

SCIENCE  
FOR ♥  
Little Hearts  
AND ♥  
Hands  


WIND and WAVES

PARENT GUIDE



SCIENCE FOR LITTLE HEARTS AND HANDS

*Wind and Waves*

Created by The Good and the Beautiful Team

Designed by Phillip Colhouer

Illustrated by Alissa Empey

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# About This Course

Little children's hearts and minds are most impressionable during the preschool and early elementary years, so it's an important time for molding the way they view learning. Your enthusiasm while teaching in a positive and uplifting manner can help foster a love of learning and a desire for all things good and beautiful. This course strives to assist you in creating a solid educational foundation through fun, interactive, hands-on lessons that require minimal preparation.

## What Does the Course Set Include?

- **Full-color, wire-bound *Parent Guide***

- ***The Big Book of Science Stories***

*The Big Book of Science Stories* contains beautifully illustrated stories that will inspire interest and wonder in a variety of science topics.

- **Lesson Audio Narrations**

Lesson audio narrations are included and will be accessed every few lessons. These audio narrations share interesting facts about the topics studied in a fun and engaging manner.

## How to Get Started with This Course

***No preparation time is required for this course. Some activities will need additional supplies, which are listed on pages 7–9.***

To complete lessons, simply follow the instructions on each page. Instructions in orange text are for you; text in black is what you read to the child.



# Lesson Overview

The *Science for Little Hearts and Hands: Wind and Waves* course consists of 30 lessons. Each lesson is parent directed and provides detailed teaching for young learners. The lessons are taught in story, audio narration, or activity format, with directions for the parent included in the lesson. These lessons can be completed in any order, which allows the parent to follow his or her child's interests.

## Lesson Text

To complete lessons, simply follow the instructions on each page. Instructions in orange text are for you; text in black is what you read to the child.

Each lesson has a brief introduction, then instructs you to read one story from *The Big Book of Science Stories*, listen to an audio narration, or perform an activity. Finally, return to this *Parent Guide* for discussion questions and optional activities.

## The Big Book of Science Stories

If instructed to do so in the lesson, read the suggested story to the child, taking time to enjoy the detailed illustrations. Every few lessons include a story from this resource.

## Audio Narrations

Audio narration lessons can be found at [goodandbeautiful.com/heartsandhands](http://goodandbeautiful.com/heartsandhands) (password available with purchase) or on the Good and Beautiful Homeschool app. There are seven lessons throughout the unit that have audio narrations. In each of these lessons, you will be directed to remove and assemble the pawn from the perforated pages at the end of the unit. The child will use the pawn to follow

along with illustrations that accompany the audio narration. The pawns do not need to be saved for future lessons.

## Activities

Opening activities are listed at the beginning of each lesson, and optional activities are listed at the end of each lesson. Any supplies needed are listed on pages 7–9 and at the beginning of each lesson. These activities are not required but are offered as enhanced learning opportunities for you to complete with your child.

## Important Safety Notice

The optional activities in this course may suggest using small items, such as dried beans. Please monitor all young children in your home around these items to prevent problems with choking. If you feel these items put any of your children at risk, do not use them.



# Frequently Asked Questions

## How long will a lesson take?

Lesson length will vary greatly among children. Have the child do as much work each day as the child's attention span will allow. You do not need to complete one lesson a day. You might do more or less than that. Look for cues of frustration or fatigue to help you know when to finish. The child will learn much from you as you display love, patience, and enthusiasm for learning. At this age it's important that the learning feels more like fun to the child than something forced or unpleasant.

## Do you include any specific doctrine?

No, the goal of our curriculum is not to teach doctrines specific to any particular Christian denomination but to teach general principles, such as honesty, hard work, and kindness.

## Is there anything I need to do to prepare for a lesson?

This course is written as an open-and-go course. Activity supplies are listed on pages 7–9, and access to the Good and Beautiful Homeschool app is needed for some of the lessons.



# Activity Supplies

Opening activities are listed at the beginning of each lesson, and optional activities are listed at the end of each lesson. Optional activities are not required but are offered as enhanced learning opportunities for you to complete with your child.

## Lesson 1: What Is a Meteorologist?

### Optional Activity

- paper
- crayons or markers
- device to look up weather

## Lesson 2: Weather Forecasting

- glass cup
- water
- 2 pieces of paper
- balloon
- scissors
- glass jar
- rubber band
- drinking straw
- tape
- white cardstock or other stiff paper
- pencil
- crayons

## Lesson 3: Temperature

- ice cube
- Optional Activity
- weather thermometer



## Lesson 4: The Water Cycle

- cup of water
- Optional Activity
- large bowl (clear, if possible)
  - very warm water in the bowl
  - salt
  - small container
  - plastic wrap
  - ice cubes

## Lesson 5: Clouds

- Optional Activity
- glue
  - cotton balls
  - construction paper
  - gray paint, marker, or crayon

## Lesson 6: Wind

- blade of grass
- Optional Activity
- small piece of toilet paper or some other very light object
  - kite



## Lesson 7: Rain and Snow

### Optional Activity

- square piece of paper
- scissors

## Lesson 8: Rainbows

- piece of white paper
- sunny window or a flashlight
- tape
- glass of water
- red, orange, yellow, green, blue, indigo, and violet crayons or colored pencils

## Lesson 9: Floods

### Optional Activity

- casserole dish or medium-sized plastic container
- dirt or sand
- water
- toys or wooden blocks

## Lesson 10: Tornadoes and Hurricanes

### Optional Activity

- wide-mouthed water bottle or mason jar with straight sides and a lid
- water
- dish soap



# Activity Supplies cont.

## Lesson 11: Lightning and Thunder

### Optional Activity

- balloon

## Lesson 12: Light and Shadows

- scissors
- bright flashlight
- clear glass jar
- juice
- rock, block, or spoon
- wooden craft stick
- tape

### Optional Activity

- a variety of toys or other objects as subjects for your art
- paper
- colored pencils, crayons, or markers
- sidewalk chalk as alternative to paper and drawing utensils

## Lesson 13: Reflection of Light

- small mirror

### Optional Activity

- a sunny day
- “dull” household items
- “shiny” household items



## Lesson 14: Light and Color

- red, blue, and yellow crayons
- paper

### Optional Activity

- tempera or watercolor paints
- paintbrush
- cardstock or construction paper
- water

## Lesson 15: Bodies of Water

### Optional Activity

- paper
- watercolor paint
- water
- paintbrush



## Lesson 16: Salt Water and Fresh Water

- 2 glasses of water
- 1 Tbsp salt
- 2 spoons

### Optional Activity

- 2 glasses
- 2 cups of warm water
- ¼ c salt
- 2 small carrots
- other items for experimentation if desired

## Lesson 17: What Is a Marine Biologist?

- scissors
- paper
- pencil and colored pencils or markers

## Lesson 18: Sand and Seashells

### Optional Activity

- a few cups of sand
- a few cups of cornstarch or flour
- vegetable oil
- plastic tub or other container
- measuring cups, spoons, or any other rounded items

## Lesson 19: Wonderful Waves

- bowl
- water
- towel

### Optional Activity

- items listed above
- small items that can be placed in the water
- straw

## Lesson 20: Names of the Oceans

### Optional Activity

- paper
- blue, green, and black markers



# Activity Supplies cont.

## Lesson 21: Zones of the Ocean

### Optional Activity

- 5 bowls
- red, green, and blue food coloring
- $\frac{3}{4}$  c corn syrup
- .9-L (32-oz) clear jar
- $\frac{3}{4}$  c clear dish soap
- funnel
- $\frac{3}{4}$  c water
- $\frac{3}{4}$  c cooking oil
- $\frac{3}{4}$  c rubbing alcohol
- medicine dropper
- masking tape
- permanent marker

## Lesson 22: Animals of the Open Ocean

- ruler
- 1–2 items that are 1.3–30.5 cm (.5–12 in) long, such as a cracker, a pencil, or a paper clip
- dime

### Optional Activity

- 2 bowls
- water
- ice cubes
- 2 quart-sized zip-top bags
- vegetable shortening
- spatula
- 2 gallon-sized zip-top bags

## Lesson 23: On the Seashore

- piece of paper
- globe or map showing shorelines

### Optional Activity

- paper
- pencil
- colored pencils or markers

## Lesson 24: Coral Reefs

- two small items that can be used as game tokens, such as goldfish crackers
- six-sided dice

## Lesson 25: Animals of the Coral Reef

- none

## Lesson 26: Animals of the Sunlight and Twilight Zones

### Optional Activity

- 2 colors of play dough—one lighter and one darker

## Lesson 27: Animals of the Midnight Zone

### Optional Activity

- paper bowl
- glow-in-the-dark acrylic paint
- paintbrush
- scissors
- brightly colored yarn
- tape or glue

## Lesson 28: Sharks

### Optional Activity

- two balloons
- $\frac{1}{4}$  c water
- $\frac{1}{4}$  c vegetable or canola oil
- permanent marker
- medium-sized tub filled with water

## Lesson 29: Dolphins

- none

## Lesson 30: Funny Fish

- scissors
- small basket, bowl, or net
- glue



# WHAT IS A METEOROLOGIST?



## Supplies Needed

### Optional Activity

- \* paper
- \* crayons or markers
- \* device to look up weather

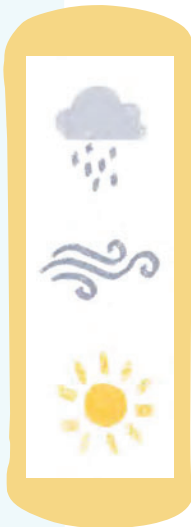
## OPENING



**Read to the child:** Look at the first pattern below and see if you can determine which picture from the yellow box should come next. [windy]



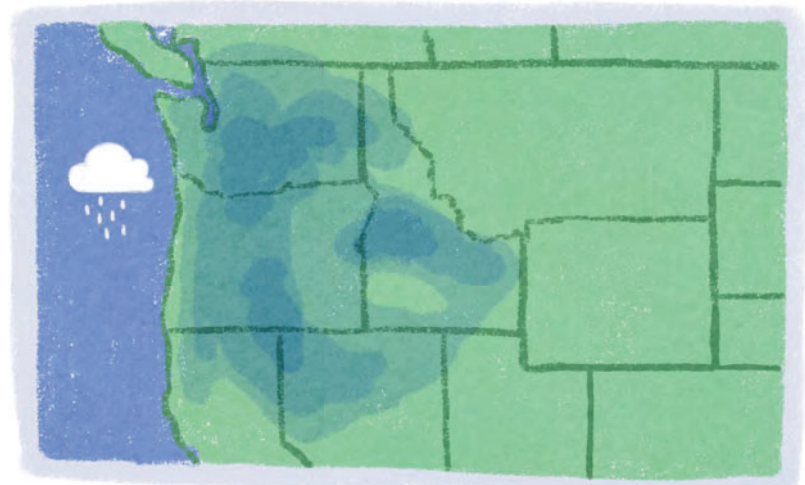
We figured out what should come next in this sequence because the pattern repeated itself. Patterns often repeat, but not always. Look at this next pattern. Can you figure out what may come next? Point to the correct picture from the yellow box. [cloud with rain]



**Read to the child:** A particular type of scientist looks at patterns in the weather and then uses those patterns and trends to predict the weather in the near future. This type of scientist is called a *meteorologist*. Meteorologists are important because they not only help us know whether or not we can plan outside activities for the day and what we should wear to be comfortable, but they also do so much more.

## Story Time

**Read to the child** "A Day at the News Station" on page 4 of *The Big Book of Science Stories*, and then return to the *Parent Guide* for discussion questions.





23 °C (74 °F)

**Saudi Arabia**

27.7 °C (82 °F)

27.2 °C (81 °F)

**Ethiopia**

27.7 °C (82 °F)

**Tanzania**

28 °C (83 °F)

29 °C (85 °F)

**Madagascar**

31 °C (88 °F)

**China**

22 °C (73 °F)

**Thailand**

27.7 °C (82 °F)

29 °C (85 °F)

26 °C (79 °F)

## Discussion

- \* Q: What is the atmosphere?
- \* A: The atmosphere is the protective layer of air (gases) that surrounds our planet. All of Earth's weather occurs within the atmosphere.

---

- \* Q: What is a meteorologist?
- \* A: A meteorologist is a scientist who studies weather patterns and predicts future weather.

---

- \* Q: What would be your favorite part of being a meteorologist?
- \* A: Answers will vary. Any of the following may be discussed: studying the weather patterns and predicting the future weather (science), analyzing the data/numbers from temperature and pressure readings (math), designing maps and colorful weather illustrations (computer and design), or being on TV.

## Optional Activity

On a piece of paper, draw three vertical lines to divide the paper into four columns. Help your child look up what the weather has been for the past three days and draw a picture for each of those days. Next, discuss what he or she thinks the weather will be for the fourth day and draw a picture of that as well.

# WEATHER FORECASTING

## Supplies Needed

- \* glass cup
- \* water
- \* 2 pieces of paper
- \* balloon
- \* scissors
- \* glass jar
- \* rubber band
- \* drinking straw
- \* tape
- \* white cardstock or other stiff paper
- \* pencil
- \* crayons

## OPENING



**Read to the child:** Look at the images below and point to the picture(s) that most closely describe yesterday's weather. Now show me the picture(s) that are like today's weather. Great! If you were to take a guess at what tomorrow's weather might be, which picture(s) would you choose and why?



**Read to the child:** Making a *prediction*, or a good guess, about what the weather will be in the future is called *forecasting*. A *weather forecast* helps you make decisions about what you will wear or what activities to do. For instance, would it be wise to plan a trip to the beach on a day when a thunderstorm is expected? Or would you wear snow clothes to the park on a warm, sunny day? No! While predictions about the weather are not always accurate, weather forecasts can give you a good idea about what to plan for so you don't end up wearing shorts and sandals in a snowstorm!



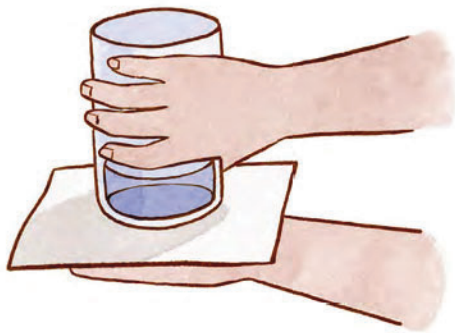
# Experiment Time

**Read to the child:** We can make weather predictions by using a few tools that are designed to find out information from the atmosphere. You breathe in the air from our atmosphere every day, and that air plays a very important part in our weather.

You may not think of air as being something that is heavy or has weight. But it does have a weight, and its heaviness presses on things. This is called air pressure. Sometimes that weight is heavier than other times, and so we measure that pressure to understand weather patterns.

**Complete the following steps as a demonstration for the child.**

1. **Fill a glass cup  $\frac{1}{4}$  full of water.**
2. **Fold a piece of paper in half.**
3. **Place the paper over the top of the cup and seal it with your palm.**
4. **Over a sink, hold the paper tightly in place with one hand (so that no water leaks out) as you turn the cup upside down with your other hand.**



The atmosphere is a word used to describe all the layers of air that surround our earth.

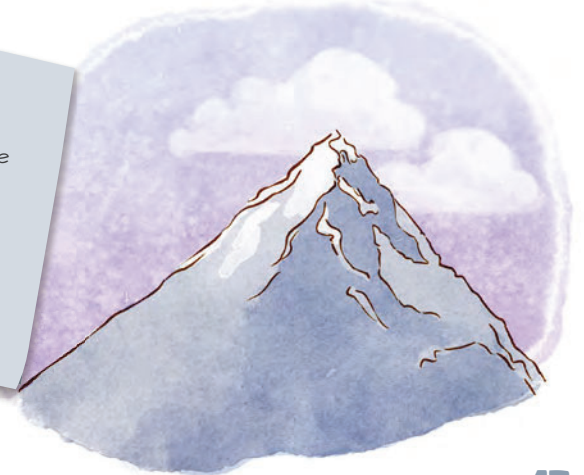
**Read to the child:** What do you think will happen if I remove my hand that is holding the paper in place? **Continue holding the cup upside down as you gently remove the hand that is holding the paper.** Why do you think the paper didn't fall down?

The air molecules outside the cup are heavier than the water inside the cup, so the air can put pressure on the paper to hold the paper and the water in place. **If desired, allow the child to try the experiment.**

The amount of air pressure varies around the world. Two things can raise or lower air pressure. *Altitude*, the height of an object above the level of the sea, is the first thing that can affect air pressure. Mountains and other areas that have a higher altitude have less air pressure than places at the same height as the ocean level simply because there is less air the higher you go. Second, temperature also affects air pressure. What do you notice about the molecules of air in these hot-air balloons as they get warmer?

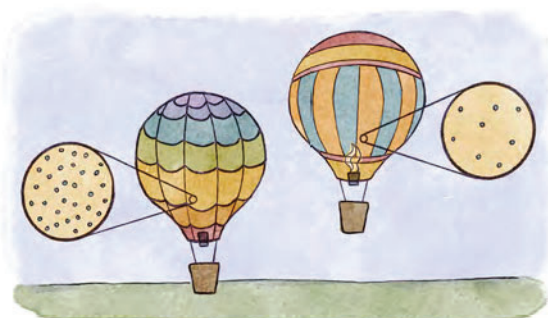
Molecules are very, very small units that make up everything that is in this world. Water is made of molecules, air is made of molecules, and even you are made of trillions of molecules.

If you are playing on the beach at the ocean, you are at a lower altitude, so you are closer to the center of the earth. If you are standing at the top of a mountain, you are at a much higher altitude than the beach.



When molecules get warmer, they spread apart. Knowing this, which type of air do you think is heavier—cold air or warm air? Cold air is heavier and denser, with more molecules taking up the same space, and that creates a higher level of air pressure!

When air pressure changes, it causes other things in the atmosphere, such as wind and clouds, to move. Areas of lower pressure tend to have rainy or stormy weather, while areas of higher air pressure make for nice, sunny weather.



## MAKE a BAROMETER

**Read to the child:** We are going to make a tool to measure the air pressure. It is called a *barometer*. **Help the child complete the following steps to build a simple barometer.**

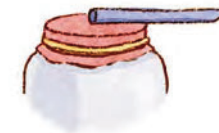
1. Take a balloon and cut off the skinny neck of the balloon.
2. Tightly stretch the balloon over the opening of a glass jar so that it is completely flat, and then secure it with a rubber band.



Take a drinking straw and, at an angle, cut off one-half of an inch from the end (for a straw with a bend, cut off the bendy section).



3. Lay the uncut end of the straw on the balloon. Line the end of the straw up with the center of the balloon. Leave the cut side sticking off the edge of the jar with the pointed end facing up and tape the straw in place.



4. Take a piece of white cardstock or other stiff paper and tape it to a wall, standing up, in an area where it can be observed for several days. Place the jar so that the "pointer" of the straw is close to the paper but not touching it. With a pencil make a line on the paper where the "pointer" of the straw is.



5. Then use crayons to draw two other lines, about an inch above and below that line. Above the top line, draw a sun; below the bottom line, draw a rain cloud.



6. Observe the level of the straw for several days. As air pressure rises, the cut end of the straw will point higher than the midline because the air will press down on the middle of the balloon. As pressure lowers, the cut end of the straw will point below the midline.



## — BE a WEATHER WATCHER —

You can forecast the weather using a few observational tools.

1. Look outside and, if possible, go outside. Make notes or draw pictures about what you see and feel.
2. Pay attention to the wind. Is there wind? If so, watch and feel to see if you can tell what direction it is coming from.
3. Use a thermometer (or a weather app) to track and record the temperature.
4. Use a barometer, such as the one on the previous page, to track low and high air pressure.

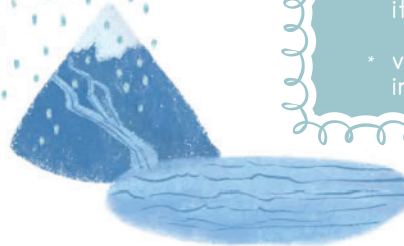
Consider keeping a journal to record the weather each day and make predictions for upcoming days.

## Discussion

- \* Q: What does a barometer measure?
- \* A: A barometer measures air pressure.
- \* Q: Which type of air pressure is associated with rainy, cloudy weather?
- \* A: Low air pressure is associated with rainy or cloudy weather.
- \* Q: What type of weather is your favorite?
- \* A: Answers will vary.



# THE WATER CYCLE



## Supplies Needed

- \* cup of water
- \* salt
- Optional Activity
- \* large bowl (clear, if possible)
- \* small container
- \* very warm water in the bowl
- \* plastic wrap
- \* ice cubes

## OPENING



Place a cup of water in front of the child and have him or her take a drink. **Read to the child:** Where did I just get this water from? **Allow the child to brainstorm and share ideas.** Do you know where it came from before that? **Once again, allow the child to share whatever comes to his or her mind.**

**Read to the child:** Before drinking water comes through the tap into our sink or is put into a water bottle, it originally comes from a pond, well, lake, or stream. Ponds, lakes, and streams get their water from rain and snow clouds!

**Read to the child:** The water you just drank is the same water that helped flood the earth when Noah built his ark! I know—it may be hard to understand how that could be. It is all made possible through the water cycle. A cycle is a type of pattern that repeats itself, like the days of the week. **Have the child name the days of the week with you:** Sunday . . . Monday . . . Tuesday . . . Wednesday . . . Thursday . . . Friday . . . Saturday. After Saturday, the cycle starts all over again on Sunday and keeps cycling through. Months, seasons, plant and animal lives, and water all follow cycles.



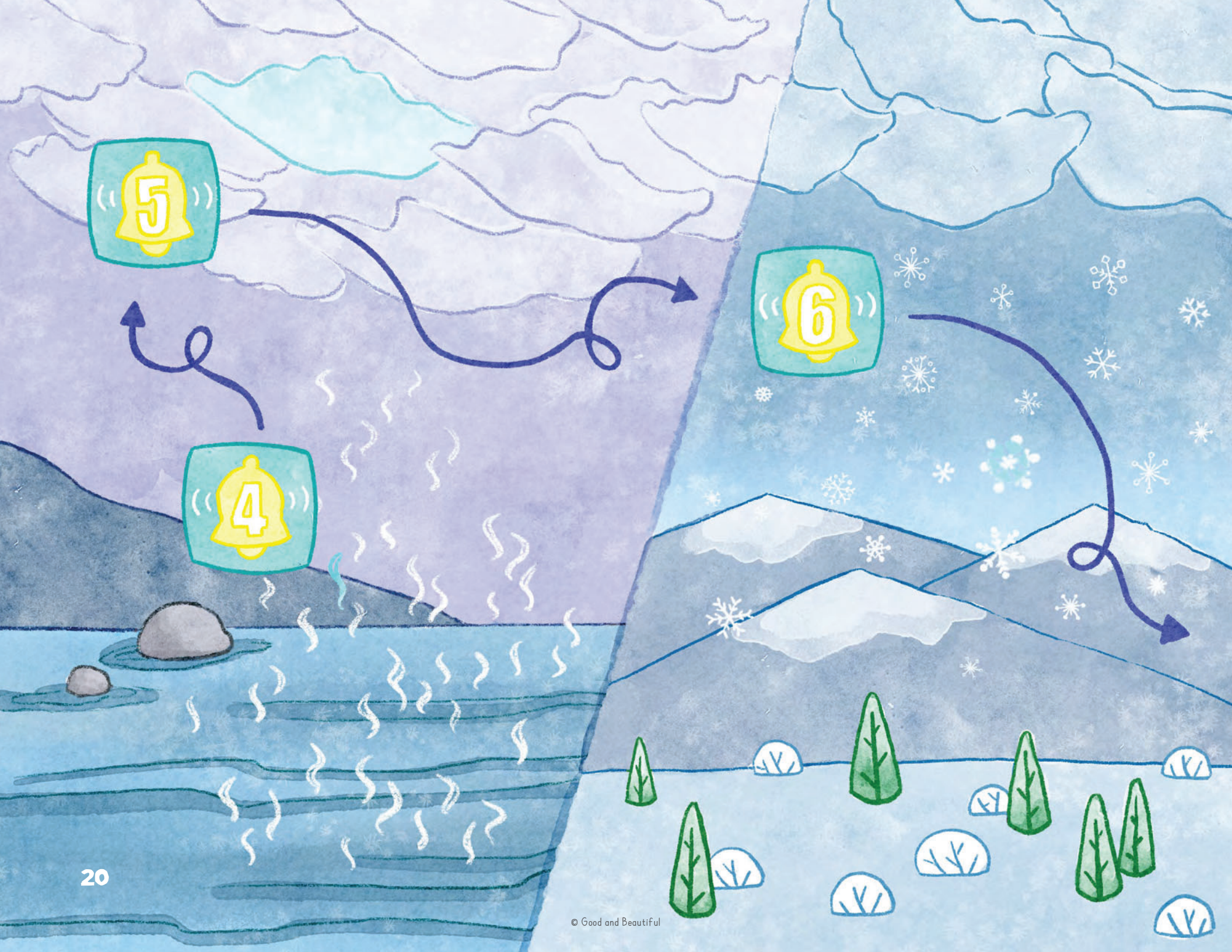
## Audio Narration

**Remove the Lesson 4 pawn from the perforated pages at the end of the unit. Listen to the audio narration “The Water Cycle.” Have the child start by putting the pawn on illustration number 1 on the next page. When the chime is heard, have him or her move the pawn to the next number by following the arrow. Turn the page when the third chime is heard to continue the narration. Afterward, return to the *Parent Guide* for discussion questions.**











## Discussion

- \* Q: What are some forms of precipitation?
- \* A: Rain, hail, and snow are all forms of precipitation.
- .....
- \* Q: What is evaporation?
- \* A: Evaporation is when water changes from its liquid form into a gas (or water vapor).
- .....
- \* Q: If you could watch how water behaves in any stage of the water cycle, which stage would you like to watch it in and why?
- \* A: Answers will vary.

## Optional Activity

Fill a large bowl halfway with very warm water and sprinkle a generous amount of salt in it to create an "ocean." (Make the water as warm as possible without burning the skin.) Then float a small container on top of the water in the larger container and cover the whole thing tightly with plastic wrap. Last, place a few ice cubes (representing rain clouds) on top of the plastic wrap so they sit over the small container. Watch the water cycle in action. Help point out each of the steps to the child. The heat causes the water to rise as evaporation takes place, and then it condenses into water droplets as it cools off with the ice. The water that drips from below the clouds is like falling rain. If desired, drink the water that condenses in the small container; it will be fresh water. (The salt is left behind in the "ocean.")

# TORNADOES AND HURRICANES

## Supplies Needed

### Optional Activity

- \* wide-mouthed water bottle or mason jar with straight sides and a lid
- \* water
- \* dish soap

## OPENING



**Read to the child:** Tornadoes and hurricanes are spinning wind storms like the pictures on this page. Tornadoes form over land, and hurricanes form over water. Let's play a game to remember the difference. If I say water, you say "hurricane," and then put your arms out wide and stomp your feet as you turn in a big circle. If I say land, you say "tornado," and then reach your arms up tall and turn in a circle on your tippy toes. **Have the child turn as directed while you alternate saying "land" and "water."** Help the child respond with the correct type of storm.

Land = Tornado

Water = Hurricane

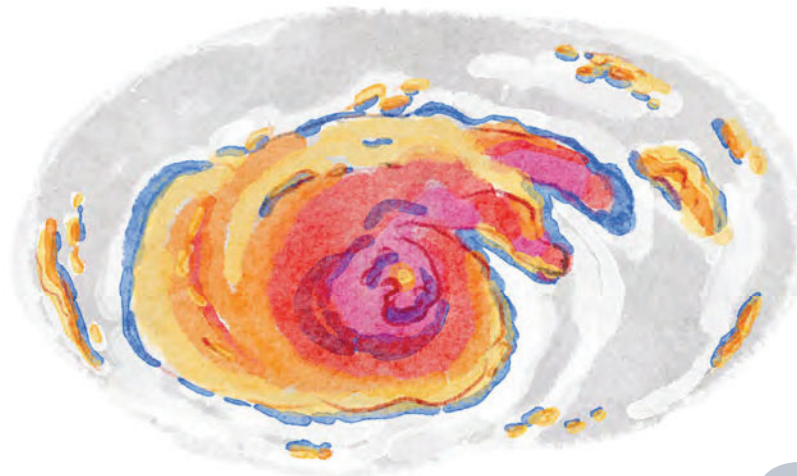


**Read to the child:** Tornadoes and hurricanes are both weather events that can cause strong winds. Tornadoes form over land and usually don't last very long. Hurricanes form over water and can build up over many days. Sometimes hurricanes move over land, causing a very wet and windy storm that can last several hours or even a few days.

## Story Time

**Read to the child:** Today we are going to read a story about tornadoes and hurricanes to learn more about them.

**Read to the child "Hurricane Day" on page 70 of *The Big Book of Science Stories*, and then return to the *Parent Guide* for discussion questions.**





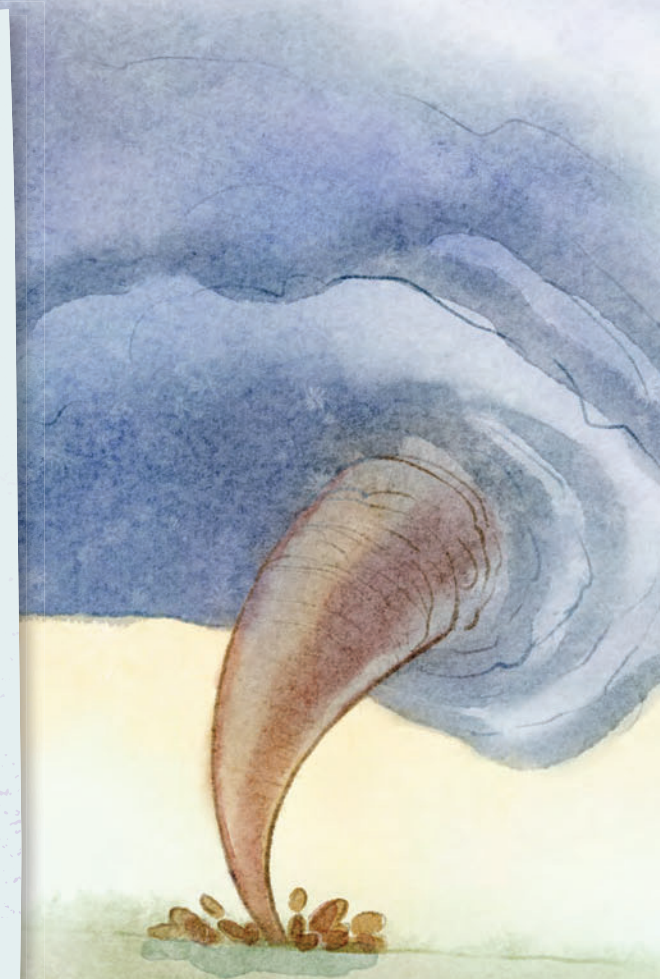
## Discussion

- \* Q: What is at least one thing tornadoes and hurricanes have in common?
- \* A: strong winds, spinning motion, caused by movement of warm and cold air, can cause destruction, etc.
- .....
- \* Q: How long do tornadoes last?
- \* A: an average of 5-10 minutes
- .....
- \* Q: Why do you think people might want a lot of warning when a hurricane is coming?
- \* A: to make preparations so that they can remain safe and have what they need



## Optional Activity

Make your own mini tornado in a water bottle or mason jar. Fill a water bottle or mason jar (must be wide mouthed with straight sides) with water, leaving about an inch empty at the top. Put in a few drops of dish soap. Put the lid on. Have the child rotate the bottle in quick, circular motions to form a spinning water tornado. Stop and watch.



# LIGHT AND COLOR

## Supplies Needed

- \* red, blue, and yellow crayons
- \* paper
- Optional Activity
  - \* tempera or watercolor paints
- \* paintbrush
- \* cardstock or construction paper
- \* water

## OPENING



Give the child red, blue, and yellow crayons and a piece of paper. Draw three lines on your paper with the red, yellow, and blue crayons. Point to each of the colors and tell me some things you can see around you that are that color. Red, yellow, and blue are known as primary colors. All other colors we see come from mixing these colors together. We are going to explore how colors are made and how we see them.

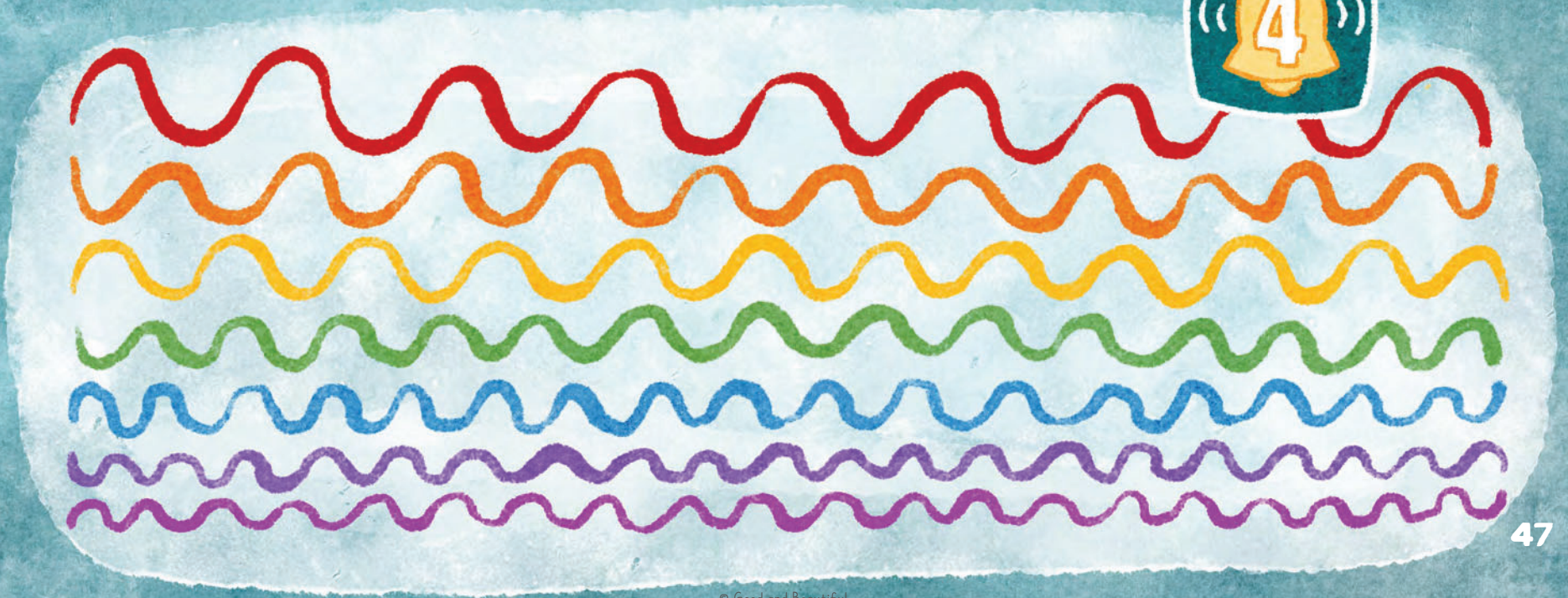
**Read to the child:** Take a minute to draw a picture with your three crayons on the piece of paper. You can see these colors because of reflecting light. When light shines on an object, it bounces off and into your eyes. Let's find out how this works in our next audio narration.



## Audio Narration

Remove the Lesson 14 pawn from the perforated pages at the end of the unit. Listen to the audio narration "Light and Color." Have the child start by putting the pawn on illustration number 1 on this page. When the chime is heard, have him or her move the pawn to the next number by following the arrow. Turn the page when the fourth chime is heard to continue the narration. Afterward, return to the *Parent Guide* for discussion questions.











## Discussion

- \* Q: What allows us to see color?
- \* A: Light gives us the ability to see color.
- \* Q: How does light travel?
- \* A: Light travels in waves.
- \* Q: What is your favorite color? What do you love about that color?
- \* A: Answers will vary.

## Optional Activity

Experiment with creating different colors. Using tempera or watercolor paints and a paintbrush, mix a few drops of two primary colors together on a piece of cardstock or construction paper. What is the result? Give the new color a creative name. Try again with another two colors.



# NAMES OF THE OCEANS

## OPENING



Ask the child to pick five letters in the alphabet, then think of names of people that begin with each of the five letters. **Read to the child:** Just like people have names, the oceans on Earth have names too. The oceans are named the Pacific Ocean, the Atlantic Ocean, the Southern Ocean, the Arctic Ocean, and the Indian Ocean.

### Supplies Needed

#### Optional Activity

- \* paper
- \* blue, green, and black markers

**Read to the child:** Imagine that you are one of these children in the picture below, standing at the beach, looking out over the ocean. Does it seem really big to you? As you look out over the water, doesn't it seem to stretch on and on and on? Let's listen and learn about the names of these vast bodies of water.

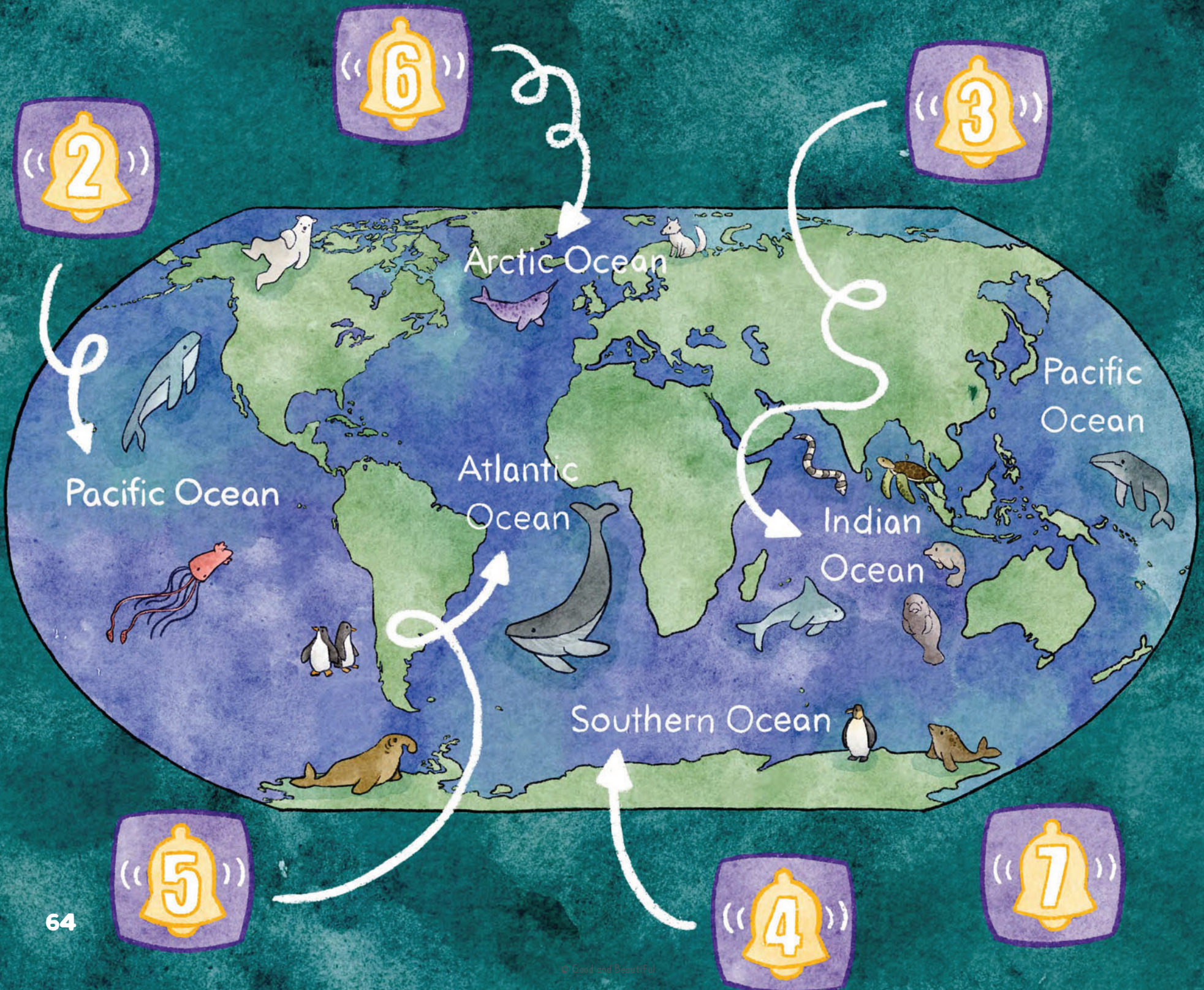


## Audio Narration

Remove the Lesson 20 pawn from the perforated pages at the end of the unit. Listen to the audio narration "Names of the Oceans." Have the child start by putting the pawn on illustration number 1 on the next page. When the chime is heard, turn the page and have him or her move the pawn to the next number in counting order. Afterward, return to the *Parent Guide* for discussion questions.









# CORAL REEFS

## Supplies Needed

- \* two small items that can be used as game tokens, such as goldfish crackers
- \* six-sided dice

## OPENING



Read the following poem to the child and have the child hold up one finger for each line as it is read. **Note:** You might want to explain to the child that a coral polyp is a tiny animal with a soft body that can connect with other polyps to form a coral reef colony.

### Growing Coral

By Chantelle Ivie

One little polyp beautiful and small.  
 Two little polyps still not very tall.  
 Three little polyps start to form a group.  
 Four little polyps circle in a loop.  
 Five little polyps join in the throng.  
 Six little polyps still growing strong.  
 Seven little polyps spread out near the krill.  
 Eight little polyps steadfast and still.  
 Nine little polyps looking like a leaf.  
 Ten little polyps start to form a reef.

**Read to the child:** Just like in the poem we read, polyps really do join together one by one to make large coral reefs. **Point to the image of the zoomed-in polyp.** Each polyp is tiny, just like this one. But over hundreds of years they grow together to form hard, rocklike surfaces made of hundreds of thousands of polyps. Many tiny pieces work together to make a beautiful piece of coral, and this coral is the basis of an amazing home to many creatures. It is called a coral reef.

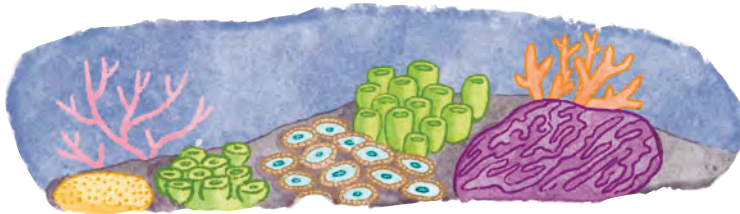


## HARD and SOFT CORALS

**Read to the child:** Coral can take many beautiful forms, each unique and wonderful. These formations can be sorted into two categories, either hard coral or soft coral.

**Point to the hard coral below.** Hard corals are named that way because they are hard and solid. They grow in a group, or colony, called a coral head. These colonies live and die together, joining other dead coral to form a rock called limestone. This limestone is the base on which new coral grows, and it can take hundreds of years to form the large coral pieces we see today.

**Point to the soft coral below.** The other type of coral is soft and sways with the movement of the water. It does not form limestone and is not the base of a coral reef, but it is found growing on coral reefs.



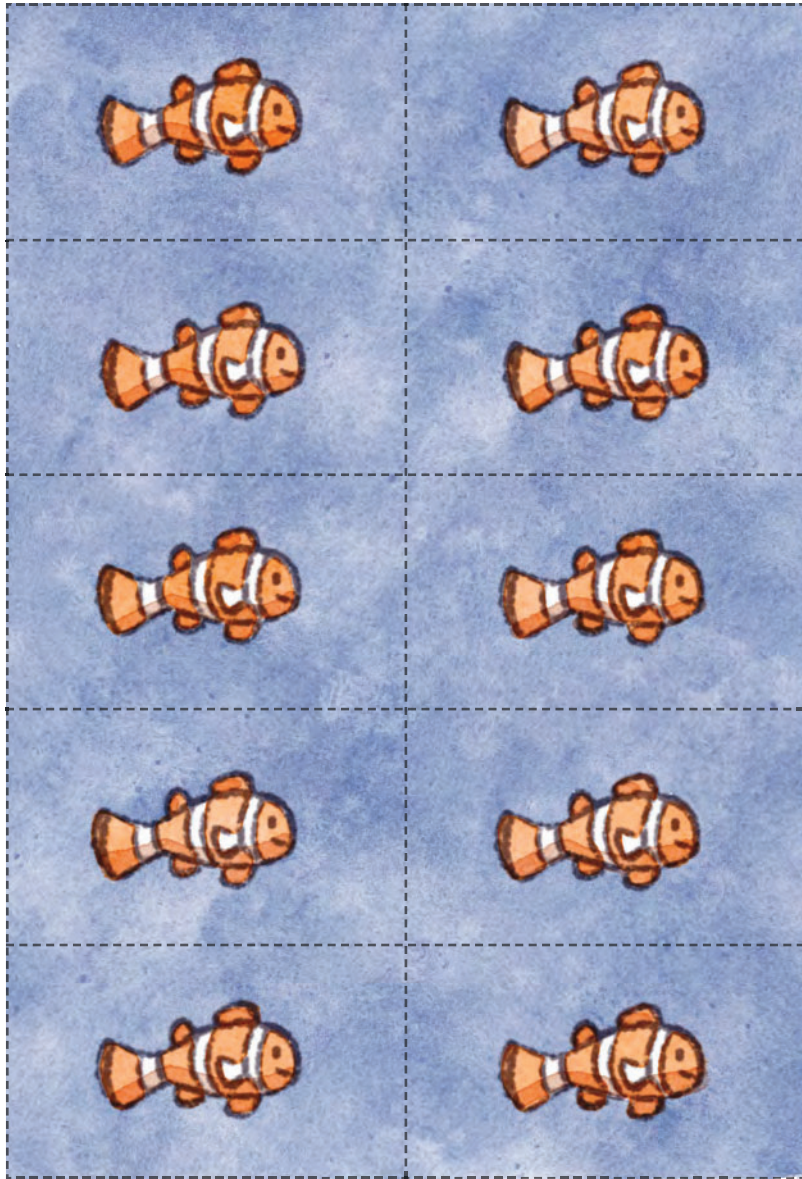
Hard coral forms homes for many different types of animals that live inside a coral reef habitat. The soft coral is one of the animals that lives on the reef, along with fish, sponges, clams, crabs, sea stars, and more. The reef provides everything many animals need to survive, such as food, shelter, camouflage, and safety.



**NOTE:** Continue to the next page where you will be directed when and how to use the game cards.

### GAME CARDS

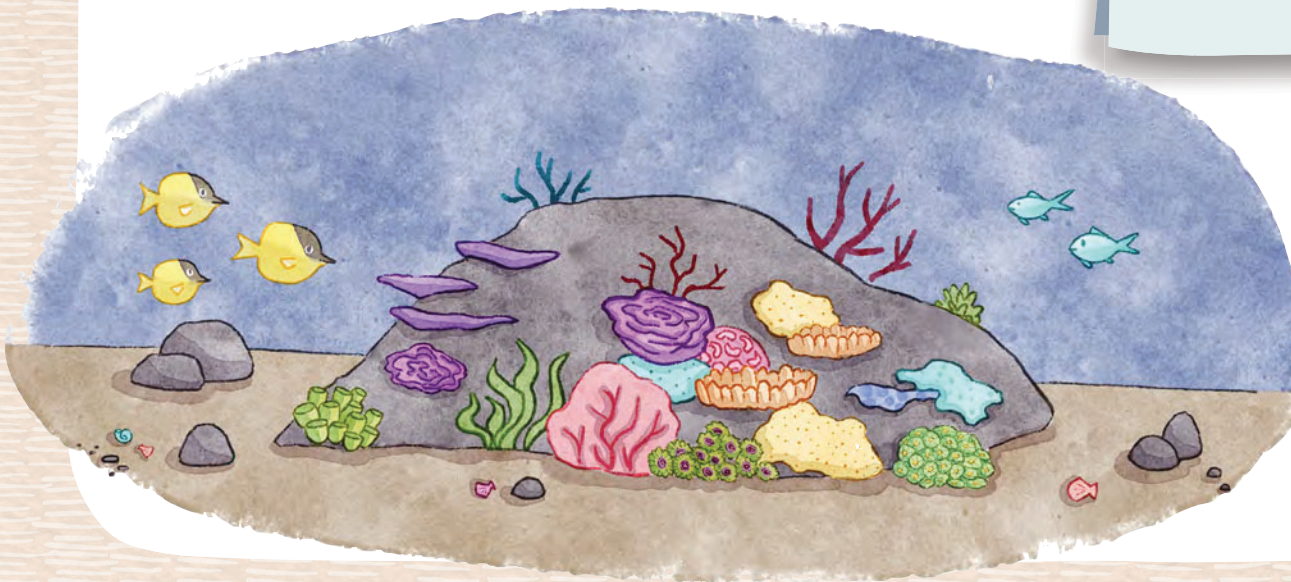
<p>Question Time</p> <p>What two categories are corals organized into?</p> <p>a. strong and weak b. hard and soft</p>	<p>Question Time</p> <p>Hard coral is made up of hundreds of thousands of what?</p> <p>a. parasites b. polyps</p>
<p>Question Time</p> <p>Which type of coral turns into limestone?</p> <p>a. soft coral b. hard coral</p>	<p>Question Time</p> <p>How many polyps grow together to form a coral?</p> <p>a. 10 b. 100,000</p>
<p>Question Time</p> <p>Which animal would you see on a coral reef?</p> <p>a. a tiger b. a fish</p>	<p>Fun Fact</p> <p>Some famous coral reefs are the Great Barrier Reef, the Amazon Reef, the Tubbataha Reef, and the Miami Terrace Reef.</p>
<p>Fun Fact</p> <p>Coral reefs are found near the center of Earth around the equator in shallow, clean ocean waters.</p>	<p>Fun Fact</p> <p>There are more than 800 different kinds of hard coral.</p>
<p>Fun Fact</p> <p>The Great Barrier Reef is so big it can be seen from outer space.</p>	<p>Fun Fact</p> <p>More than 4,000 species of fish make their homes in coral reefs.</p>



## Activity Time

**Read to the child:** Clown fish and sea anemones are two common animals that help each other inside a coral reef. Let's play a board game to help a clown fish get back to his home in the sea anemone.

**Have you and the child place the chosen game tokens on START. If teaching more than one child, have a token for each player. Read to the child:** Player 1 rolls the dice and moves his or her pawn that number of spaces. If a player lands on a fish space, he or she draws a card. If it is a "Fun Fact" card, read the fact. If it is a "Question Time" card, answer the question. Then it is the next player's turn. The player who reaches the last space first wins the game. **Play the game with the child or children until there is a winner. Note: The correct answer for all cards is option b. If the child answers incorrectly, give him or her the correct answer and continue. After the game is finished, come back to this page and answer the discussion questions together.**



## Discussion

- \* Q: What makes up a coral reef?
- \* A: limestone formed from dead coral, and a mixture of living hard and soft coral polyps
- .....
- \* Q: Name one difference between hard coral and soft coral?
- \* A: Answers will vary but may include the following points: Hard corals are hard and solid; soft corals are soft and can sway. Hard corals form limestone; soft corals do not. Hard corals form the base of a coral reef; soft corals live on the base.
- .....
- \* Q: Would you want to visit a coral reef, and what would you hope to see there?
- \* A: Answers will vary.



# Audio Narration Pawns

Lesson 4:  
The Water Cycle



Lesson 5:  
Clouds



Lesson 14:  
Light and Color

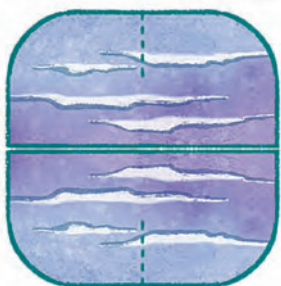


Lesson 10:  
Names of the Oceans

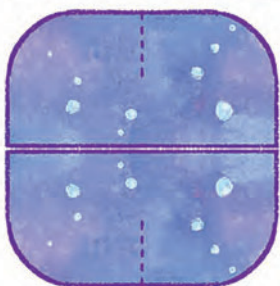


# Audio Narration Pawns

Lesson 22:  
Animals of the  
Open Ocean



Lesson 25:  
Animals of the  
Coral Reef



Lesson 28:  
Sharks

