaker made one of the first jigsaw puzzles from a map.

Warm-up. Tear a piece of paper into four big pieces. Mix them up and ask your child to put the paper back together like a puzzle. Then ask: “How did you know which pieces go together?” (By their shapes and edges.)

Video. Coming soon. A seven-continents song or simple continents animation for young children from Homeschool Pop (Alternate) or Free School (candidate needs vetting), and NASA footage of the whole earth turning, under 8 minutes.

KEY TERMS

continent

One of the seven very big pieces of land on the earth.

ocean

A huge body of salty water. The oceans lie all around the continents.

puzzle map

A map cut into pieces that you fit back together.

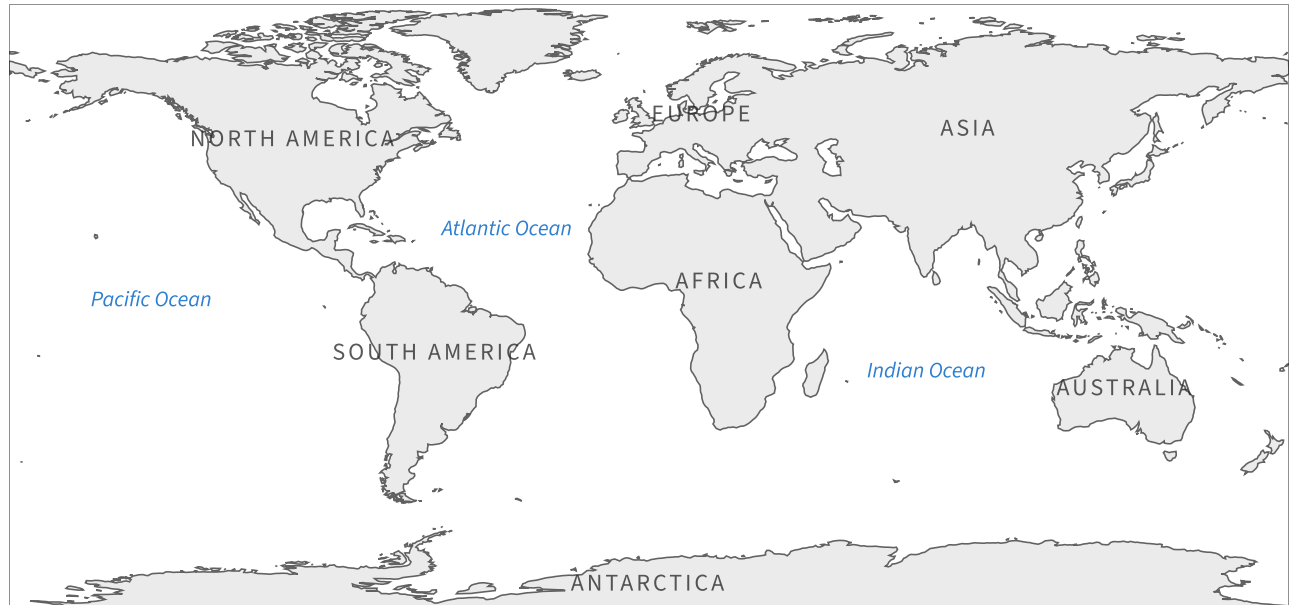
CORE IDEAS

The story. About the year 1766, in London, there lived a mapmaker named John Spilsbury. He had an idea to help children learn about the world. He glued a map onto a thin sheet of wood. Then he carefully cut around the edges of the countries. Children could take the pieces apart and put the map back together again. People called them “dissected maps.” Many people think they were among the very first jigsaw puzzles ever made. The first jigsaw puzzles were maps!

The big idea. God made the dry land and gathered the waters into seas (Genesis 1:9–10). The land comes in seven very big pieces called **continents**: North America, South America, Europe, Africa, Asia, Australia and Antarctica. Between them lie the great **oceans**. Each continent has its own shape. South America looks a bit like an ice cream cone. Africa is big and round on top. Australia is an island continent with water all around. Antarctica is the icy one at the bottom of the world.

On the map. When you build a puzzle map, look at the shapes and edges. Find the biggest piece first: that is Asia. Put Europe right next to it, because Europe and Asia are joined

together. Fit Africa just below Europe. Put North America and South America on the other side of the Atlantic Ocean, joined by a thin strip of land. Set Australia in the water below Asia, and lay Antarctica along the bottom. Now the whole world God made is back together!



The seven continents and the big oceans between them. Which pieces fit next to each other?

PICTURE STUDY



Typus Orbis Terrarum (Map of the World), Abraham Ortelius, 1570 · Hand-colored engraving, from the atlas Theatrum Orbis Terrarum · Printed in Antwerp; many copies survive, including copies in the Library of Congress

Abraham Ortelius lived in the city of Antwerp. In 1570 he put many maps together into one book. It is often called the first modern atlas. This is the world map from his book. Mapmakers of his time knew a lot about Europe, Africa and Asia, and were still learning

about the Americas. They guessed that a giant land lay across the bottom of the world, but no one had seen it yet.

Look closely

- Find Africa. Does it look like the Africa on our globe?
- Find South America. Is its shape a little wrong? Where?
- Look at the big land along the bottom. Is it as big as Antarctica really is?
- Find the ships and sea creatures drawn in the oceans.

Talk about it

1. Which continents did Ortelius draw well? Which ones did he not know much about yet?
2. How do we know the true shapes of the continents today?

Safety first. Parents do all the cutting of cardboard.

PROJECT: MAKE A CONTINENT PUZZLE

The child colors a world map, the parent glues it to cardboard and cuts out the continents, and the child puts the world back together again, just like John Spilsbury's dissected maps.

You will need

- A printed outline map of the world (the continents large and simple)
- Crayons, with a different color for each continent
- A cereal box or thin cardboard, and a glue stick
- Scissors (parent use)
- A blue sheet of paper or a blue towel for the oceans

Steps

1. Child: color each continent a different color while the parent says its name.
2. Parent: glue the map onto the plain side of a cereal box and let it dry.
3. Parent: cut around each continent, keeping the shapes simple and smooth.
4. Lay the blue paper on the table. This is the ocean.
5. Child: find the biggest piece (Asia) and set it down. Then put Europe next to it and Africa below Europe.
6. Child: set North America and South America on the other side of the blue ocean, then Australia and Antarctica.
7. Point to each piece and sing or say its name. Mix them up and play again, faster each time.

Tips

- For young children, cut each continent as one big piece. For older children, cut North America or Asia into two pieces for a harder puzzle.

- Store the pieces in a zip bag with a small picture of the finished map on the bag.
- Check the finished puzzle against a globe.

Check your work

- The child put all seven continents in the right places.
- The child named at least four continents while pointing to them.
- The child found the biggest continent and the smallest.

MAP NOTEBOOK

1. Trace around your favorite continent puzzle piece and color it in.
2. Draw an animal that lives on that continent next to it.
3. Draw the earth as a circle with blue water and green and brown land.

From history. Ortelius's atlas, *Theatrum Orbis Terrarum* ("Theater of the World"), was so popular that it was printed again and again for about forty years, in several languages. Ortelius wrote the names of the mapmakers whose work he used, so readers knew where his maps came from.

WORKED EXAMPLES

Example 1. Look at the world map. Which is bigger: Asia or Australia?

(Use the map or drawing "Compare Asia and Australia." shown earlier in this lesson.)

1. Put one finger on Asia, the land at the top right of the map.
2. Put another finger on Australia, the land below Asia, with water all around it.
3. Look at how much paper each one covers. Asia covers much more.
4. So Asia is bigger. In fact, Asia is the biggest continent and Australia is the smallest.

Answer: Asia is bigger. Asia is the biggest continent, and Australia is the smallest.

PRACTICE

1. **EASY** How many continents are there? Hold up that many fingers.
2. **EASY** Point to the icy continent at the bottom of the world. What is its name?
(Use the map or drawing "Find the icy continent." shown earlier in this lesson.)
3. **EASY** Which continent is joined right next to Asia, so close they touch?
4. **MEDIUM** Which big ocean lies between North America and Europe? Point to it.
(Use the map or drawing "Find the ocean between North America and Europe." shown earlier in this lesson.)

COMMON MISTAKES

- Thinking Australia is just a country and not a continent. Australia is both a country and a continent.
- Putting South America under Africa. South America goes on the other side of the Atlantic Ocean, below North America.
- Forgetting Antarctica because it has no cities. It is still a continent, the icy one at the bottom.

Make it a game · Continent Grab. Spread the puzzle pieces face up. The parent calls out a clue: “the biggest one,” “the icy one,” “the one shaped like an ice cream cone,” “the island continent.” The child grabs the right piece and sets it in its place on the blue ocean. When all seven are in place, the child spins a globe and points to each one there too.

Scripture. “The earth is the LORD’s, and the fulness thereof; the world, and they that dwell therein.” (Psalm 24:1, KJV)

Every continent and every ocean belongs to God, and so do all the people who live on them. When we put the world puzzle together, we are looking at the whole earth God made.

Practice answers

1. 7.
2. Antarctica.
3. Europe. (Africa touches Asia too, at one small corner.)
4. The Atlantic Ocean.

9.3 SIMON SAYS DIRECTIONS

OBJECTIVES

- Move left, right, forward and back when the words are spoken.
- Follow a path of two or three spoken steps, such as “three steps forward, then turn left.”
- Give simple directions so someone else can find a spot in the room.

Warm-up. Tie a ribbon or put a sticker on your child’s right hand. Say: “This is your right hand. The other one is your left.” Ask them to wave right, then left, then stomp the right foot and the left foot. Keep the ribbon on for the whole lesson.

Video. Coming soon. A short left-and-right or directions song or movement video for young children from Homeschool Pop (Alternate) or Free School (candidate needs vetting), under 8 minutes.

KEY TERMS

left and right

The two sides of your body. Your right hand and your left hand point to your right side and your left side.

forward and back

Forward is the way your face looks. Back is the way behind you.

directions

Words that tell someone which way to go.

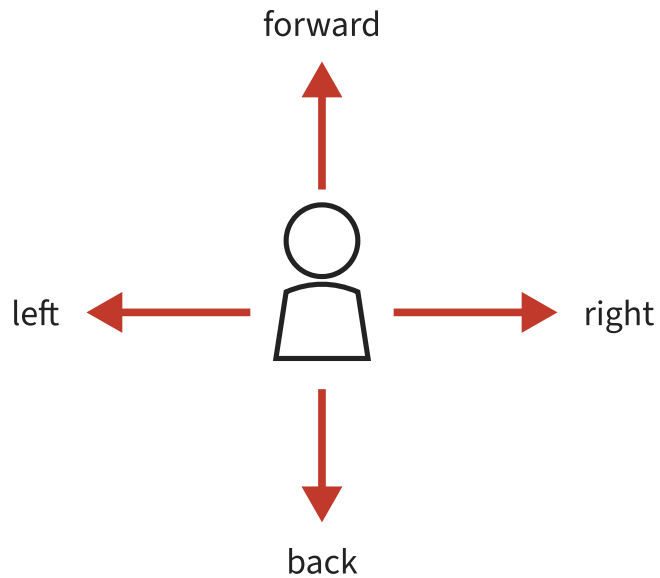
CORE IDEAS

The story. In the summer of 1872, an American painter named Winslow Homer painted a group of country boys playing outside a little red schoolhouse. They hold hands in a long line and run across the grass. The boy at one end stops short, and the boys at the other end swing around fast, like the end of a whip. The game is called “Snap the Whip.” To play it, every boy has to know which way to run. Games like this one, and like Simon Says, teach children to move the right way when they hear a word.

The big idea. A map tells you where things are. **Directions** tell you which way to go. The first direction words are easy, because they come from your own body. **Forward** is the way your face looks. **Back** is behind you. **Right** is the side of your right hand. **Left** is the side of your left hand. When you turn around, your left and right turn with you! That is why people giving directions say, “Turn left at the big tree,” and you turn your body, not the map.

On the map. Put a toy person on a map of your room. Say, “Walk forward two squares, then turn right.” Move the toy and see where it lands. Soon you will learn bigger direction words,

like north, south, east and west, that stay the same no matter which way you face. But every map reader starts the same way: left, right, forward and back.



(the child, seen from behind)

We are standing behind the child, so their left and right are the same as ours.

PICTURE STUDY



Snap the Whip, Winslow Homer, 1872 · Oil on canvas · Butler Institute of American Art, Youngstown, Ohio (a smaller version is in the Metropolitan Museum of Art, New York)

Winslow Homer loved to paint country life in America, and later he became famous for his paintings of the sea. In this painting school is out, and the boys are playing a running game

called Snap the Whip in a field beside a one-room schoolhouse.

Look closely

- Count the boys holding hands in the line. How many are there?
- Which way is the line swinging, toward the left or toward the right?
- Find the boys who have let go and fallen down. Where are they?
- Find the red schoolhouse. Is it in front of the boys or behind them?

Talk about it

1. Why do you think the boys at the end of the line fell down?
2. What games do you play where you have to listen and move the right way?

PROJECT: SIMON SAYS PATH AND A FLOOR GRID

First the child plays Simon Says with direction words. Then the parent makes a grid on the floor with painter's tape, and the child follows spoken directions square by square to reach a hidden snack.

You will need

- A ribbon or sticker for the right hand
- Painter's tape or masking tape (or sidewalk chalk outdoors)
- A small snack or toy hidden under a paper cup
- Two or three more paper cups as decoys

Steps

1. Play Simon Says: "Simon says take one step forward." "Simon says hop to the right." "Take two steps back!" (No "Simon says," so don't move!)
2. Parent: tape a grid on the floor, 4 squares by 4 squares, each square about as big as a big step.
3. Parent: set the paper cups on different squares and hide the snack under one of them.
4. Child: stand on the start square, facing forward.
5. Parent: give directions one at a time: "Two squares forward. Turn right. One square forward." The child steps along.
6. Child: lift the cup where the directions end. Was the snack there?
7. Switch: the child gives the directions and the parent walks. Did the child's words lead to the right cup?

Tips

- Give one direction at a time at first, then two, then three.
- If left and right get mixed up, point to the ribbon on the right hand.
- Stand behind your child, facing the same way, when you show left and right.

Check your work

- The child moved left, right, forward and back when told.
- The child followed two or three directions in a row to reach the right cup.
- The child gave the parent directions that worked.

MAP NOTEBOOK

1. Trace your right hand and color it. Trace your left hand next to it with a different color.
2. Draw yourself in the middle of the page with four arrows: forward, back, left and right.
3. Draw a path of squares across the page and draw a treat at the end.

From history. Winslow Homer painted more than one version of *Snap the Whip* in 1872. A print of the scene appeared in the magazine *Harper's Weekly* in 1873, so families all over the country saw it. Homer had worked for years drawing pictures for that magazine before he became a famous painter.

WORKED EXAMPLES

Example 1. Stand in the middle like the child in the picture. Simon says, “Point forward.” Simon says, “Point to the right.” Which ways do you point?

(Use the map or drawing “Forward, back, left and right.” shown earlier in this lesson.)

1. Look straight ahead. That is forward. Point there.
2. Lift the hand with the ribbon on it. That is your right hand.
3. Point out to the side with that hand. That is right.
4. Check the picture: the forward arrow points up, and the right arrow points the same way as your right hand.

Answer: Forward is straight ahead, the way your face looks. Right is the side of your right hand.

PRACTICE

1. **EASY** Simon says, “Raise your right hand.” Show me.
2. **EASY** In the picture of the four arrows, point to the arrow that says back. Which way does it point?
(Use the map or drawing “Find the back arrow.” shown earlier in this lesson.)
3. **MEDIUM** Take 3 steps forward and 1 step back. How many steps away from the start are you now?
4. **MEDIUM** Face the door. Now turn all the way around. Is the door forward or back now?

COMMON MISTAKES

- Mixing up left and right. Keep a ribbon or sticker on the right hand until it feels easy.
- Thinking left and right stay put when you turn around. They turn with your body.
- Moving before the whole direction is said. Listen to the end, then go, just like in Simon Says.

Make it a game · Robot Walk. One player is the robot and may move only when told. The other player gives commands: “Robot, two steps forward. Robot, turn left. Robot, one step back.” Lead the robot to a toy across the room. If the robot reaches the toy, switch places. For a silly twist, the robot talks in a beeping voice.

Scripture. “And thine ears shall hear a word behind thee, saying, This is the way, walk ye in it, when ye turn to the right hand, and when ye turn to the left.” (Isaiah 30:21, KJV)

In Simon Says we listen for the right words before we move. God promises to guide His people and show them the way to go, to the right and to the left.

Practice answers

1. The child raises their right hand.
2. Down the page, behind the child.
3. 2 steps.
4. Back. When you turn around, forward and back switch places.

9.4 MAKE A MAP FOR SOMEONE ELSE

OBJECTIVES

- Hide a toy and draw a simple map, from above, that shows where it is.
- Put a big X, a start spot and two or three landmarks on the map so someone else can use it.
- Watch someone follow the map, and tell one way to make the map better next time.

Warm-up. Ask your child to close their eyes and picture the kitchen. “If you were a bird on the ceiling, what would you see? Where is the table? Where is the door?” Let them point in the air to show where each thing would be on a map.

Video. Coming soon. A read-aloud of *Me on the Map* by Joan Sweeney (Brightly Storytime-style read-alouds, candidate needs vetting), or a short “how to draw a simple map” video for young children from Homeschool Pop (Alternate) or Free School (candidate needs vetting); under 8 minutes.

KEY TERMS

mapmaker

A person who draws maps. You are a mapmaker today!

symbol

A small, simple picture on a map that stands for a real thing, like a square for a bed.

key

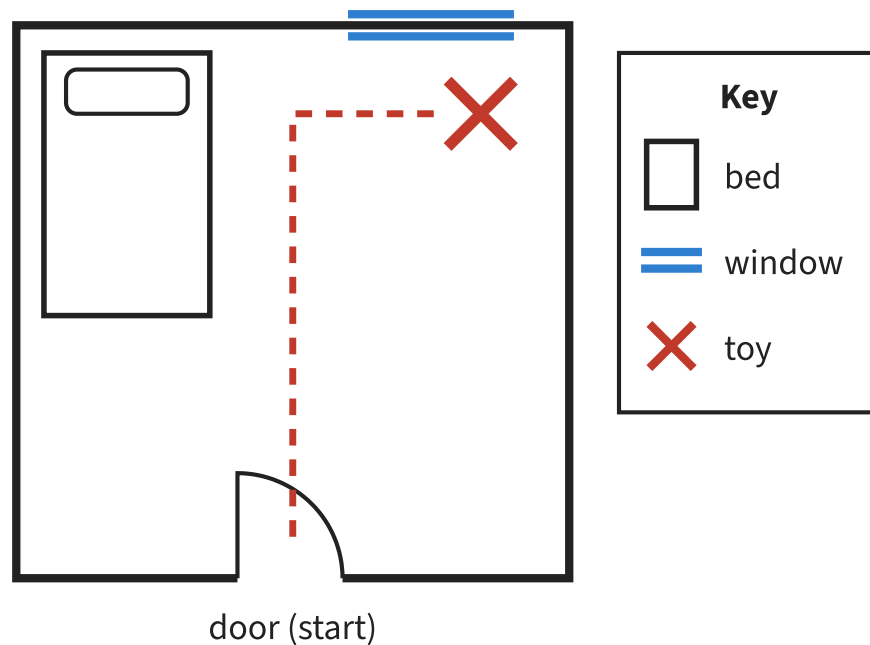
A little box on a map that shows what each symbol means.

CORE IDEAS

The story. Long ago in Virginia, a teenage boy named George Washington was learning to be a surveyor. A surveyor measures land and draws maps of it. One winter day in 1748, when he was about sixteen, George measured a turnip field that belonged to his big brother Lawrence. He drew a map of it, wrote the measurements along the edges, and signed it. That little map is still kept today at the Library of Congress. George made the map for someone else, so his brother would know exactly what his field looked like. Years later that boy became the first President of the United States.

The big idea. A map is a gift to someone else. You already know where your toy is hidden. The map is for the person who does *not* know. So a good map must be clear. Draw things from above, the way a bird sees them. Use simple **symbols**: a square for the bed, a circle for a rug, a line with a gap for the door. Mark where the finder starts. Draw two or three landmarks they can see. Then draw a big X where the toy is hiding.

On the map. Give your map to your mom, dad, brother or sister, and watch. Don't tell them where to go. Let the map do the talking! If they find the toy, your map worked. If they get stuck, look together and ask, "What could I add to help?" Maybe a door was missing, or the X was on the wrong side of the bed. Real mapmakers fix their maps too. Every map you make will be better than the last one.



A room map made for someone else, with a start (the door), landmarks, an X and a key.

PICTURE STUDY



A Plan of Alexandria, now Belhaven, George Washington, 1749 · Pen and ink on paper (a hand-drawn town plan) · Library of Congress, Washington, D.C. (Geography and Map Division)

When George Washington was seventeen years old, a new town called Alexandria was being laid out beside the Potomac River in Virginia. His older brother Lawrence bought land there. George drew this careful map of the town, copying the measurements made by the county surveyor. He probably made it so Lawrence could see just where his lots were.

The map shows the town from above, the way a bird would see it. It shows the streets, the river and each lot with its own number. A list beside the map tells who owned each lot. Washington went on to work as a real surveyor, drawing maps of land in the Virginia wilderness.

Look closely

- Find the river. Put your finger on it and trace along the edge of the town.
- Find the straight streets. Are they straight or curvy?
- Find the little squares with numbers in them. Each one is a lot where someone could build a house. Pick one number and find it.
- Washington drew this map with north pointing to the right side of the page, not the top. Is this map drawn from the side or from above, like a bird would see it?

Talk about it

1. Why would Lawrence want a map of the new town?
2. How do the numbers on the lots help someone who has never been there?
3. George was only a teenager when he made this map. What map could you make for someone in your family?

PROJECT: HIDE IT AND MAP IT

The child hides a toy in one room, draws a map of the room with an X, and hands the map to a family member, who must find the toy using only the map.

You will need

- A favorite small toy
- A sheet of paper, a pencil and crayons
- Optional: a clipboard or a book to draw on
- Optional: three small stickers for symbols

Steps

1. Child: choose one room. Stand in the doorway and look at the big things: bed, table, chair, window, rug.
2. Child: hide the toy while the finder waits outside the room.
3. Child: draw the room as a big box. Draw the door where the finder will start, and draw a star there.
4. Child: draw two or three big things from above as simple symbols, like a square for the bed and a circle for the rug.

5. Child: draw a big red X where the toy is hiding. Parent can help draw a key in the corner with each symbol.
6. Child: hand the map to the finder and say only, "Here is my map!" Then watch quietly.
7. Talk together: Did the map work? What would make it even better? Then trade places and let the finder make a map for you.

Tips

- Turn the paper so the door on the map is at the bottom, near the real door where the finder starts.
- Keep it to one room for the first map. Try the whole house or yard next time.
- A parent can write labels the child says aloud; the child does all the drawing.

Check your work

- The map shows the room from above with a start spot, landmarks and an X.
- Someone else found the toy using the map.
- The child named one thing to add or change to make the map better.

MAP NOTEBOOK

1. Draw the map of the room where you hid your toy, and color it.
2. Draw three symbols you used and what each one means.
3. Draw the face of the person who found your toy when they found it!

From history. George Washington got his first surveyor's job at seventeen, in 1749, as surveyor of Culpeper County, Virginia. He measured and mapped land on the frontier, slept outdoors and crossed rivers on horseback. Many of his survey maps still survive.

WORKED EXAMPLES

Example 1. Look at the room map. If you start at the door, what landmark is the X closest to: the bed or the window?

(Use the map or drawing "Start at the door and follow the dotted path." shown earlier in this lesson.)

1. Put your finger on the door, at the bottom of the map. That is where you start.
2. Follow the dotted path with your finger to the X.
3. Look at what is near the X. The bed is far away in the top corner.
4. The window is on the top wall, closer to the X than the bed is.

Answer: The window. The X is closer to the window than to the bed.

PRACTICE

1. **EASY** On the room map, point to the key. What does the red X stand for?
(Use the map or drawing “Read the key with your finger.” shown earlier in this lesson.)
2. **EASY** How many symbols are in the key? Count them.
(Use the map or drawing “Count the symbols in the key.” shown earlier in this lesson.)
3. **EASY** Draw a symbol for a table, the way a bird would see it from above.
4. **MEDIUM** Your sister could not find the toy with your map. Name one thing you could add to help her.

COMMON MISTAKES

- Drawing things from the side, like a picture, instead of from above like a map.
- Forgetting to show where the finder starts. Draw the door and a star for “start here.”
- Telling the finder where the toy is. Let the map do the talking, then learn from what happens.

Make it a game • Map Swap. Two players each hide a toy in a different room and draw a map. Swap maps and race to find the toys. After both toys are found, each player gives the other’s map a “gold star” for one thing it did well, such as a clear X or a good landmark.

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

When we make a map for someone else, we think about what they need, not just what we already know. Helping others find their way is a kind way to love our neighbor.

Practice answers

1. The hidden toy.
2. 3 (bed, window and toy).
3. A simple square, rectangle or circle (the tabletop seen from above).
4. Answers will vary: for example, a start spot, the door, another landmark, a path, or a bigger, clearer X.

UNIT 9 REVIEW

This is a playful review. Ask each question aloud and let your child answer by talking, pointing, moving or drawing. No reading is needed. The review is worth 20 points.

1. (3 pts) What mark do we draw on a treasure map to show where the prize is hidden?
Draw it.
2. (4 pts) Show the yard map from Lesson 9.1. Count the squares along the dotted path from the house to the tree.
3. (3 pts) How many continents are there? Name as many as you can.
4. (4 pts) Using your continent puzzle, point to the biggest continent and the icy continent at the bottom of the world.
5. (3 pts) Simon says, “Take two steps forward, then turn to your left.” Do it.
6. (3 pts) You made a map for someone else. Name two things a good map needs so the finder can use it.

UNIT PROJECT: MY MAP LAB TREASURE BOX

Gather the year’s last maps into a shoebox “treasure box”: the yard map your child followed, the continent puzzle in its bag, a tracing of the right and left hands with direction arrows, and the room map your child made for someone else. Take a photo of the family member who found the toy with the map. Your child tells the story of each map aloud while you write down their words on a card for the box.

- **Following a map:** The child followed a parent’s map, landmark by landmark, to the prize.
- **The world:** The child put the seven continents together and named at least four.
- **Directions:** The child moved and gave directions using left, right, forward and back.
- **Making a map:** The child’s own map, drawn from above with a start, landmarks and an X, led someone else to the toy.

Answer key

1. An X.
2. 3 squares.
3. 7: North America, South America, Europe, Africa, Asia, Australia and Antarctica. (Full points for 7 and at least four names.)
4. Asia is the biggest; Antarctica is the icy one.
5. The child steps forward twice and turns to their left.
6. Any two: a start spot, landmarks drawn from above, a clear X, a key for the symbols.