Dear Educator:

We are excited to start this Young Explorer year with you! This year, we bring you two new powerful resources:

First, the Young Explorer Teacher's Guide is now available in Kindergarten and First Grade editions. This change will help us meet your students’ unique needs. In addition, we’ve integrated suggestions for using these teaching notes with our digital resources.

Next, we’re delighted to announce our new interactive edition. This captivating version of the magazine includes:
- videos;
- additional photos;
- interactive diagrams;
- read-aloud audio;
- an expanded glossary;
- and so much more.

We know this edition will engage your students like never before in the full Explorer Experience.

If you haven’t done so already, we encourage you to visit ngyoungexplorer.org to learn how to access a free sample.

Throughout this year, we will journey to incredible habitats, explore amazing animals and interesting weather, and investigate the science all around us—all while helping your students build their reading skills and meet content standards. We’re so pleased to have you along for the journey.

As always, if you have any questions, please don’t hesitate to get in contact with me. We’re looking forward to an exciting year!

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Standards in this Issue

Life in a Rain Forest
(Teacher’s Guide pages T1-T9)

- All animals need food in order to live and grow. They obtain their food from plants or from other animals.
- Animals depend on their surroundings to get what they need, including food, water, shelter, and a favorable temperature.

Stormy Sky
(Teacher’s Guide pages T10-T17)

- Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular area at a particular time.
- Some kinds of severe weather are more likely than others in a given region.

Group It
(Teacher’s Guide pages T18-T25)

- Organisms have characteristics that can be similar or different.
- Characteristics allow for classification of animal types.

Look for these icons throughout the lesson:

- Interactive Whiteboard Lesson
  (see www.prometheanplanet.com/nationalgeographicexplorer) Look for parts of this activity in the free IWB lesson.

- Projectable Edition
  (see ngyoungexplorer.org) Use the projectable edition of this issue to enhance this activity.
Life in a Rain Forest

Canopy
Tree branches cover this part of the forest. They form a roof, or canopy, over the forest. That blocks most sunlight from reaching the lower parts of the forest. Most animals in the rain forest live here.

Understory
The understory is just above the forest floor. Not much sunlight reaches this part of the forest. Still, lots of animals live in the darkness. Some of them move down to the forest floor to find food.

Forest Floor
The bottom of the rain forest is called the forest floor. It is dark and damp. Little sunlight reaches the floor. Yet some plants and animals live here.

Emergent Layer
A few of the tallest trees grow above the canopy. They form the highest part of the rain forest. These trees are strong. Rain pounds them. Sunlight bakes them. Wind whips them. Few animals live here. Most of the ones that do have wings.

Climbing in a Rain Forest
An emperor tamarin monkey can climb from the bottom to the top of a rain forest. As this monkey moves up and down, it sees different kinds of animals. Join an emperor tamarin as it climbs in a rain forest.
Life in a Rain Forest: Overview

Summary

• Rain forests are very hot and wet places.
• Many animals live in a rain forest.
• Rain forest animals need air, food, and water to live.

This article is first in a series of articles about habitats that will appear in Young Explorer this year. Throughout these articles, students will be introduced to the idea of a habitat through a spiraled approach to the content. In this article, students are introduced to the idea that animals need food, water, and air to survive.

Learning Objectives

Students will:
• understand that rain forests are unique places on Earth;
• recognize that many different plants and animals live in rain forests;
• understand that animals get the air, food, and water they need from their home;
• understand the connection between images and text in nonfiction texts.

Materials Needed

• photos of animals that live in a rain forest and animals that do not, including a polar bear, camel, and whale
• a roll of clear tape
• a hole punch
• 3 paper plates
• a lamp
• a washcloth, sponge, or paper towel
• for each student: 2 pipe cleaners, an index card, a paper plate, a bendable straw, crayons, and a pair of scissors
• “Climbing in a Rain Forest” and “Words to Explore” posters

Resources

• Learn more about rain forests:
  http://kids.mongabay.com/elementary
• Learn more about the Amazon rain forest:
  http://nationalzoo.si.edu/Animals/Amazonia/Facts/basinfacts.cfm
Life in a Rain Forest: Background

- Rain forests, also called jungles, are one of the major habitats found on Earth. They cover only 6 percent of Earth's surface, but they account for more than half of the world's plant and animal species.
- There are two types of rain forests: temperate rain forests and tropical rain forests. The Amazon rain forest in South America is the largest tropical rain forest on Earth.
- There are four basic layers in a rain forest:
  - Emergent Layer: gets the most sunlight. Only the tallest trees peek through here. Eagles, macaws, monkeys, and butterflies are some of the animals that live here.
  - Canopy: 75 meters (250 feet) above the forest floor. The leaves and branches in this layer form a roof that keeps most sunlight from going to lower parts of the forest. Toucans, sloths, and howler monkeys are a few of the animals found here.
  - Understory: little sunlight reaches this layer, which is just above the forest floor. You might see an alligator lizard or a fruit bat in the understory.
  - Forest floor: the bottom of the rainforest. It is dark and damp here, so plants need large leaves to capture the little bit of sunlight that reaches this level. Jaguars and tapirs live here.
- The monkey in this story is an emperor tamarin. Emperor tamarins are small monkeys, with a head and body length of just 23 to 26 centimeters (9 to 10 inches) and tails that are between 35 to 41 centimeters (14 and 16 inches). They weigh less than a pound. They are known for their long, white moustaches.
- A habitat is where an animal lives. A habitat provides what an animal needs to survive (i.e., food, water, air, and shelter). Animals can only survive in habitats that meet their specific needs.

Fast Facts

- The Amazon rain forest is located in the Amazon River Basin. It is so large that it includes parts of eight countries, and covers about 40 percent of South America. It is about the same size as the continental United States.
- More than half of the plants and animals on Earth live in rain forests.
- As rain forests are destroyed, it is estimated that 100 species become extinct every day, and between 5 and 10 percent of tropical rain forest species will become extinct over the next 50 years.
Activate Prior Knowledge

What is a Rain Forest?

1. Ask students what rain is (liquid water that falls from the sky) and what a forest is (a place with lots of trees). Tell students that if they put those two words together, they get a rain forest. Explain that a rain forest is a real place. Another word that they might use to describe this type of place is jungle.

2. Encourage students to imagine that they are standing in the middle of a rain forest. Ask them to describe what they might see (a place with lots of trees and rain). Ask them what they would feel. Would it be hot or cold? Wet or dry? Guide them to understand that it is always very hot and very wet in a rain forest.

3. Ask students if where they live is like a rain forest. Encourage them to share their answers and explain their reasons. Then ask them if all places on Earth are like a rain forest. If necessary, mention places with distinct climates, such as deserts and the Arctic. Guide students to understand that rain forests are one of many different places on Earth.

What Lives in a Rain Forest?

1. Prior to this activity, gather photos of several different animals. Have enough photos so that each student gets one. Be sure to include some animals that live in rain forests and some that do not. Also gather a photo of a polar bear, a camel, and a whale.

2. Tell students that because rain forests are so hot and wet, they are full of plants and animals. In fact, more than half of the plants and animals on Earth live in rain forests.

3. Display the projectable edition and point out that these photos show animals that live in a rain forest. Ask students if they can name any of these animals (frogs, monkey, jaguar, snakes, birds). Write the names of the animals on the board.

4. Next show students the photos of the polar bear, camel, and whale. Have students suggest reasons why they would not see these animals in a rain forest (polar bears need cold weather; camels live in deserts, where it is dry; whales live in water, not on land).

5. Give each student a photo of an animal. Tell students that some of these animals live in the rain forest and some do not.

6. Divide the board into two sections: “Rain forest” and “Somewhere else.” Have students come to the board one at a time to place their animals in the proper category. Discuss students’ selections.

7. Lead students to understand that all animals live in the place that is best for them. They make their homes where they can find the things they need to survive.

Vocabulary

Words to Explore

1. Display the “Words to Explore” poster for students. On the left is a picture with a sentence. On the right are three pictures and three words.

2. Cover the words air, food, and water on the right side of the poster. Say each word and ask students what letter the word starts with. Write the letters a, f, and w vertically on the board.

3. Ask volunteers to come to the board and complete the spelling of each word (air, food, water). Invite students to say a word and point to the picture on the poster.

4. Invite a volunteer to read the sentence out loud.

Interactive Edition

1. Give students time to explore the article. Encourage them to examine the photos, view the videos, and investigate the interactive diagram.

2. Then continue with the teaching notes above. Encourage students to use what they saw in the article to help them respond.
Explore Reading
Photo-to-Text Connections

1. Display the projectable edition, and scan the article with students. Invite students to name any animals in the photos that they recognize. If students have trouble identifying the jaguar, point out that a jaguar is a big cat, just like a lion or a tiger.

2. Have students turn to pages 2-3 of the article. Ask a volunteer to identify the animal (monkey). Have students say what letter monkey starts with (m). Then write the word monkey on the board.

3. With a partner, have students look for the word monkey on these pages. Repeat this process with the photos of the jaguar (pages 4-5), snake (pages 6-7), and birds (pages 10-11). Write the names of the animals on the board.

4. Have students look at the photo on pages 8-9. Guide students to understand that the animals in this photo are monkeys. However, they are a different type of monkey than they saw on pages 2-3. Encourage students to discuss the differences.

5. Have students find the word monkey in the text on page 8-9. Point out that monkey changes to monkeys on page 9. Guide students to understand that the plural s tells us there is more than one monkey.

6. Now draw students attention to the animal words on the board. Have students scan the text to see which animal word appears the most often (monkey). Ask students why they think this happened. (The article is about the monkey and what it sees and does in its home.)

7. Invite students to complete the Activity Master.

Explore Reading
Photo Connections

1. Invite students to look at the cover of the magazine and identify the animal they see. (a frog) Ask students if they have seen this animal anywhere in the article. (If you have explored the poster already, some students may remember having seen it.)

2. Read aloud the article headline, and ask students why this photo might be shown. If necessary, review the poster with students, and remind them that this type of frog lives in a rain forest.

3. Lead a discussion about why this photo might have been chosen for the cover. (Possible responses might include that this frog shows life in a rain forest, it’s colorful and makes you want to read the article, etc.)

Extend Reading
Connect Sounds With Words

1. Write the animal names on the board, with blanks where consonants should be. ( _o_ _ey; _i _ _; _ a_ua_). In pairs, encourage students to fill in the blanks with letters to complete the animals from the article.

2. Have students brainstorm other animals that start with the letters m, j, s, and b. Then have students write a sentence about an animal that begins with one of these letters.

3. Divide a classroom bulletin board into four sections. Label the sections with the letters m, j, s, and b. Have students place their sentences in the correct section. Invite students to walk around the room and read the sentences.

Interactive Edition

Follow the teaching notes above, with the monkey on screen 2, the jaguar on screen 3, the snake on screen 6, and the birds on screen 9. The other monkeys are on screen 8. Invite students to tap the audio icon on screen 8 to hear the howler monkeys howl.
**Explore Writing**

**Identifying Relational Words**

1. Point out that animals move in different ways. Ask students how the animals in the article move. (Possibilities: Monkeys run and climb using their hands, feet, and tails. Jaguars walk and run on four feet. Snakes slither on their stomachs. Birds use their wings to fly.) Have students offer other ways that animals move, and then demonstrate them.

2. Tell students that just as you use different words to describe *how* animals move, you can use different words to tell *where* they move.

3. Display the projectable edition, and have students turn to pages 2-3. Point out the word *in*.

4. Ask students how the word *in* affects the meaning of the sentence. Explain that the monkey wasn’t running *out* of the rain forest, or *around* the rain forest. The monkey was running *in* the rain forest.

5. Invite students to find other relational words in the text (*by, to on, at, down*). Encourage students to choose one of these prepositions and write a sentence.

6. Ask a volunteer to read their sentence out loud. Have students substitute in other relational words, and discuss how the meaning changes.

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**Following Relational Words**

1. Tell students that words like *in, by, up,* and *around* are a road map that tells you where the monkey went as it traveled through the rain forest.

2. Write the first sentence from page 8 on the board: *The monkey keeps climbing.* Ask students what the word *climbing* tells you. (The monkey is going up.) Ask them what the word *keeps* tells you. (The monkey was climbing before.)

3. Point out that the monkey is now high in a tree. Explain that it is important to follow the directional words to know how he got there. The article’s writer made this word trail to show where the monkey was before and where it will be after it climbs the tree.

4. Encourage students to draw a rain forest with a few trees. Read the article aloud. As you do this, have students draw where the monkey is on each page and write the word that lets them know that. Use the poster to demonstrate the activity for the class.

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**Interactive Edition**

Follow the teaching notes above, with the word *in* on screen 2.

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**Extend Writing**

**Using Relational Words**

1. Brainstorm a list of relational words with students. Write the words on the board (for example *up, down, left, right, in, out, top, bottom, between*).

2. Give each student two pipe cleaners. Have each student create a sculpture that depicts a relational word. Have students write their word on an index card, and tape the sculptures to the appropriate cards.
Explore Science  
Discover Rain Forests

1. Prior to this activity, get three paper plates. Use a hole punch to create two small holes in one paper plate, 10 in the second, and 20 in the third.

2. Display the projectable edition, and scan the article with students. Invite students to offer ideas about what a rain forest is like. Then display the “Climbing in a Rain Forest” poster. Point out that a rain forest has four very different layers. Examine the poster with students and discuss each layer.

3. Guide students to understand that it is very dark and damp in a rain forest. Explain that the lower you go, the darker it gets.

4. To illustrate how light filters down in a rain forest, show students the three paper plates you prepared earlier. Point out the holes in the plates. Tell students that the paper plates represent layers in a rain forest.

5. Focus a lamp so that it shines on a wall. Have volunteers hold each paper plate in front of a lamp. Give each student a chance to view the wall and describe amount of light that goes through each plate.

6. Ask students which plate represents each layer of a rain forest. Point out that fewer holes means less light is able to get through. So the plate with two holes is the forest floor, the plate with 10 holes is the understory, and the plate with 20 holes is the canopy. Ask students why there is no paper plate to represent the emergent layer. (Nothing blocks light from reaching this layer.)

Rain Forest Umbrella

1. Prior to this activity, get a paper plate for each student. Punch a hole in the center of each plate, stick the bendable end of a straw through each hole, bend it, and tape the straw in place.

2. Give an “umbrella” to each student, and explain that it represents the rain forest. Have students color their paper plates green. Guide students to understand that this green layer represents the canopy of a rain forest. Have students identify the other rain forest layers.

3. Have students write and cut out the words jaguar, snake, and bird. Help students place these animals in the correct layers on their rain forest umbrellas.

4. Have students write one more animal for each rain forest layer. They can use the poster as a guide. Have students cut out the words and tape them in place.

5. Finally, have students draw the monkey from the story. Have them act out with a partner who the monkey would visit as it traveled up a tree in a rain forest.

Extend Science  
“Go Fish” in the Rain Forest

1. Prior to this activity, use index cards to create game cards that say food, air, or water. Each group will need a deck with three cards of each type.

2. Discuss with the class what animals need to survive. Lead them to answer food, air, and water.

3. Divide the class into groups of four. Give each group a deck of cards. Have students play the game following the rules of “Go Fish.” To survive, or win, they must get a pair of each type of card.

Interactive Edition

1. Invite students to view the video of the jaguar on screen 4 and the video of the rain forest canopy on screen 10.

2. Use the interactive diagram on screen 10 to show students where each of these videos is located. Discuss each of the different layers with students.

3. Continue with steps 3-6 in the teaching notes above.
What Animals Need to Survive

Write the correct word under each picture.

Draw your favorite animal getting food, air, and water.

Name:
Read each question. Fill in the circle next to the correct answer.

1. Where does the monkey see the birds?
   A  at the top of the forest
   B  in the middle of the forest
   C  at the bottom of the forest

2. What is it like in a rain forest?
   A  hot and damp
   B  hot and dry
   C  cold and dry

3. What do rain forest animals need to live?
   A  food
   B  food and air
   C  food, air, and water
Write the correct word under each picture.

Draw your favorite animal getting food, air, and water.

What Animals Need to Survive

<table>
<thead>
<tr>
<th>Food</th>
<th>Air</th>
<th>Water</th>
</tr>
</thead>
</table>

Answers will vary, but students should show an animal getting food in one box, water in another box, and air in the third box. They should write food, air, or water on the line below the correct box. Answers will vary, but students should show an animal getting food in one box, water in another box, and air in the third box. They should write food, air, or water on the line below the correct box.
Read each question. Fill in the circle next to the correct answer.

1. Where does the monkey see the birds?
   - A at the top of the forest
   - B in the middle of the forest
   - C at the bottom of the forest

2. What is it like in a rain forest?
   - A hot and damp
   - B hot and dry
   - C cold and dry

3. What do rain forest animals need to live?
   - A food
   - B food and air
   - C food, air, and water
Stormy Sky

Print

pages 12-13

pages 14-15

pages 16-17

Interactive

screens 12-17

poster
Stormy Sky: Overview

Summary

• A hurricane is a type of storm.
• Winds blow hard in hurricanes.
• There is a lot of rain in a hurricane.
• People must be safe in a hurricane.

Learning Objectives

Students will:
• understand that a hurricane is a dangerous storm;
• understand how to retell a sequence of events in their own words.

Materials Needed

• photos of a rainy day, a slightly windy day, and a hurricane
• sentence strips
• a bottle of bubbles and a bubble wand
• “Words to Explore” poster

Resources

• Learn more about hurricanes:
  http://www.weatherwizkids.com/weather-hurricane.htm

• Watch hurricanes form:
  http://www.nvml.noaa.gov/MediaDetail2.php?MediaID=73
  &MediaTypeID=2&ResourceID=104295

• Learn more about preparing for hurricanes:
  http://www.ready.gov/hurricanes
Stormy Sky: Background

- Hurricanes are the largest kind of storm.
- A hurricane begins as a thunderstorm over warm oceans.
  - The ocean water evaporates and turns into a gas called water vapor. The water vapor rises and cools to form storm clouds.
  - The rising air causes the air pressure to change. It forms an area of low pressure that acts like a vacuum, sucking up air from the ocean's surface.
  - As more air rushes up and in, the winds start to spin faster and faster, forming a hurricane.
- Hurricanes swirl in a circle, like a pinwheel. Once the winds top 119 kilometers (74 miles) per hour, the storm is classified as a hurricane.
- Although the type of weather is the same, the name of a storm changes depending on where in the world it forms. What is called a hurricane in the Atlantic and eastern Pacific oceans is called a cyclone in the Indian Ocean. In the western Pacific Ocean, this same type of storm is called a typhoon.
- Hurricanes start over oceans, but they often move over land. When a hurricane makes landfall, it packs high winds and heavy rains. Giant waves pound the shore, and the incoming storm surge can cause great damage. The storm weakens as it moves further inland.
- Meteorologists can track the path of a hurricane and warn people about the storm long before it approaches. People in the path of a hurricane can do many things to prepare for the oncoming storm:
  - Shop early and buy essential items including bottled water, canned food, batteries, flashlights, and other emergency supplies.
  - Nail plywood or metal over all windows to protect homes and businesses.
  - Fill the car with gas. If the authorities call for an evacuation, leave early to avoid traffic jams.

Fast Facts

- Hurricanes are categorized based on wind speed. A category 1 hurricane has winds between 119-153 kilometers (74-95 miles) per hour. A category 5 hurricane has winds speeds of 252 kilometers (157 miles) per hour or greater.
- Tropical storms (which can turn into hurricanes) are named from a list created by the World Meteorological Organization. The names are alphabetical and are given in the order that the storms form. This year, the tropical storms in the United States will be named:
  - Alberto
  - Beryl
  - Chris
  - Debby
  - Ernesto
  - Florence
  - Gordon
  - Helene
  - Isaac
  - Joyce
  - Kirk
  - Leslie
  - Michael
  - Nadine
  - Oscar
  - Patty
  - Rafael
  - Sandy
  - Tony
  - Valerie
  - William

See [http://www.nhc.noaa.gov/aboutnames.shtml](http://www.nhc.noaa.gov/aboutnames.shtml) for names for other years and other locations.
Stormy Sky: Prepare to Read

Activate Prior Knowledge

What is Weather?

1. Ask students what they have seen falling from the sky. Prompt them to think of things such as liquid water, snow, or ice. Students may also mention leaves that came from trees.

2. Guide students to understand that liquid water falling from the sky is called rain. Ice falling from the sky is called hail. Wind is the reason that leaves and other things blow all over the place.

3. Ask students what rain, hail, snow, and wind all have in common. Guide them to understand that these are all types of weather. Have students share other types of weather they know about.

4. Have students draw a picture of their favorite type of weather and describe or act out what is happening in the picture.

What is a Hurricane?

1. Prior to this activity, gather photos that depict a rainy day, a slightly windy day, and a hurricane.

2. Ask students to describe what they see in the photos of the rainy day and the windy day. Have volunteers share examples of things they have done on days like those they see in the photos.

3. Next show students the photo of the hurricane. Have students describe how this photo is like the other photos and how it is different. (This photo shows rain and wind, but it is much more severe than the rain and wind in the other two photos.) What activities could they do on a day like this? (take shelter)

4. Guide students to understand that each of these photos shows a type of weather. The last photo shows a hurricane, which is a kind of storm with a lot of rain and wind. A hurricane is a very severe type of weather.

Vocabulary

Words to Explore

1. Display the “Words to Explore” poster for students. Point out the two parts of the poster. On the top is a picture with a sentence. On the bottom are two pictures and two words.

2. Point out to students that one of these words starts with the letter h and the other starts with the letter s. Encourage students to sound out each word, then read the words out loud.

3. Point to the words hurricane and storm on the bottom section of the poster. Point out that hurricane has three syllables: hurr / i / cane. Ask students how many syllables storm has. (one)

4. Write the sentence from the poster on the board. Have a volunteer point out the words hurricane and storm in the sentence. In pairs, have students say a new sentence using the words.

5. Practice the sound that the letters h and s make. Have students practice making the sounds with you.

6. Divide the class into small groups. Give each group one minute to think of as many h and s words as possible. Encourage the groups to share their words with the class.

Interactive Edition

1. With a partner, have students click on the W icon on screen 12. Have students tap each word to hear it said aloud and hear a description.

2. Then direct students’ attention to the sentence and follow the teaching notes above.
Explore Reading
Retelling Sequence in Your Own Words

1. Write these sentences on strips of paper for each pair of students:
   - [strip 2] Rain pounds the ground.
   - [strip 3] Streets flood.

2. Read aloud the article with students. Ask a volunteer to tell the class what the article is about. (hurricanes)

3. Pass out the sentence strips in a random order to each pair. Guide pairs to work together to put the sentences in the correct order.

4. Invite a volunteer to the board to put the sentences in the correct order.

5. Have students imagine that they are weather forecasters. Divide students into groups and have each group create a weather forecast, using their own words, to tell about the approaching storm. Give each group an opportunity to share its weather forecast.

Explore Writing
Identifying Weather Words

1. Display the projectable edition, and read the article aloud with students. Tell students to raise their hands each time you read a weather word (stormy/storm, sky, clouds, winds, rain, flood, hurricane). Write each weather word on the board.

2. Have students scan the article with a partner. Have them say each weather word they see.

3. Give each pair one weather word. Invite students to write a sentence using that word. Have pairs share their sentences with the class.

Extend Writing
Identifying Local Weather Words

1. Have each student give one word that describes a type of weather that happens around where they live.

2. Ask students to draw a picture that shows what their weather word means, and write a sentence about it.

Extend Reading
Keeping the Story Straight

1. Divide the class into groups of six. Tell each group to form a line.

2. Tell students that you are going to whisper something to the first person in each line. You will only say it once. Then they will whisper what you said to the next person in their line, and so on until each person in the group heard what you said.

3. Whisper the following sentences to the first student in each line: *There was a big storm last night. First it got really windy. Then it started to rain really hard.*

4. Once the groups are finished, have the final person in each group tell what they heard. Read the sentences aloud again, and check the sequence of events. Have students compare what they heard to the original message to see if they changed the story when they retold it.

Interactive Edition

Invite students to swipe through the four photos on screen 17, identifying each type of weather. Lead a discussion about whether you experience any of these types of weather where you live. Then follow the teaching notes above.
Stormy Sky: Science

Explore Science
All Types of Weather

1. Distribute the Activity Master to students.

2. Have students imagine that it is a bright sunny day. Then tell them that the weather forecaster predicts that a big storm is coming. Have volunteers describe how the weather will change throughout the day.

3. Now tell students that a hurricane is coming. Have students describe what the weather will be like when the hurricane hits.

4. Tell students to look at the Activity Master. Point out the four spaces. Ask them to draw a sunny day in the top left corner, cloudy weather in the top right, stormy weather in the bottom left, and a hurricane in the bottom right.

5. Have students discuss their drawings in small groups.

Extend Science
Explore the Wind

1. For this activity, you will need a bottle of bubbles and a bubble wand. You may want to take the class outside.

2. Gently blow bubbles. Ask students what makes the bubbles form. (your breath, which is air) If you are inside, point out that the direction you blow determines which way the bubbles go. If you are outside, ask students what determines the direction the bubbles go. (the wind)

3. Guide students to understand that outside air is always moving. Moving air is called wind. Discuss what the wind is like today. Have students describe times when the wind was different.

Interactive Edition

Invite students to explore the hurricane video and the spinning pinwheel on screen 15. Ask students to describe what they see and use that information to describe how wind makes a hurricane spin like a pinwheel.
Here Comes a Hurricane

Draw pictures to show how a sunny day turns into a stormy day.

1. It is sunny outside.
2. Now it is cloudy outside.
3. Now it is stormy outside.
4. Now there is a hurricane!

Name:
1. What is a hurricane?
   A a type of storm
   B a type of cloud
   C a type of animal

2. What does a hurricane look like?
   A a square
   B a pinwheel
   C a line

3. Which is NOT part of a hurricane?
   A wind
   B rain
   C snow
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. It is sunny outside.</strong></td>
<td><strong>2. Now it is cloudy outside.</strong></td>
</tr>
<tr>
<td>This picture should show a clear, sunny day.</td>
<td>This picture should show the sky with storm clouds.</td>
</tr>
<tr>
<td><strong>3. Now it is stormy outside.</strong></td>
<td><strong>4. Now there is a hurricane!</strong></td>
</tr>
<tr>
<td>This picture should show rain and wind.</td>
<td>This picture should show either lots of wind and rain or a swirling pinwheel of clouds.</td>
</tr>
</tbody>
</table>

Here Comes a Hurricane

Draw pictures to show how a sunny day turns into a stormy day.
Read each question. Fill in the circle next to the correct answer.

1. What is a hurricane?
   A a type of storm
   B a type of cloud
   C a type of animal

2. What does a hurricane look like?
   A a square
   B a pinwheel
   C a line

3. Which is NOT part of a hurricane?
   A wind
   B rain
   C snow
Group It

Print

pages 18-19

pages 20-21

pages 22-23

Interactive

screens 18-22
Group It: Overview

Summary

• Many different animals live in a coral reef.
• Objects can be grouped in many ways, including color, pattern, and shape.

Learning Objectives

Students will:
• recognize different ways that objects can be grouped;
• identify grouping words.

Materials Needed

• plain white paper
• crayons
• a package of blank index cards
• paper plates (2 per student)
• glue
• a ball of cotton string
• scissors
• “Words to Explore” poster
• interactive whiteboard lesson (available in September)

Resources

• Learn more about coral reefs:
  http://www.seaworld.org/animal-info/info-books/coral/reef-ecosystem.htm

• Learn more about animal group names:
  http://www.sandiegozoo.org/animalbytes/got_questions_groups_list.html
Group It: Background

• Coral reefs are underwater habitats. They are most often found in warm, shallow, clear ocean waters. They are one of the most diverse ecosystems in the world.

• Coral reefs are made up of living things. Coral polyps live in colonies and feed using tentacles. They create a hard exoskeleton. As more and more polyps build exoskeletons, the reef grows. This hard framework also protects the many animals that live within the reef.

• Common animals found in a coral reef include algae, sponges, sea slugs, oysters, clams, crabs, sea worms, star fish, sea turtles, and many different kinds of fish.

• There are many ways to classify, or group, objects. In this article, students classify by color, shape, and pattern. Other ways to classify include size, texture, temperature, and smell.

• Scientists classify all living things into groups based on similar characteristics. The largest groups, kingdoms, share the broadest similarities. The smallest groups, species, share the smallest amount of similarities.

Fast Facts

• Animals can be grouped in many different ways. One way is a name for a group of animals. For instance, a group of fish is called a school. A group of oysters is a bed. A group of whales is called a pod, a gam, or a herd. A group of sharks is called a shiver.

• Scientists group animals together by looking at the ways in which they are the same. This is called classification. Animals can be classified by:
  ▶ bones: do they have a backbone, or not? Do they have an exoskeleton (a skeleton on the outside of their body)?
  ▶ covering: do they have fur? feathers? scales?
Activate Prior Knowledge

Groups in a Coral Reef

1. Page through the article with students, allowing them to preview the photos.

2. Stop at each photo and have students identify and describe the animals they see. Write some of the adjectives students use to describe the animals on the board (big, small, blue, striped, etc.).

3. Talk with students about how the animals in the photos are the same and how they are different. Have students identify other ocean animals they know, and ask them to compare and contrast those animals with the animals they see in the photos. Use the adjectives on the board as a prompt to guide the discussion.

4. Select four adjectives from the board. Write each adjective on a separate piece of paper. Place the papers in four locations around the room.

5. Assign each student one of the adjectives. Give students pieces of plain white paper. Have them use crayons to draw an ocean animal that matches their word, and write a sentence using the adjective.

6. When students have finished their drawings, tell them to stand by the paper that lists their adjective. Once groups are formed, have each group share its drawings and read the sentences to the class.

Vocabulary

Words to Explore

1. Display the “Words to Explore” poster for students. Read aloud the three vocabulary words.

2. Write the sentence from the poster on the board without the vocabulary words. (You can group things by their ____, ____, and ____.) Ask volunteers to fill in the blanks.

3. Point to the photo above the word color. Have a volunteer identify the colors in the photo.

4. Point to the photo above the word pattern. Have a volunteer identify the pattern in the photo.

5. Point to the photo above the word shape. Have a volunteer identify the shape in the photo.

6. Have students look at the photo on the left side of the poster. Encourage volunteers to select a few objects in the photo and identify the color, pattern, and shape of each object.

7. Finally, ask students to identify colors, patterns, and shapes in the room.

Interactive Edition

1. Invite students to view the video on screen 1 and the photos on screens 19-22. Tell students that they will have an opportunity later to investigate all of the interactive features.

2. Continue with steps 2-6 in the teaching notes above.

Interactive Edition

1. Follow steps 1-2 in the teaching notes above.

2. Then pair students and have them tap the W icon on screen 18. Have students tap the audio icon next to the sentence to hear it read aloud. Encourage students to find each of the vocabulary words shown on the right side of the screen in the sentence.

3. Invite students to tap the audio icon next to the word color and listen to the word and its description. Ask students what colors they see in the photo above the word. Repeat the activity with pattern and shape.

4. Finally, invite students to identify colors, patterns, and shapes in the room.
**Explore Reading**

**Using Photos to Understand Text**

1. Ask students what the word *group* means. Explain that the word *group* can either refer to a bunch of things, or to put things into a bunch.

2. Point out the two bold words *color* and *shape* on pages 20-21. Have students identify the color (blue) and the shape (star).

3. Have volunteers find the color blue and the star shape in the photo. Ask students to name other blue and star-shaped things they know.

4. Repeat the activity with *pattern* on pages 22-23.

**Extend Reading**

**More Photo-To-Text Connections**

1. Display pages 22-23 of the projectable edition. Point out that the article ends with a question.

2. Have students flip back to the opener on pages 18-19. Ask students to identify objects that will fit in the following categories: pink, solid, and round.

**Explore Writing**

**Identifying Group Words**

1. For this activity, you will need a package of blank index cards and crayons, which you will use to create a memory game for students.

2. Color cards to make pairs that show blue, red, yellow, green, and purple. Draw matching pairs for squares, circles, triangles, and stars. Also make matching cards to show spots, stripes, and a tic-tac-toe grid. Make enough sets of identical cards so that you have one set for every four students. Show students the cards and make sure they understand what each card means.

3. Divide the class into groups of four. Give each group a deck of cards. Tell students to shuffle the cards and place them all upside down.

4. Have one student in each group turn over two cards. If the cards match, he or she can keep the pair and go again. If not, the cards must be turned back over and that is the end of the turn.

5. The game ends when all matches have been made. After the game, help groups sort their cards into categories for color, pattern, and shape.

6. Review the color (blue) and pattern (stripes) words introduced in the article. Write the words for the other cards on the board. Then ask students to write the appropriate word on each one of the cards he or she won.

**Extend Writing**

**Drawing Group Words**

1. Give each student two paper plates. Tell students to draw a different shape on the inside of each plate. Tell students to color one shape and make a pattern on the second shape. Have students write the word *color* and *pattern* on the appropriate plate.

2. Have students glue the back sides of their plates together. Use a hole punch to punch a hole in the top of each plate. Cut the string so you have a piece for each student. Tie the string through the holes in the plates. If possible, hang the plates from the ceiling.

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**Interactive Edition**

1. Ask students to turn to screen 19. Invite students to tap the audio icon to listen to the text.

2. Point out the word *color* in the text. Ask students what color word they heard in the text. (blue) Then direct students to the photo and ask what color the sea stars are. (blue)

3. Invite students to tap on the question mark icon, listen to the directions, and complete the activity.

4. When students have finished, invite them to share which animal they chose and why.

5. Continue with the activities on screens 20-22.

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**Interactive Edition**

Invite students to view the video on screen 18 and suggest ways to group the animals they see.
Explore Science
What’s in a Group?

1. Give each student a copy of the Activity Master. Tell students to draw a picture of their favorite animal. Help students complete the sentences at the bottom of the paper.

2. When all students are finished, have them read their sentences out loud.

3. Work with students to group the animals. Encourage students to think of categories other than color, pattern, and shape. For instance, students might create groups of animals that are furry or have feathers or create a group of animals that live in the ocean.

Extend Science
Visit an Aquarium

1. Visit an aquarium or create a small aquarium in your classroom.

2. Encourage students to observe the plants and animals in the aquarium.

3. Challenge students to group the plants and animals they see in as many ways possible.

Activity Master, page T24
Group It

Draw your favorite animal. Write what kind of animal it is. Write where it lives. Then write something about it.

My animal is a ____________________________.

It lives ____________________________.

It has ____________________________.
Read each question. Fill in the circle next to the correct answer.

1. Which is a color?
   - A a star
   - B stripes
   - C blue

2. Which is a pattern?
   - A a star
   - B stripes
   - C blue

3. Which is a shape?
   - A a star
   - B stripes
   - C blue
Group It

Draw your favorite animal. Write what kind of animal it is. Write where it lives. Then write something about it.

Responses will vary.

My animal is a **Students should tell what the animals is.**__________________________.

It lives **Students should tell where the animal lives.**__________________________.

It has **Students should tell a characteristic of the animal, such as fur.**__________________________.
Group It
Assessment

Read each question. Fill in the circle next to the correct answer.

1. Which is a color?
   A. a star
   B. stripes
   C. blue

2. Which is an example of a pattern?
   A. a star
   B. stripes
   C. blue

3. Which is an example of a shape?
   A. a star
   B. stripes
   C. blue