

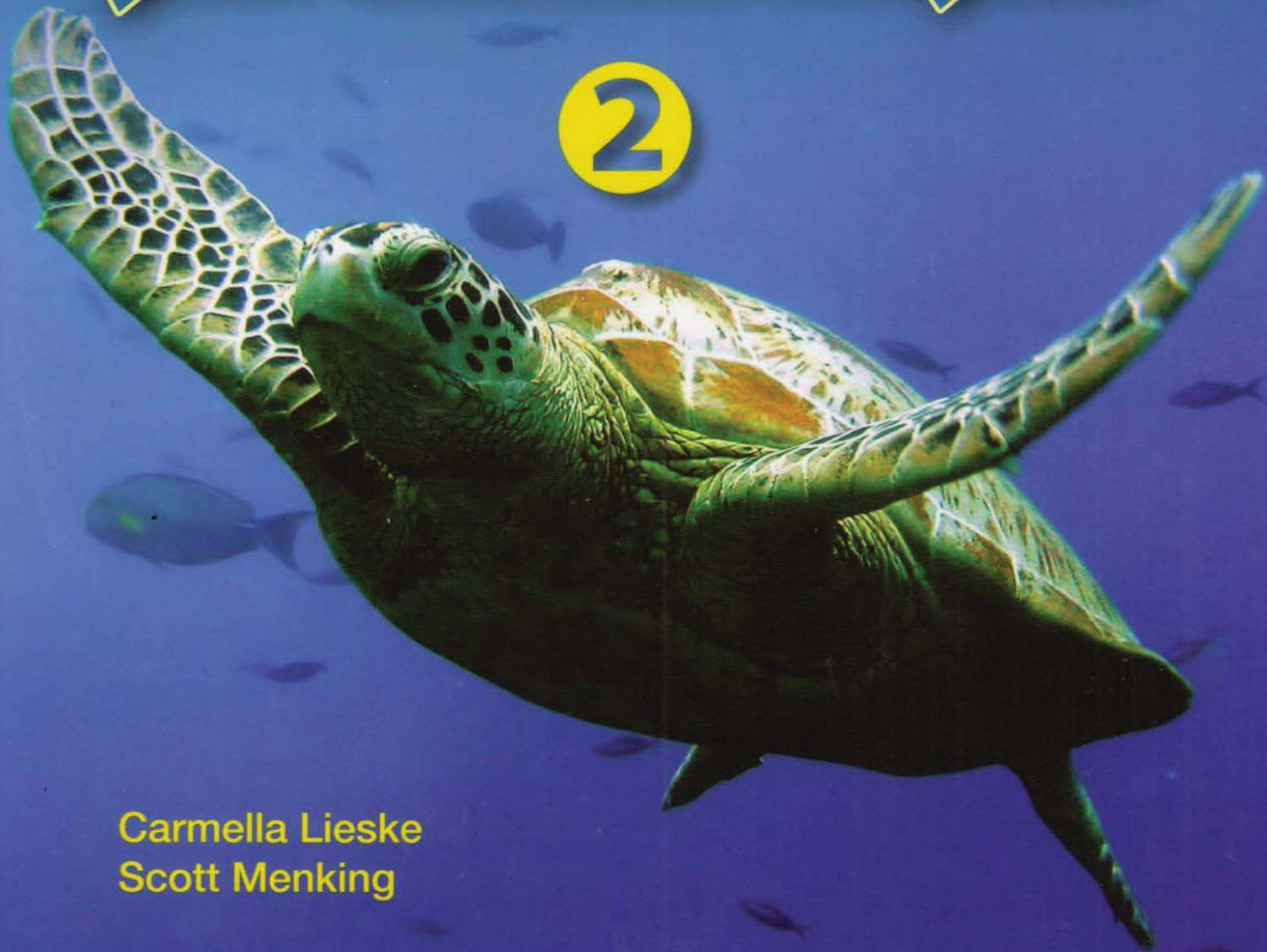
NATIONAL
GEOGRAPHIC
LEARNING

CENGAGE
Learning

Reading ADVENTURES

2

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Scott Menking



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Get Ready for an **Adventure!**



Wildfires destroy a lot of forest every year. How do firefighters try to stop them? **p. 23**



A thousand years ago, the people living in Tikal left the city. Why? **p. 59**



Bruce Hall is an amazing photographer. Why is he special? **p. 65**



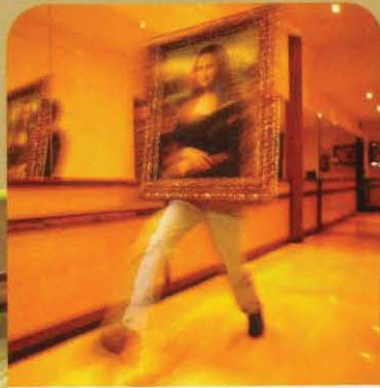
What is it like to visit the Cave of Crystals? **p. 39**



Every year, tourists come here to see something incredible. What? **p. 53**



Pamplona, Spain, has an amazing race every year. What happens in it? **p. 95**



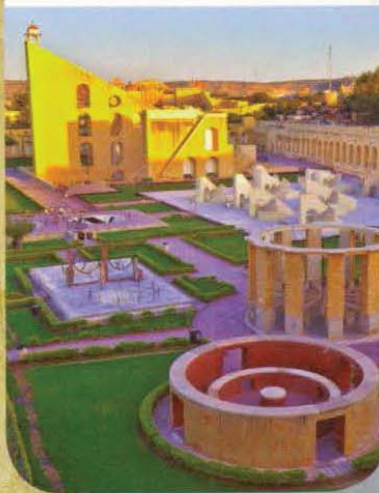
In 1911, a man stole *Mona Lisa*. How did he do it? **p. 75**



How is Shukei Masuma trying to save the endangered bluefin tuna? **p. 108**

Leonardo da Vinci was not just a painter. What else did he do? **p. 79**

The Jantar Mantar has two huge sundials. What are they for? **p. 110**



Michael Fay walked across the Congo rain forest. What did he see? **p. 20**

Komodo Island is home to the world's largest lizard. How big is it? **p. 32**



EUROPE

ASIA

AFRICA

AUSTRALIA

ANTARCTICA

Scope and Sequence

Unit	Theme	Lesson
1	Secret Worlds	A: A Hidden World B: The Lost World
2	Dangerous Jobs	A: Firefighters B: Predicting the Weather
Review 1	Komodo National Park, Indonesia	
3	Crystals	A: Crystal Palace B: Crystal Skulls
4	Life on the Move	A: Animal Migration B: Butterfly Migration
Review 2	Tikal National Park, Guatemala	
5	The Senses	A: An Unusual Photographer B: Senses in Poetry
6	Art: History and Mystery	A: Stealing Mona Lisa B: Leonardo the Inventor
Review 3	Florence, Italy	
7	Festivals	A: A Korean Festival B: The Sun Also Rises
8	Heroes for the World	A: Hero for the Planet B: Saving India's Forests
Review 4	Jantar Mantar, India	



Reading Passage

- A: Discovery in the Foja
- B: An Extraordinary Find

Language Practice

- A: Relative clauses with *which*
- B: Making predictions with *might*

Video

Exploring the Congo

- A: Fighting a Wildfire
- B: Meet a Meteorologist

- A: Showing cause and effect using *if*
- B: Using *do* with nouns

Smokejumper School

An Indonesian Folktale: *A Legend of Komodo Island*

- A: Preparing for the Cave of Crystals
- B: The Mystery Goes On

- A: Using *as though*
- B: Present perfect

Crystals

- A: Move as Millions, Survive as One
- B: Heading South for the Winter

- A: Relative clauses with *that*
- B: Relative clauses with *where*

Monarch Migration

A Mayan Folktale: *The King of the Birds*

- A: Through the Camera Lens
- B: Five Senses

- A: Using *let*
- B: Repetition

The Senses

- A: The Crime of the Century
- B: Inventor of the Future

- A: Using *nobody*
- B: Talking about interests

The Renaissance

An Italian Folktale: *A Happy Man's Shirt*

- A: The Lantern Festival
- B: The Bulls Run

- A: Using *by* to talk about time
- B: Past perfect

Mardi Gras

- A: Sylvia Earle: Oceanographer
- B: Saving the Animals and the People

- A: Using *must*
- B: Past perfect continuous

Bluefin Rescue

An Indian Folktale: *The Boy and the Drum*



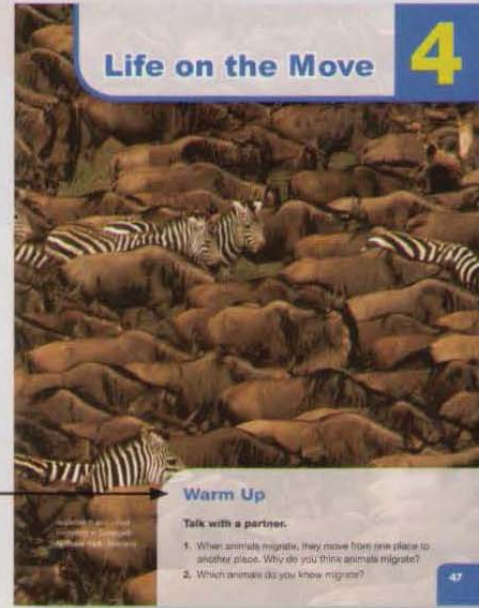
Unit Walkthrough

Before You Read tasks encourage students to think about the ideas in the reading.

Warm Up discussion questions introduce the unit topic.

Life on the Move

4



Warm Up

Talk with a partner.

1. When animals migrate, they move from one place to another place. Why do you think animals migrate?
2. Which animals do you know migrate?

4A Animal Migration



Before You Read

A Strategy: Reading a map. Look at the map. How does each animal migrate—by air, sea, or land? Which animal travels the longest distance? Talk about your answers with a partner.

B Definitions. Match the words with their meanings.

- | | | | |
|---------------|--------------|----------|----------------|
| 1. completely | 2. in common | 3. swim | 4. survive |
| 5. face (v) | 6. challenge | 7. avoid | 8. in addition |
-
- | | |
|--|--|
| a. also | k. having something the same |
| b. to move through the water | l. to keep living |
| c. a problem, or difficult thing | m. (not) |
| d. to try not to be near a person or thing | n. to meet and try to fix a problem or bad condition |

Reading

Strategy: Skimming. Quickly read the passage and write the number of the paragraph that has the answers to each question.

1. How much water?
2. Why migrate?
3. How dangerous?
4. How far?



▲ A group of wildebeest grazing in East Africa.

Move as Millions, SURVIVE AS ONE

Great white sharks in the Pacific Ocean. Wildebeest in Africa. Arctic terns in the Atlantic. At first, these animals seem **completely different**. One **swims**, one **walks**, and the other **flies**, but they all have one thing in **common**. They all migrate.

Some migrating animals move to a place with a better temperature. Some go to land. Some go to water. The groups travel in one, trying to **survive**. During the trip, they **face** many different **challenges**.

One challenge is distance. Some migrating animals take very long trips. They go far away from their home areas. For example, one great white shark swims from Australia to South Africa and back. In nine months, it swims about 20,000 kilometers!

Another challenge is finding enough food and water during the journey. For example, each male elephant needs over 200 liters of water each day. To get this, they need to go from one water hole to another.

In addition, migrating animals have to **avoid** other animals that want to eat them. For example, the arctic tern has to stay away from lions. Traveling in a group helps keep them safe. All the arctic terns in the group can watch for danger. When one arctic tern is in trouble, the other members make a circle around it.

By working in a group, migrating animals can survive some of the world's most extraordinary journeys.

© National Geographic

4A Animal Migration

Reading Passages are adapted and graded from authentic sources.

Reading Comprehension questions check students' understanding of the reading passage.

Grammar activities practice important grammar structures introduced in the reading passage.

Vocabulary Builder boxes highlight common collocations, affixes, and usage notes.

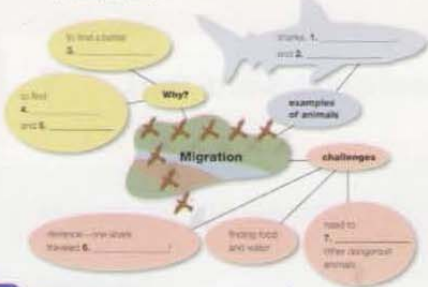
Graphic organizers help students understand the organization of the text and the connections between key ideas.

Reading Comprehension

A Circle the correct answer.

- Main idea** 1. The main idea of the first paragraph is that _____ animals migrate.
- a. not all kinds of b. only similar c. different kinds of
- Detail** 2. The passage talks about _____ big challenges for the animals.
- a. two b. three c. four
- Detail** 3. Which of the following statements is NOT true?
- a. It's about 20,000 kilometers from South Africa to Australia.
b. An elephant needs more than 100 liters of water a day.
c. Elephants help each other when they are in trouble.
- Inference** 4. From the passage, we can infer that _____.
- a. lions may eat arctic terns b. lions travel in groups c. lions try to avoid arctic terns

B Strategy: Summary completion. Complete the word web using words from the passage.



Language Practice

A Vocabulary: Words in context. Answer the questions below.

1. Who is **completely** different from you? Why?
2. What do you have in **common** with your parents?
3. Do you know how to **swim**? When did you learn?
4. What is one dangerous situation that is difficult to **survive**? Why?
5. What is one problem you have **faced** in the past? What did you do?
6. What is one **challenge** you have now?
7. What is something that you want to **avoid**? Why?

B. In addition to English, are there any languages you want to learn? What are they?

C Grammar: Relative clauses with that. Read these sentences. Sentence b is from the passage.

a. The animals also have to avoid other animals. These animals want to eat them.
b. ... the animals have to avoid other animals **that** want to eat them.
c. There are marks on the skulls. Scientists believe only modern technology can make these marks.
d. There are marks on the skulls **that** scientists believe only modern technology can make.

Word Partners

Use common verbs to create better sentence beginnings. Write your own sentences.

- Join the sentences. Use **that**.
1. The team discovered a tiny bee house. This animal travels from one tree to another.
 2. First, you have to put on a vest. It has more than 12 ice packs across the front and back.
 3. Migrating sharks make a 50,000-kilometer trip. The trip takes nine months.
 4. Astronomers have found evidence. The evidence shows the skulls are probably bats.

Reading Strategies give students the practice and support they need to be better readers.

Before You Read tasks introduce eight target vocabulary items from the reading.

Maps, charts, and diagrams help students develop visual literacy.

Target Vocabulary items from the readings are identified in blue.

Reading Comprehension questions include question types commonly found in international exams, such as TOEIC®, TOEFL®, and IELTS®.

Reading

Strategy: Predicting. Look quickly at the title, headings, pictures, and captions and answer the questions below. Then read the passage to check your answers.

1. Do monarch butterflies prefer warm or cool temperatures?
2. How do people feel when they see the monarch?



Heading South for the Winter

One monarch butterfly flies by. Then another, and another. As they fly, the butterfly seems to float in the sky. They make beautiful shadows on the ground below. They seem to be everywhere. In fact, there are so many butterflies that the groups look like beehives in the trees. And when they fly, the sound of 130 million monarch wings creates a soft sound, as though it is raining. People say Mexico is the only place in the world where you can hear the sound of butterflies' wings moving.

The Migration

Every year, millions and millions of monarch butterflies migrate from the U.S. and Canada. They go to a place high in the mountains of Mexico. There, they can escape from North America's cold winter temperatures. To get there, the monarchs often travel over 80 kilometers a day. But what's really amazing is that the butterflies make the trip only once. Somehow, they know exactly where to go.

The Effect on People

After the butterflies arrive in Mexico, people gather to watch. The effect on people is amazing. Young and old, men and women, locals and people from far away—everyone is watching and taking photos. It's as though the butterflies encourage people to be there.

4B Butterfly Migration

Before You Read

A Quiz: How much do you know about monarch butterflies? Take the quiz. Circle True (T) or False (F). Then check your answers below.

1. Monarchs weigh less than a penny. T F
2. A monarch butterfly can only fly 10 kilometers a day. T F
3. Monarch butterflies migrate further than any bird. T F

B Definitions. Match the words with their meanings.

1. everywhere	2. in fact	3. somehow	4. arrive
5. gather	6. young	7. arrive	8. encourage

Answers:

- a. to reach a place
- b. in all places
- c. -- -- 😊
- d. not old
- e. in a way that is surprising or hard to explain
- f. the following is true or gives more information
- g. to make someone feel more like doing something
- h. to bring people or things together

Reading Comprehension

A Circle the correct answer.

Information 1. According to the passage, the sound of the butterflies moving is _____.
 a. something people want to avoid
 b. easy to imagine
 c. nice to listen to

Vocabulary 2. Each monarch butterfly joins the migration _____.
 a. just one time
 b. a few times
 c. one time a year

Detail 3. According to the passage, _____ will like watching the butterflies.
 a. almost everyone
 b. mainly butterfly experts
 c. mainly young people

Inference 4. The writer probably _____ the butterflies know where to go.
 a. understands exactly how
 b. thinks it's extraordinary that
 c. has written a book about how

Strategy: Summary completion. Use no more than two words in each blank to complete the summary about the passage.

Every year, 1. _____ of monarch butterflies leave North America before it gets too 2. _____. They travel to 3. _____ where the temperature is warmer. It's a long trip, and they sometimes fly more than 4. _____ every day. Not one of the butterflies has been there before, but 5. _____ they go to the same place each year. There, people 6. _____ to see them. Maybe the butterflies make everyone happy, because everyone seems to be 7. _____ as they watch them.

Language Practice

A Vocabulary: Words in context. In each sentence, circle the best answer.

1. **Everywhere** on Earth, people wear _____.
 a. gloves b. clothes
2. At which of these places might people **gather**?
 a. a bed b. a stadium
3. If you **somehow** pass a test, it is _____ for you.
 a. easy b. difficult
4. When do most people **arrive** at school?
 a. in the morning b. in the afternoon
5. Which of these is **young**?
 a. a puppy b. a grandparent
6. People usually **smile** when they are _____.
 a. happy b. unhappy
7. When someone **encourages** you to do something, they want you to _____.
 a. try b. avoid
8. When you say **in fact**, you are usually _____ information.
 a. asking for b. giving

B Grammar: Relative clauses with where. Read these sentences. Sentence a is from the passage.

- a. Mexico is the only place in the world where you can hear the sound of butterflies' wings moving.
- b. Sometimes they travel to a place where there is a better temperature.

Complete each sentence using where and information that is true for you.

1. I want to go to a country where _____.
2. Last week I went to _____ where I _____.
3. I love places where I can _____.
4. _____.

Word Partners

Use each verb with the nouns and create more sentences. Use the verb forms you see in the examples.



Video Monarch Migration

A Preview. The video discusses some problems that monarch butterflies face when they reach Mexico. Which do you think are some of these problems?

cold temperatures too many tourists
 hot temperatures people cutting down trees
 storms people catching butterflies

B As you watch. Circle the correct answer in each sentence.

1. Every year, 200 (million / billion) butterflies travel from North America to the butterfly sanctuary.
2. In 2022, a (rain storm / wildfire) killed millions of monarch butterflies.
3. Mike Quinn is worried about (the number of tourists / the loss of trees).
4. In 30 years, the number of (trees / butterflies) in the area has gone down 50 percent.
5. The Mexican government is paying money to (land owners / butterfly farmers) to help the butterflies.

C Think about it. What else can people do to help the butterflies?

Vocabulary sections practice and reinforce target vocabulary from the reading.

Video activities give extra comprehension and vocabulary practice, and motivate students to learn more about the unit topic.

Review Unit Walkthrough

World Heritage Site

pages highlight important cultural and natural places around the world, and recycle vocabulary and structures from earlier units.

Vocabulary Review

Crossword. Complete the crossword puzzle with words from Units 3 and 4.

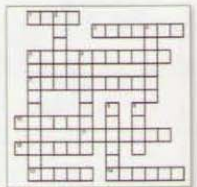
Across

- to have a difficult situation you have to deal with
- to get better or make something better
- how fast or slow something is
- the things that affect production or availability
- used for carrying the other items
- to have a problem
- the cause of something
- not do
- to stop or prevent something from happening

Down

- to get better or make something better
- the cause of something
- to have a problem
- to stop or prevent something from happening
- to have a problem
- to have a problem
- to have a problem
- to have a problem

Review 2

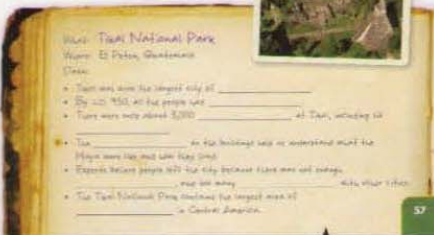


Vocabulary Review

activities reinforce the vocabulary from earlier units.

World Heritage Notes

Notes Completion. Scan the information on pages 58 and 59 to complete the notes.



World Heritage Notes preview content of World Heritage Site pages.

Tikal National Park

Location: El Peten, Guatemala
 Category: Natural and Cultural
 Status: World Heritage Site since 1987

Timeline:

- 3114–3113 B.C.: According to the Maya calendar, the first people first came to the Yucatán Peninsula.
- 400–300 B.C.: The Maya begin to settle in the region.
- A.D. 500: Tikal becomes the first great Maya city.
- A.D. 850–950: The Maya develop their own writing system.
- A.D. 1517: The Spanish arrive in Central America. They bring with them many diseases which kill 80 per cent of the native people.
- A.D. 1698: While visiting the ruins, a Spanish priest discovers the ruins of Tikal.
- A.D. 1839: Explorer John Lloyd Stephens and artist Frederick Catherwood discover the ruins of Tikal.
- A.D. 1956–1960: American and Guatemalan archeologists dig up more ruins of Tikal. They show the world of the time when we can see it. Tikal today.

Folktales from areas related to the World Heritage sites in the preceding spread introduce students to stories from cultures around the world.

Reading Comprehension

questions check students' understanding of the folktale.

A MAYAN FOLKTALE THE KING OF THE BIRDS

One day, the Great Spirit who guarded the Mayan world told the birds that they must choose a king.

Almost every bird thought it should be king. The only bird that stayed quiet was the quetzal. The quetzal wanted to be king, but his feathers were a dull brown, and he looked quite plain. He didn't think anyone would choose him.

The quetzal went to the road-runner, a very colorful bird, and said, "Your feathers are beautiful, but you are too busy being the messenger of the rains to become king. Lend me your feathers. I'll return them after I become king, and I'll share the wealth and fame with you."

At first, the road-runner said no. But the quetzal would not stop asking him. At last, the road-runner agreed.

One by one, the road-runner's feathers magically disappeared and then appeared on the clever quetzal's body. Soon, the quetzal's body and tail were a rich blue-green, his chest was bright red, and his back had turned a lovely glowing yellow.

The Great Spirit was very surprised by the quetzal's new beauty and chose him to be king of all the birds. From that day on, the quetzal was so busy being king, he had no time to return the road-runner's feathers. He soon forgot all about his promise to the road-runner.

Days later, the other birds found the road-runner hiding deep in the forest. He had no feathers, and he was very cold. He told the birds about the quetzal's promise.

The birds felt sorry for the road-runner, and each gave up a few feathers to cover him. That is why, today, the road-runner's feathers are such an odd mix of drab and faded colors, and why he always watches the Mayan roads. He is still looking for the quetzal that took away his feathers.

Reading Comprehension

Strategy: Sequencing. Number the events in the story on pages 60 and 61 from 1 (the first) to 8 (the last).

- The Great Spirit spoke to all the birds.
- The quetzal stayed quiet.
- The road-runner agreed.
- The quetzal went to see the road-runner.
- The road-runner looked for the quetzal.
- The quetzal's feathers became beautiful.
- The birds found the road-runner hiding in the forest.
- The quetzal became very busy.

Vocabulary Extension

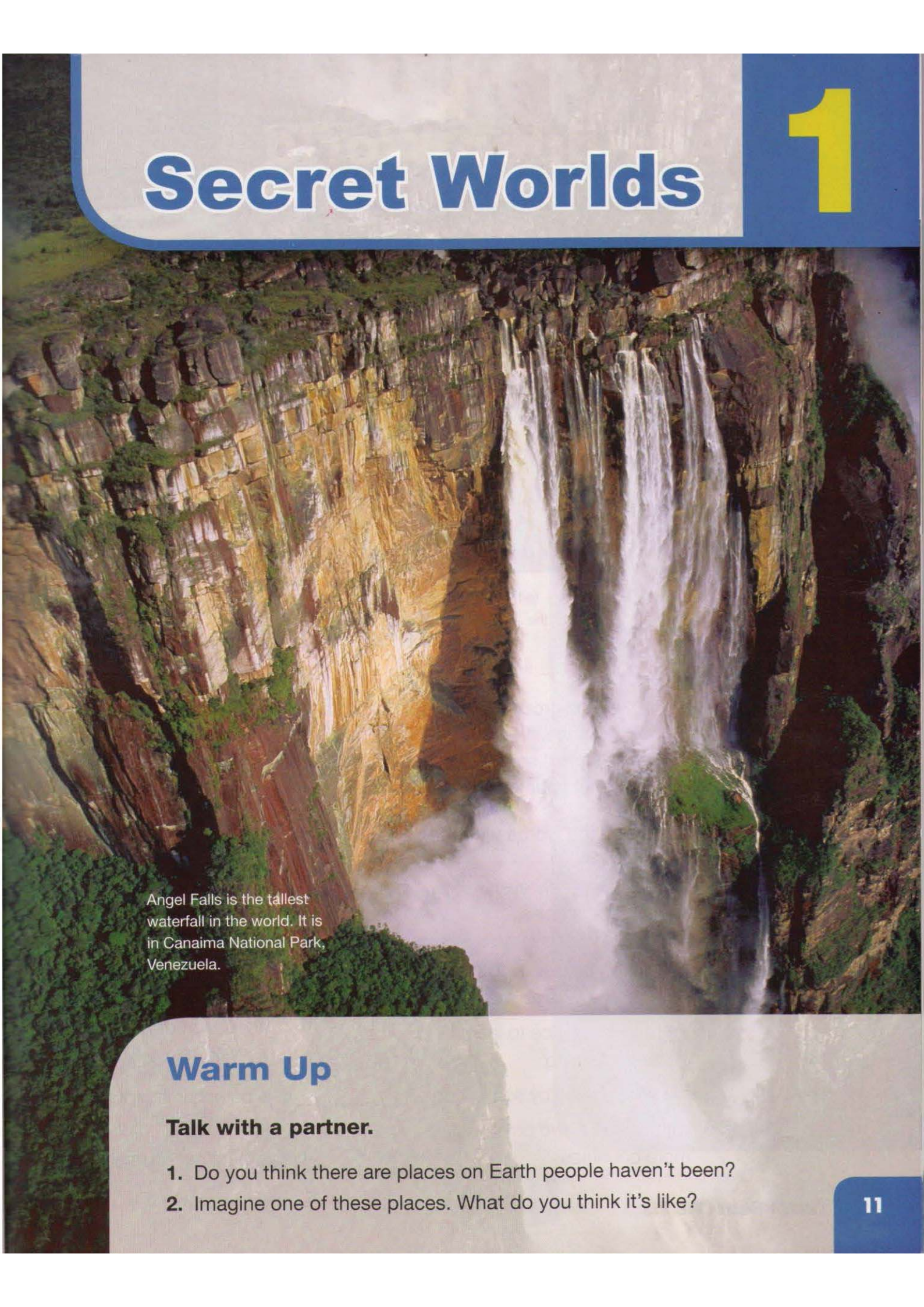
Vocabulary: Describing color. There are many words we can use to talk about colors. Circle the words in the folktale that describe color. Which are positive and which are negative?

- Cathy's hair was very (dull / beautiful). So she brushed it every day to make it shiny.
- The colors of a peacock's feathers are usually very (rich / plain).
- That shirt was originally (bright / drab) red. But after it was washed many times, it became so (colorful / faded) it was pink.
- Sam's room has a big rainbow on the wall. It's so (dull / colorful).
- We wanted the school to look warm and friendly, so we painted it a (drab / glowing) yellow.

Make reading an adventure online—anywhere, any time! Visit www.HeinleELT.com/readingadventures for self-study grammar, vocabulary, and reading activities. Watch the National Geographic videos from the series either inside or outside the classroom.

Secret Worlds

1



Angel Falls is the tallest waterfall in the world. It is in Canaima National Park, Venezuela.

Warm Up

Talk with a partner.

1. Do you think there are places on Earth people haven't been?
2. Imagine one of these places. What do you think it's like?

1A

A Hidden World



▲ The Foja Mountains of New Guinea. In the highest parts of these mountains, there are no people at all. Some of the animals here live nowhere else on Earth.

Before You Read

A Discussion. In 2008, a group of scientists found a “lost world” in the Foja Mountains of New Guinea. “It really was like crossing [back in time] . . . We were like kids in a candy store,” said one member of the group. What do you think they found? Talk about your ideas with a partner.

B Definitions. Match the words with their meanings.

- | | | | |
|-------------|----------------|-----------|------------------|
| 1. explore | 2. hardly ever | 3. unique | 4. impact |
| 5. discover | 6. species | 7. member | 8. international |

- | | |
|--|--|
| _____ a. scientists use this word to talk about a group of animals or plants | _____ e. to be the first to find something or know about something |
| _____ b. to travel to a place to learn about something | _____ f. the only one of something |
| _____ c. the effect made by something | _____ g. a person in a group or on a team |
| _____ d. with or about two or more countries | _____ h. almost never; rarely |

Reading

Strategy: Scanning. How many new kinds of animals did the team of scientists find?

DISCOVERY IN THE FOJA

- 1 In 2008, a group of scientists went to the Foja Mountains in New Guinea. “The mountains are **unique**. There are no roads, no people—and almost no human **impact**,” one group **member**
- 5 said. In just a few weeks, the **international** team found at least 12 different new **species**. These species live only in the Foja Mountains. Here are a few of the animals they **discovered**.

- Biologist¹ Kristofer Helgen found this tiny
- 10 tree mouse, which travels from one tree to another. “It uses **them** almost like a highway² in the forest. It **hardly ever** goes down and touches the ground,” he says.

- The blossom bat is a bat with a really long tongue.
- 15 It uses it to drink nectar from flowers. It’s “kind of like the hummingbird³ of the bat world,” says Helgen.

- The scientists also found a frog, which they called the Pinocchio⁴ frog because of its long nose. They
- 20 were very lucky—they caught one in the camp kitchen. During the whole trip, this was the only one they saw.

- The group found many amazing things. However, there are still many more mysteries waiting for
- 25 the next team of **explorers**.

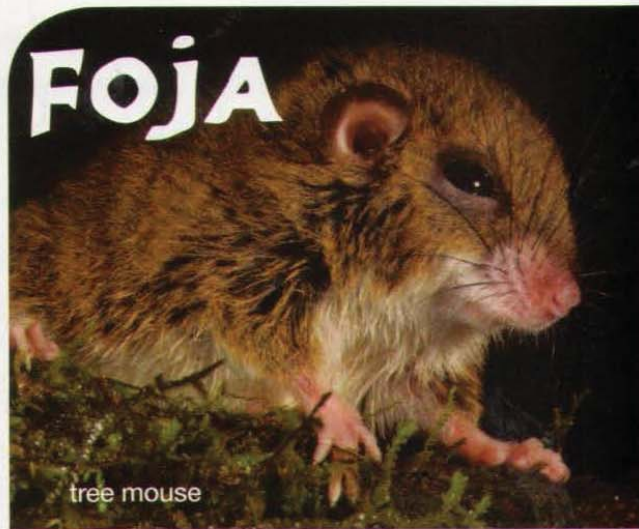
¹ A **biologist** is a scientist studying things like plants and animals.

² A **highway** is a big road.



▲ ³ a hummingbird

⁴ **Pinocchio** ► has a long nose.



tree mouse



tongue

blossom bat



Pinocchio frog

Reading Comprehension

A Circle the correct answer.

Detail 1. Why are the Foja Mountains unique?

- a. People have not really affected the area.
- b. Animals use the trees like roads.
- c. There are only 12 animal species living there.

Reference 2. In line 11, **them** means the _____.

- a. trees
- b. tree mice
- c. highways

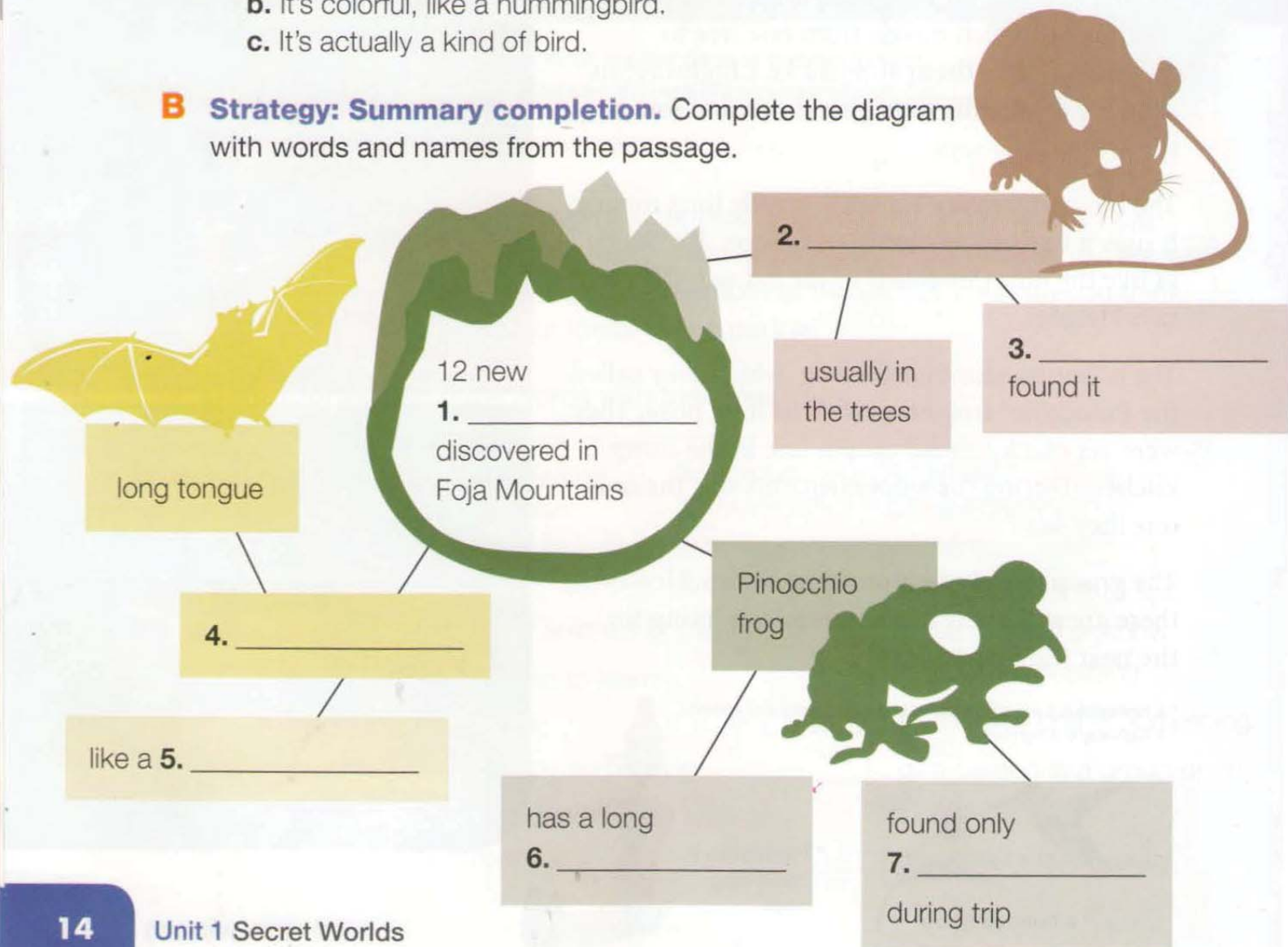
Vocabulary 3. According to the passage, the tree mouse is very _____.

- a. long
- b. small
- c. heavy

Inference 4. What does Helgen mean when he says that the blossom bat is “the hummingbird of the bat world”?

- a. It uses its tongue to drink, like a hummingbird.
- b. It's colorful, like a hummingbird.
- c. It's actually a kind of bird.

B Strategy: Summary completion. Complete the diagram with words and names from the passage.



Language Practice

A Vocabulary: Completion. Complete the sentences using a word from the box.

explorer hardly ever unique impact
discover species member international

Word Link

inter- = between:
international,
intercultural, interconnect,
interchange

1. We call the human _____ *Homo sapiens*.
2. In 1953, James Watson and Francis Crick were the first scientists to _____ the shape of DNA.¹
3. Singapore is _____ because it is the only place that is an island, a city, and a country.
4. Vatican City is not a(n) _____ of the United Nations.
5. Christopher Columbus was a famous _____ in the 15th century.
6. Tigers _____ attack people.
7. Cutting down trees is having a big _____ on the rain forests of the world.
8. _____ air travel is easier and less expensive than it was 50 years ago.



B Grammar: Relative clauses with which. Read the example sentences. Sentence **b** is from the passage.

- a. The scientists also found a frog. They called the frog the Pinocchio frog.
- b. The scientists also found a frog, **which** they called the Pinocchio frog.
- c. The blossom bat is unique. It drinks like a hummingbird.
- d. The blossom bat, **which** drinks like a hummingbird, is unique.

Use **which** to join sentences 1 to 3. Then make one more sentence using **which**.

1. The team found a tiny tree mouse. The mouse travels from one tree to another.

2. New Guinea is the world's second largest island. It has many unique species.

3. The Earth is becoming more crowded. It has about 7 billion people on it.

4. _____

1B

The Lost World



Sir Arthur Conan Doyle (1859–1930) was a Scottish doctor and author. ► He is most famous for his stories about the detective Sherlock Holmes. His novel *The Lost World* (1912) is also popular. Many movies, books, and other novels use the ideas from *The Lost World*.

Before You Read

A Discussion. The passage on the next page is from *The Lost World*. In the story, three men go to South America. While they are there, they discover a hidden forest. What do you think happens next? Look at the picture and talk about your ideas with a partner.

B Definitions. Match the words with their meanings.

- | | | | |
|-----------|------------------|----------|-------------|
| 1. follow | 2. track | 3. stay | 4. enormous |
| 5. fake | 6. extraordinary | 7. truth | 8. chance |

_____ a. to be in one place and not leave

_____ b. very unusual

_____ c. very, very big

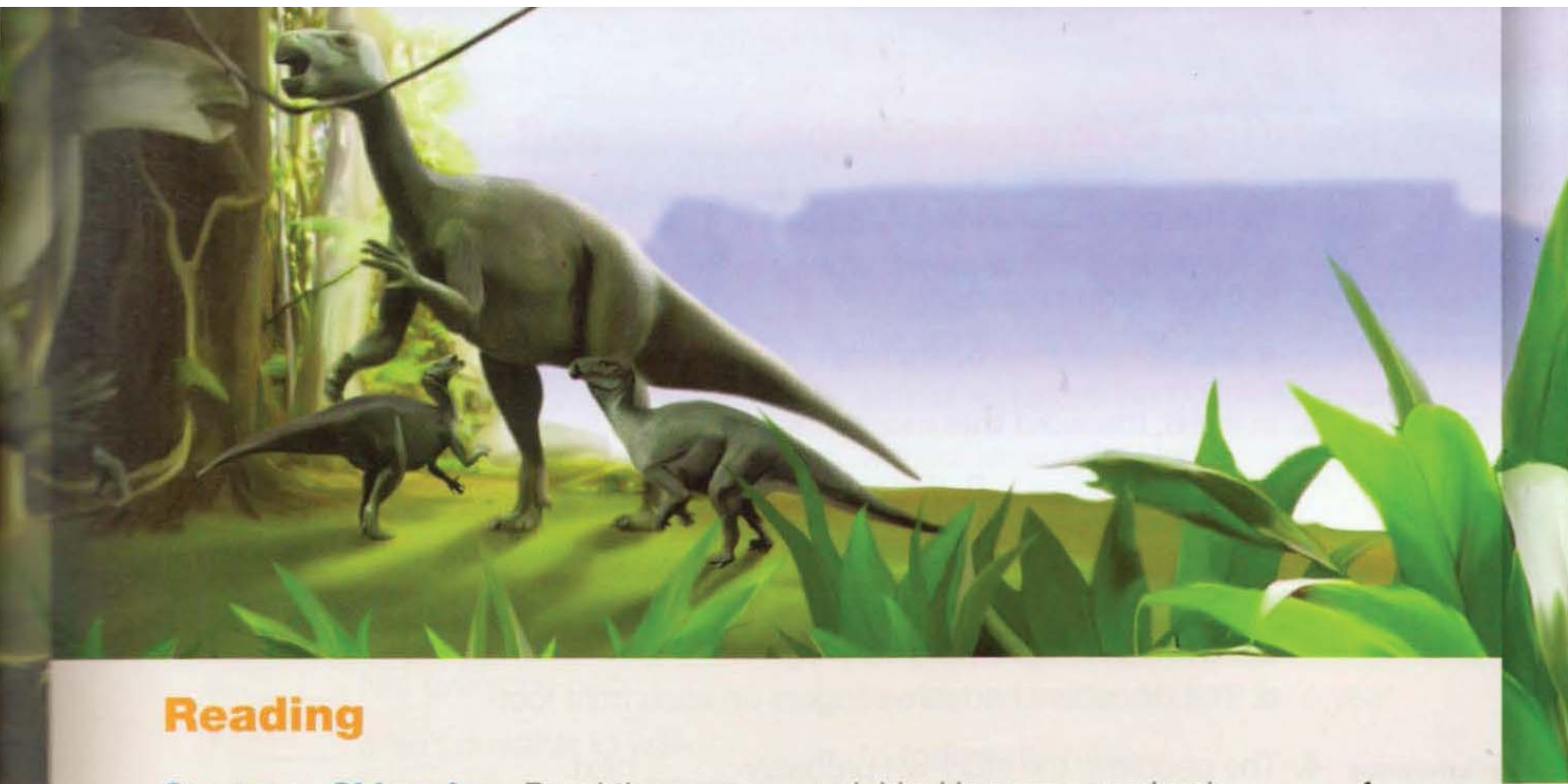
_____ d. the possibility of something happening

_____ e. a mark left on the ground by an animal or person's feet

_____ f. real; not a lie

_____ g. to go or come after a person or thing

_____ h. not real



Reading

Strategy: Skimming. Read the passage quickly. How many animals did they find? _____

An Extraordinary Find

1 It took us almost no time to find some **signs**. When we found them, we knew there were amazing things close by. Suddenly, Lord John stopped walking.

“Look at this!” he said.

5 There was an **enormous** three-toed **track** in the soft mud in front of us. What animal leaves such a mark? Whatever it was, it was in the forest.

“**This** is new—the animal walked here less than ten minutes ago. And look!” Lord John said excitedly. “This is from a little one!”

“But what animal?” I asked.

“A dinosaur. Nothing else can leave such a track.”

10 We stood, amazed, and then we **followed** the tracks through the trees and into an open area. There we found five of them—two big and three little ones. They were enormous, with the babies as big as elephants. They were gray and had scales, like a lizard, so in the sun, they shimmered.¹ They all had powerful tails, huge² three-toed back feet, and small five-fingered front feet. They were the most **extraordinary** animals, and we **stayed** low
15 in the bushes, watching them.

“What will the people in England say?” I asked

“They will say you are not telling the **truth**,” Lord John replied.

“But with photos?”

“They will say they are **fakes**!”

20 “What about taking the animals?”

“Ah. Then we might have some **chance**!”

¹ When something **shimmers**, it shines with an unclear light, not brightly.

² If something is **huge**, it is very big, or enormous.

Reading Comprehension

A Circle the correct answer.

Vocabulary 1. In line 1, **signs** means _____.

- a. tracks b. animals c. dinosaurs

Reference 2. In line 6, the word **this** means the _____.

- a. forest b. mark c. mud

Detail 3. Which of these sentences is true?

- a. They found five adult dinosaurs.
b. All five dinosaurs were very big.
c. The dinosaurs had three fingers on each front foot.

Inference 4. The people in the story will probably _____ next.

- a. try to catch a dinosaur
b. try to leave the forest
c. run away from the dinosaurs

B Strategy: Sequencing. Read the story again. Put the pictures in order from 1 to 5.



Language Practice

A Vocabulary: Matching. Match the two halves of the sentences. Then check (✓) the sentences you agree with. Share your answers with a partner.

- | | |
|--|---|
| 1. _____ Some people can't tell | a. the truth is important. |
| 2. _____ Most people think telling | b. almost as big as the U.S. —it's enormous! |
| 3. _____ A good way to learn a language is | c. without leaving tracks . |
| 4. _____ Teachers often tell us | d. the chance to study English. |
| 5. _____ The Sahara Desert is | e. when something is fake . |
| 6. _____ Not everyone has | f. was an extraordinary event. |
| 7. _____ It isn't possible to walk in a forest | g. to stay in another country for a year. |
| 8. _____ Going to the moon for the first time | h. to follow the rules. |

B Grammar: Making predictions with *might*. Read these sentences. Sentence **a** is from the passage.

- a. Then we **might** have some chance!
- b. I **might** go to Australia next year.
- c. I **might** not go to work next Monday morning. My grandfather is coming to visit.

Complete the sentences with your ideas. Share your answers with a partner.

1. Next year I might _____.
2. In the next 5 years, cell phones might _____.
3. In 20 years, computers might _____.
4. I might not _____.

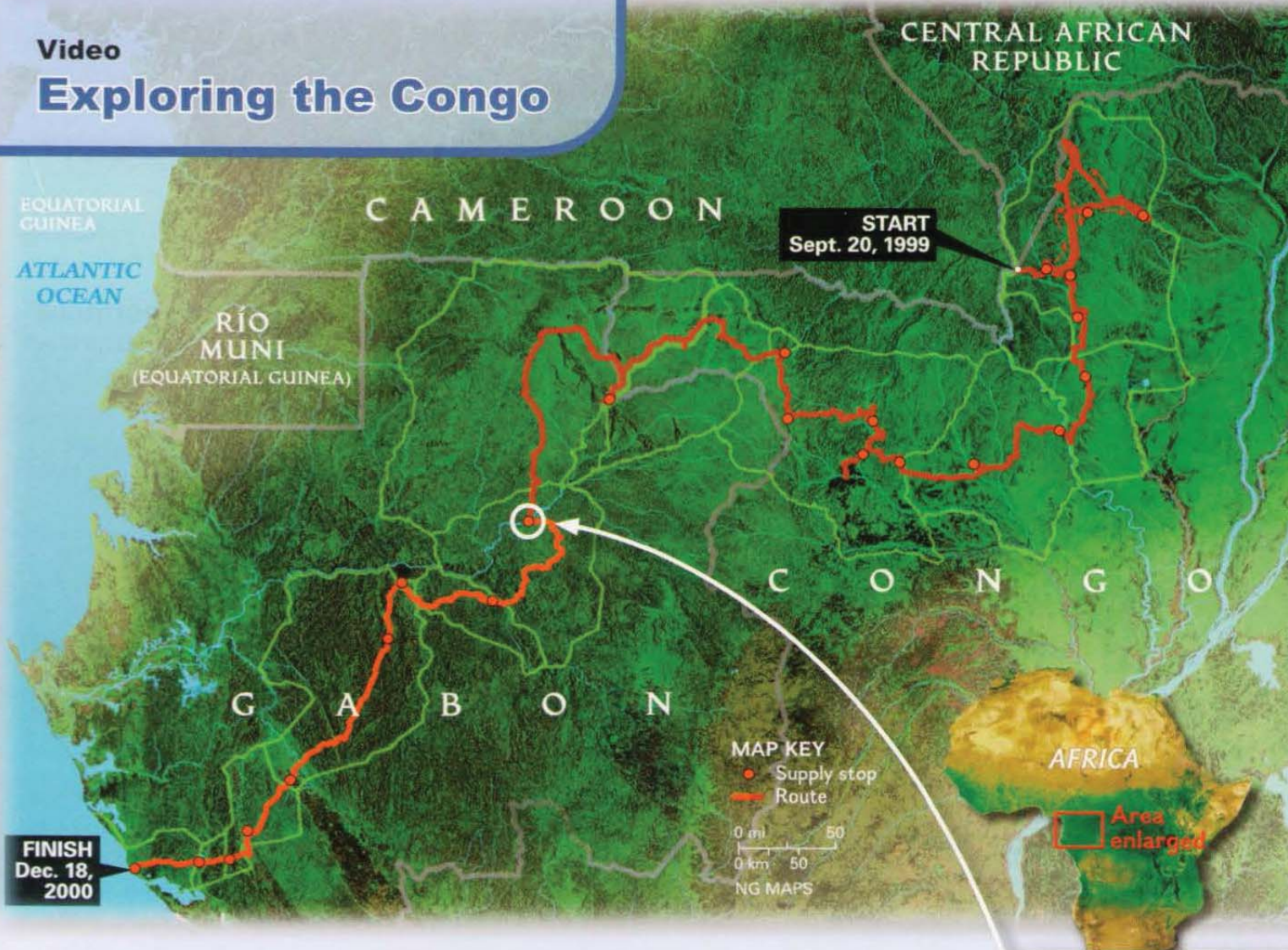
Word Partners

Use **chance** with:

(*n.*) chance **of success**, chance **of winning**
(*v.*) **give someone/something** a chance, **have** a chance, **miss** a chance, **get** a chance

Video

Exploring the Congo



A Preview. Read the quote below. What do you think Michael Fay means by “we can forget about it”?

“What I’m trying to do . . . is to show the world that we’re just about to lose [the forest] . . . [and], if we don’t do something now . . . we can forget about it.”

B As you watch. Circle the correct answer in each sentence.

1. Michael Fay’s trip was called the (**Megatransect** / **Congo Trek**).
2. Michael Fay’s team walked (**about 1,000** / **over 1,900**) kilometers.
3. The Congo Basin contains about half of Africa’s (**plant and animal species** / **forests**).
4. The trip took about (**8** / **15**) months.

C Talk with a partner. What can you do to help save the plants and animals in Africa?



▲ Michael Fay (left) and other members of his team cross Kongou Falls, Gabon.

Dangerous Jobs

2



▲ Scientists study ice and sea plants in Antarctica.

Warm Up

Talk with a partner.

1. What job(s) do you want to do?
2. Some jobs are not very safe. Can you think of any?

2A

Firefighters



▲ Firefighter Lee Nelson works at night in a forest to stop a wildfire, Montana, U.S.A.

Before You Read

A Discussion. Wildfires are fires in places like forests. The fires move very quickly. Firefighters cannot stop the wildfires very easily. Does your country ever have wildfires? Talk about them with a partner.

B Definitions. Match the words with their meanings.

- | | | | |
|---------------|------------|---------------|--------------|
| 1. drop | 2. heat | 3. especially | 4. difficult |
| 5. reach (v.) | 6. destroy | 7. fight | 8. nature |

_____ a. to try to stop something or someone

_____ b. more than usual; very

_____ c. to get to a place

_____ d. to let something go from a high place

_____ e. not easy

_____ f. everything not made by humans (e.g. plants, animals, rivers)

_____ g. the energy to make things hotter

_____ h. to kill or hurt something

Reading

Strategy: Identifying the main idea.

Quickly skim the passage below.
What is the passage mainly about?

- a. how fires start
- b. how firefighters stop fires
- c. the kind of people who become firefighters



Fighting a Wildfire

▲ A firefighter works to save a burning building in California, U.S.A.

- 1 Smoke fills the sky. The day is as **dark as night**. **Heat** makes it hard to breathe.¹
This is the world of a wildfire fighter!

- Wildfires are a part of **nature**. But, as one firefighter says, “Fire is not a problem. People living near fire—that’s the problem.” A wildfire can **destroy** everything in its way. But there are ways to **fight** it.

By air

- Smokejumpers are often the first firefighters to **reach** a fire. To get closer, they jump from a plane.
- 10 They are **especially** important when the area is difficult to walk to. If smokejumpers can’t stop a fire in 24 hours, other firefighters join them. This second group **drops** water on the fire from an airplane.



▲ A Russian smokejumper jumps from an airplane to reach a fire.

On the land

- 15 On the ground, firefighters work together to stop the fire. First, one group digs a fire line. This is a long deep ditch. It is **difficult** for the fire to cross this line.

Then, while those firefighters dig, others start a backfire. They burn the dry grass and leaves² between the wildfire and the fire line. When the wildfire comes, there is nothing for it to **use as fuel**.

- 20 Other firefighters cut down dead trees. That way the fire can’t move to other trees. Firefighters risk their lives³ to keep people safe. Their job takes hard work, and it takes courage.⁴



² leaves

¹ When you **breathe**, you take air in and out of your body.

³ When you **risk** your **life**, you do something unsafe, where you might die.

⁴ You show **courage** by doing something even though you know it is difficult or unsafe.

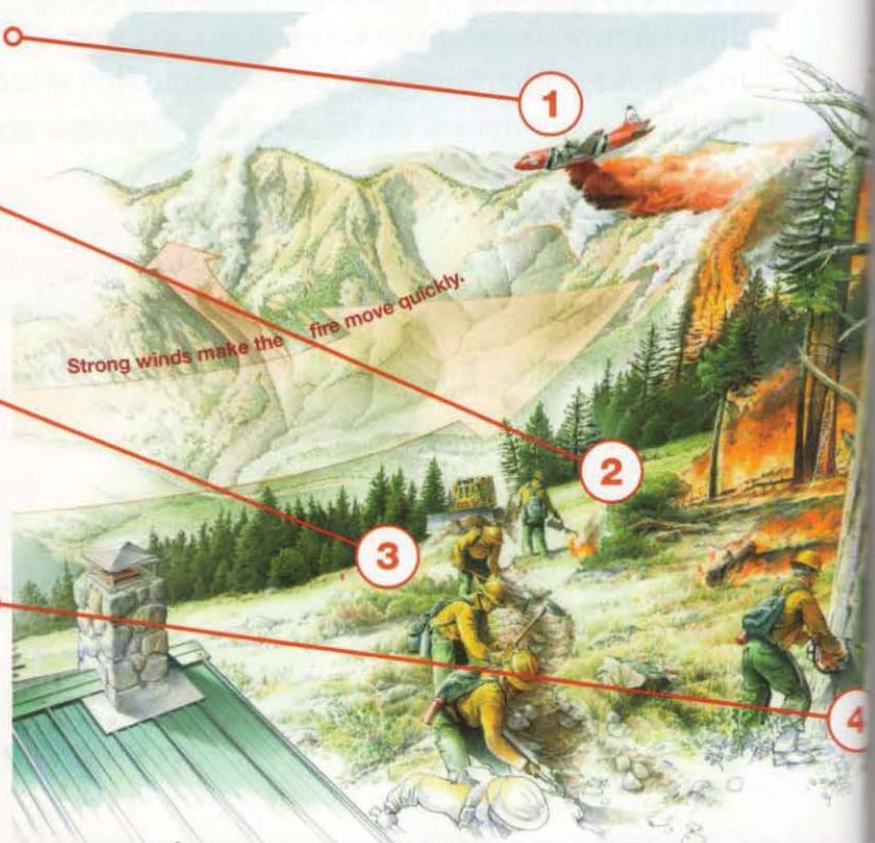
Reading Comprehension

A Circle the correct answer.

- Vocabulary** 1. In line 1, the phrase **dark as night** means it was _____.
a. a very dark night
b. very early morning
c. day time but dark
- Inference** 2. When the firefighter says, "Fire is not a problem. People living near fire—that's the problem," what does he mean?
a. Fire is natural, but it's dangerous to people living near it.
b. Fires in forests are not a big problem, but fires in cities are.
c. Fighting fires should be the job of people living near fires.
- Paraphrase** 3. In line 19, the phrase **use as fuel** can be replaced by _____.
a. drop b. fire c. burn
- Purpose** 4. Which of these statements about the purpose of the passage is correct?
a. It tells us why fires aren't a problem.
b. It shows us how fires destroy everything.
c. It explains how firefighters fight wildfires.

B Strategy: Labeling. Read the passage again. Complete the labels with words from the passage.

1. Firefighters _____ from an airplane.
2. Firefighters start a(n) _____ by burning _____ and leaves.
3. Firefighters dig a(n) _____. It is difficult for the fire to _____ it.
4. Some firefighters cut down _____ so the fire can't _____.



Language Practice

A Vocabulary: Words in context. In each sentence, circle the best answer.

1. The (**hot** / **heat**) from the sun makes life on Earth possible.
2. In the 18th century, it took several months for travelers from Europe to (**reach** / **follow**) North America.
3. Everyone knows it is (**difficult** / **unique**) to climb Mount Everest.
4. In many parts of Australia, wildfires are a problem, (**especially** / **very**) in summer.
5. Lions from different groups often (**fight** / **chance**) each other.
6. In many sports, when you (**drop** / **fall**) the ball, the other team gets it.
7. Many people worry that we are (**fighting** / **destroying**) too many forests.
8. The Grand Canyon¹ shows us how beautiful (**heat** / **nature**) can be.

¹ the Grand Canyon ▶



B Grammar: Showing cause and effect using if.

Read the example sentences. Sentence **a** is from the passage.

- a. **If** smokejumpers can't stop a fire in 24 hours, other firefighters join them.
- b. **If** other firefighters cut down dead trees, the fire can't move to other trees.

Complete the sentences with your own ideas. Share your answers with a partner.

1. If people destroy forests, _____.
2. If you study English hard, _____.
3. If _____.

Word Partners

Use **fight** with:

(n.) fight **crime**, fight **fire**, fight **a war**

(v.) **stay and** fight, **join a** fight, **lose a** fight, **win a** fight, **have a** fight, **start a** fight



▲ Strong wind and rain from a **hurricane** hit Florida, U.S.A.
Meteorologists try to predict when storms like hurricanes will come.

Before You Read

A Discussion. On the next page is an interview with a scientist, Dr. Robert Rogers. He is a meteorologist—he studies the weather. Do you think his job is exciting? Talk about your ideas with a partner.

B Definitions. Match the words with their meanings.

- | | | | |
|-------------|-------------|--------------|------------|
| 1. article | 2. average | 3. dangerous | 4. depends |
| 5. fly (v.) | 6. location | 7. exactly | 8. measure |

_____ a. to go through the air

_____ b. usual, not special

_____ c. not safe

_____ d. to find out how big something is

_____ e. a story in a newspaper or magazine

_____ f. A meter is _____ 100 centimeters.

_____ g. a place

_____ h. When one thing changes if another thing changes, the first thing _____ on the second.

Reading

Strategy: Predicting.

Quickly read only the interviewer's questions below. How do you think Dr. Rogers answered? Read the passage and check your predictions.



▲ An airplane goes into the middle of a hurricane.

▲ Dr. Rogers studying hurricanes

Meet a Meteorologist

1 **Interviewer** What is an **average** day at your job like?

2 **Rogers** That **depends** on what time of year it is. For most of the year, I work in my office. I **do research** on the computer and read and write scientific **articles**. But, during hurricane season,¹
5 I get the chance to fly into hurricanes.

8 **Interviewer** You fly into hurricanes?

9 **Rogers** Yes. We fly into storms to **measure** them. One of our jobs is to find out **exactly** the **location** of the center of storms. In a storm, it's really exciting. In one 2005 hurricane, I had a clipboard and a can of soda. Suddenly
10 they were **flying** in the air—near my face!

13 **Interviewer** Is it only you on the airplane?

14 **Rogers** No, there are usually 15 to 18 people on the plane. These include² pilots, engineers, and the scientific crew. I'm part of that last group, which usually has two to five people.
15

18 **Interviewer** Are hurricanes always bad?

19 **Rogers** Hurricanes are very **dangerous**, but they are also important. They move heat from the warm³ oceans toward the north and south poles.⁴ No hurricanes means some parts of the world don't get rain. So we need
20 hurricanes, too.

⁴ the north pole



⁴ the south pole

¹ **Hurricane season** is the time of year when most hurricanes happen.

² When a group **includes** something or someone, then that thing or person is part of the group.

³ Something **warm** has some heat, but not enough to be hot.

Reading Comprehension

A Circle the correct answer.

- Vocabulary** 1. In line 3, the phrase **do research** means to _____.
a. write articles b. find information c. fly on planes
- Detail** 2. How many scientists are on the airplane?
a. 2–5 b. 10–16 c. 15–18
- Detail** 3. According to Rogers, hurricanes help move _____ to other parts of the world.
a. oceans b. the poles c. heat
- Inference** 4. Which statement is probably true?
a. Rogers wants people to know hurricanes are safe.
b. The interviewer wants to be a meteorologist.
c. The interviewer is surprised to hear that Rogers flies into hurricanes.

B Strategy: Notes completion.

Complete the notes below with one or two words from the passage.



A Meteorologist's Main Work

Do (1) _____.

Read and (2) _____ scientific articles.

Study hurricanes by (3) _____ into them.

On the Plane

Goes with (4) _____ (5) _____, and the scientific crew.

Finds the center of the (6) _____.

Hurricane Facts

Although a hurricane is not safe, it is also (7) _____.

▲ This is the view from a weather plane. It shows Hurricane Katrina just before it hit the United States.

Language Practice

A Vocabulary: Words in context. In each sentence, circle the best answer. The words in **blue** are from the passage.

- Which of these has **articles**?
a. a newspaper b. an airplane
- Which of these is more **dangerous**?
a. a cow¹ b. a tiger
- When something is cut **exactly**, it _____ cut carefully.
a. is b. isn't
- Which of these can **fly**?
a. a boat b. an airplane
- An **average** thing is usually _____ to find.
a. easy b. difficult
- You use a _____ to **measure** things.
a. ruler² b. notebook³
- You can find the **location** of something on _____.
a. a mark b. a map
- The language a person speaks usually **depends on** _____.
a. their name b. where they come from



¹ a cow



² a ruler



³ a notebook

Word Partners

Use **average** with:

average **age**, **the** average **person**,
average **number**, average **cost**,
average **price**, average **weight**

B Grammar: Using do with nouns. Read these sentences.

- Rogers **researches** hurricanes on the computer.
- Rogers **does research** about hurricanes on the computer.
- I **read** last night.
- I **did some reading** last night.

Answer these questions so they are true for you.

- Who **does** the **cleaning** in your house? _____
- Did you **do** any **studying** last night? _____
- How often do you **do exercise**? _____
- Which do you enjoy more: **doing the ironing**, or **doing the dishes**?

Smokejumper School



▲ Smokejumpers parachute from a plane as part of their training.

A Preview. Read the quote below. What do you think the speaker means?

“A smokejumper’s job is dangerous three times. First, when they fly. Second, when they jump. Third, when they go to the fire.”

B As you watch. Are these statements about the video true (T) or false (F)?

1. There are only a few wildfires in the U.S.A. every year. T F
2. At smokejumper school, firefighters learn how to jump from planes. T F
3. Smokejumpers are often scared when jumping from a plane. T F
4. Small wildfires are just as bad for nature as large fires. T F
5. Smokejumpers work in teams. T F
6. People usually become smokejumpers for the money. T F

C Think about it. Why do you think some people choose to do dangerous jobs?

Vocabulary Review

A Odd word out. One word in each group is a different part of speech to the others. Circle the different words.

1. impact / unique / explorer / species
2. travel / international / drink / discover
3. chance / truth / follow / fake
4. scales / enormous / huge / extraordinary
5. fight / reach / drop / heat
6. difficult / join / destroy / burn
7. location / article / measure / nature
8. track / especially / exactly / hardly ever

B Word search. Now look for the words you circled, and circle them in the puzzle.

R	B	W	E	F	L	Z	H	P	S	F	F	L
S	S	A	B	O	O	M	N	K	K	W	A	E
C	D	B	F	L	J	D	M	F	A	N	C	W
A	R	L	V	L	R	S	F	J	O	R	H	X
L	J	N	L	O	U	W	Z	I	D	U	V	Q
E	K	G	O	W	L	I	T	S	I	H	V	U
S	D	U	N	K	R	A	V	N	F	Y	O	V
F	K	R	D	M	N	I	K	B	F	J	U	H
W	Z	Q	H	R	Y	P	Q	G	I	M	N	Z
J	U	K	E	E	Z	T	R	A	C	K	I	E
G	O	T	Y	B	P	A	E	E	U	A	Q	X
T	N	L	B	E	H	E	A	T	L	I	U	C
I	M	E	A	S	U	R	E	S	T	Z	E	F

World Heritage Notes

Notes completion. Scan the information on pages 32 and 33 to complete the notes.



What: Komodo National Park

Where: East Nusa Tenggara Province, _____

Data:

- Komodo National Park was founded in _____, to protect the _____ living on Komodo Island.
- What is left of the Ata Modo culture is known only through _____ and _____.
- The Komodo dragon is the world's largest _____. An adult can grow up to _____ meters long, and weigh more than _____ kilograms.
- Komodo dragons are good at _____ and _____.
- When hunting, a Komodo dragon waits until its prey is close. Then it attacks, using its _____ to jump forward. It has _____ teeth.
- Today there are only _____ Komodo dragons in the park.

Komodo Island

Site: **Komodo National Park**

Location: **East Nusa Tenggara Province, Indonesia**

Category: **Natural**

Status: **World Heritage Site since 1991**



Komodo National Park is located in Indonesia, between the islands of Sumbawa and Flores. When it was founded in 1980, the park's main purpose was to protect the unique Komodo dragons living on the island of Komodo. However, over the years, the park has become bigger. Now, it protects other islands as well as the beautiful coral reefs that surround them.

Today, more than 45,000 people visit the park every year. However, only about 4,000 people actually live within the park. Most of these people are fishermen, originally from surrounding islands. Descendants of the original people of Komodo, the Ata Modo, still live in Komodo. But, sadly, their culture and language is slowly disappearing. What is left of the Ata Modo culture is known only through stories and legends told to each new generation of Komodo islanders.



The Komodo Dragon

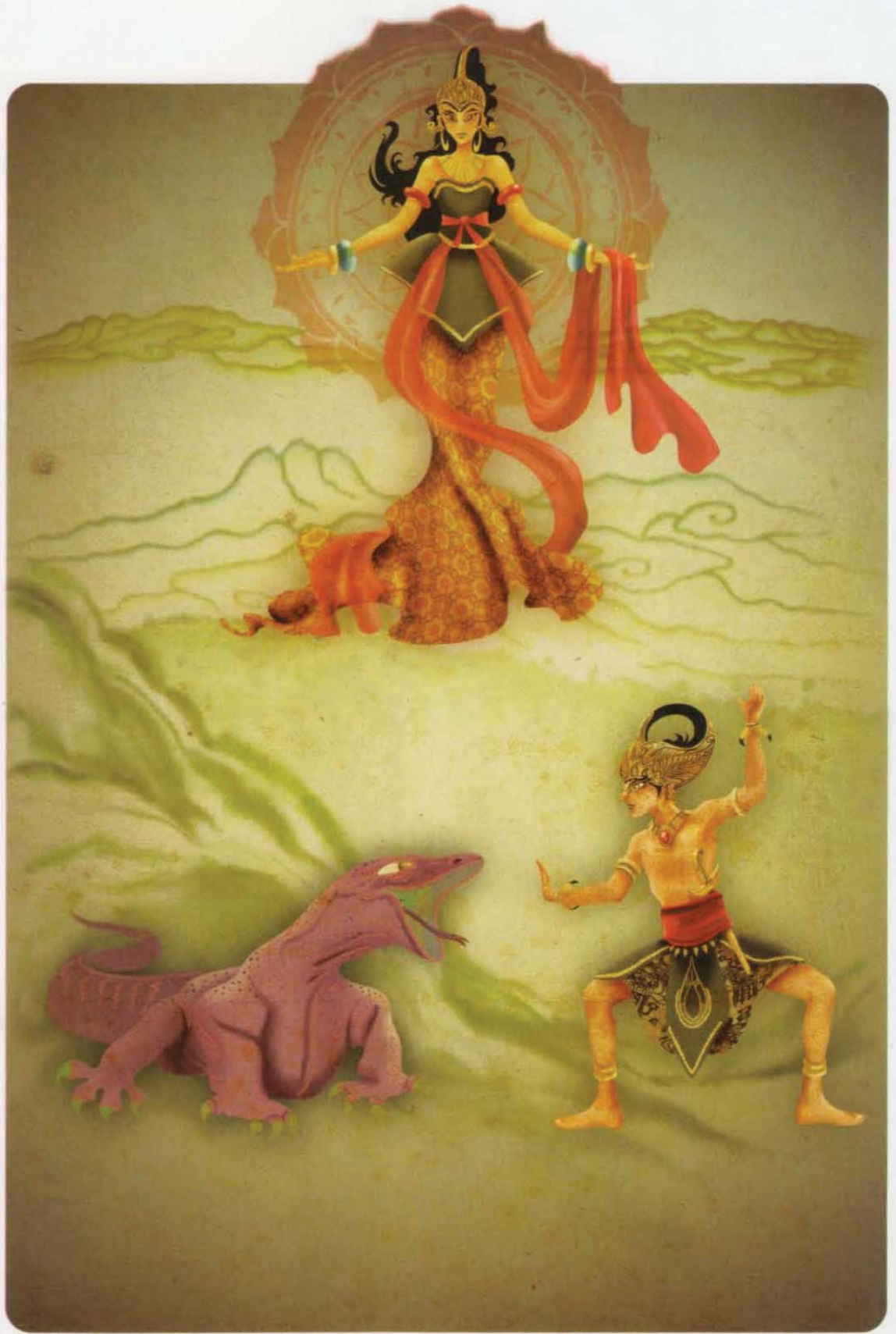
The Komodo dragon is the world's largest living lizard. An adult can grow up to three meters long, and weigh more than 130 kilograms.

They will eat almost anything, including dead animals, smaller komodos, and even large water buffalo. They have even been known to attack humans. When hunting, a Komodo dragon often lies down and waits until its prey is close. Then it attacks, using its

powerful legs and sharp teeth. Komodo dragons will often attack an animal, and then let it go. Then, they will quietly follow the hurt animal for a long time, waiting for the dangerous bacteria in the dragon's saliva to kill it.

Today, there are about 3,000 to 5,000 Komodo dragons in the park. However, they are endangered because the areas where they live are being destroyed as more people come to live on the islands.





An Indonesian Folktale

A Legend of Komodo Island

1 Once upon a time, on Komodo Island, there lived a princess called Putri Naga. Some called her the Dragon Princess. Putri Naga and her husband, Najo, had two children, a pair of twins.¹

Putri Naga's children were special. The first was a boy, and she named him
5 Si Gerong. However, Si Gerong's twin was not a human child, but a dragon. Putri Naga named her Orah. To keep her dragon daughter safe, Putri Naga took her away. So Orah grew up in the forests, far away from her brother.

One day, many years later, Si Gerong was hunting in the forests. He was a
10 good hunter, and soon he had killed a deer with his **spear**. He was about to pick the deer up when a huge dragon came out of the trees and started to eat it.

Si Gerong was surprised, but he didn't back away. He lifted his spear to fight
the dragon. Suddenly, a spirit came out of the forest and held him back. It
was the spirit of his mother, Putri Naga, who had died many years before.

15 "Stop, Si Gerong!" she said. "Do not kill the dragon. That is your sister. Her name is Orah." Putri Naga told Si Gerong and Orah that they should live on the island together in peace.

That is why, from that day, the people of Komodo Island have always
protected these huge dragons. It is also said that no dragon on Komodo
20 Island has ever killed a person living on the island.

¹ **Twins** are two children born at the same time to the same mother.

Reading Comprehension

Circle the correct answer.

Detail 1. Who was Najo?

- a. Putri Naga's dragon b. Putri Naga's son c. Putri Naga's husband

Vocabulary 2. What is a **spear** (line 9) usually used for?

- a. hunting and fighting
b. cooking food
c. making music

Inference 3. Why did Putri Naga need to take her daughter away?

- a. The people on Komodo Island would kill the child.
b. Si Gerong didn't like his sister.
c. She thought her daughter would kill Si Gerong.

Detail 4. What was Si Gerong doing in the forest?

- a. looking for Orah b. hunting deer c. talking to his mother's spirit

Purpose 5. What is the purpose of this folktale?

- a. It teaches brothers and sisters not to fight.
b. It teaches children to live in peace with the dragons.
c. It teaches children how to hunt in the forests.

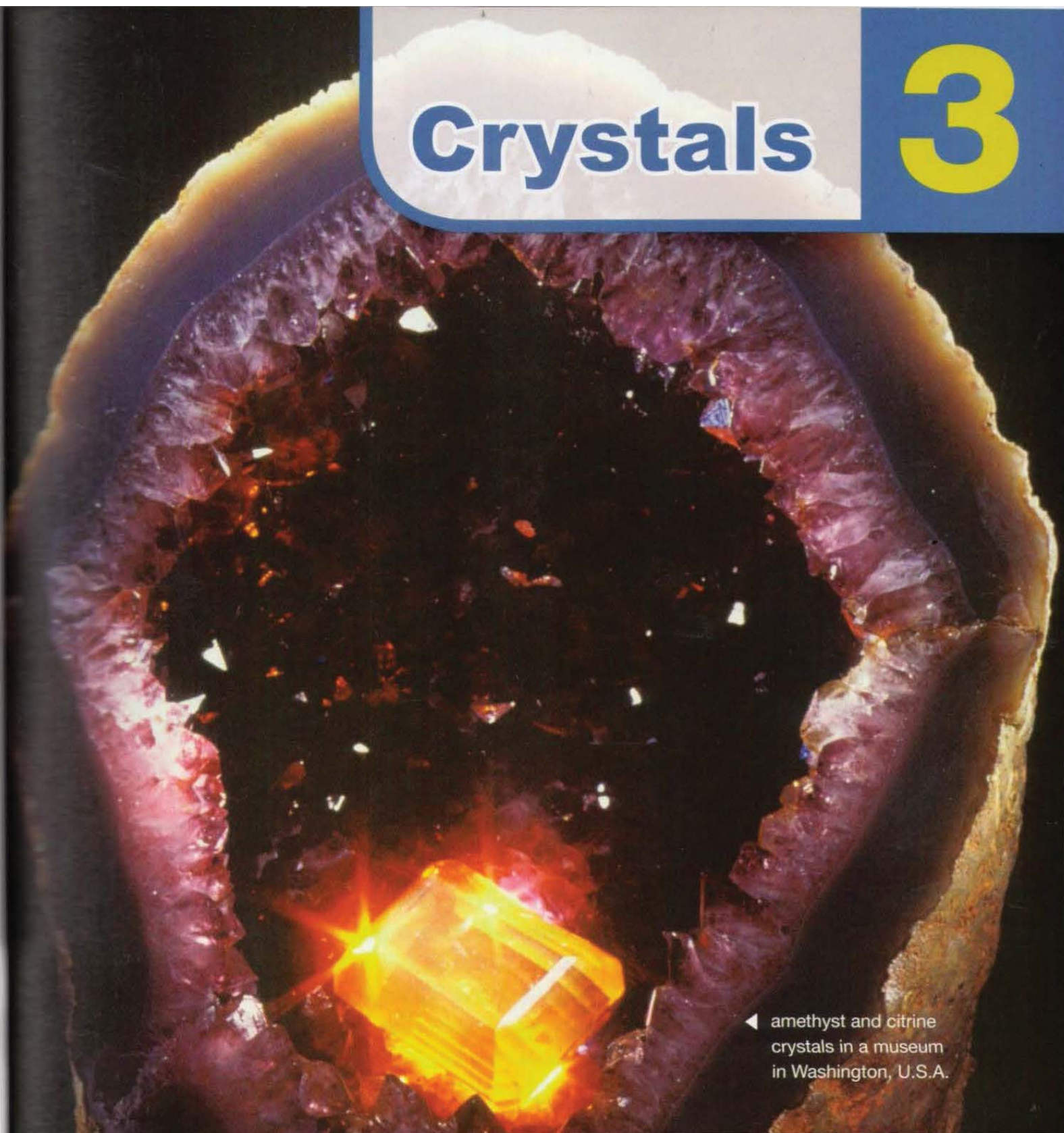
Vocabulary Extension

Vocabulary: Phrasal verbs. Choose the correct preposition to complete each phrasal verb. Then circle the phrasal verbs in the folktale.

1. If they are well trained, dogs and cats can live (**together** / away / out) without fighting.
2. That box is really heavy. Could you help me pick it (out / **back** / up)?
3. I was born in the U.S., but I grew (out / up / **away**) in Indonesia.
4. If you see a bear in the woods, you should back (out / **away** / **together**) very slowly.
5. After the show was over, the people came (**away** / **back** / out) of the theater smiling.
6. When famous people arrive at the airport, police officers often have to hold (on / up / **back**) their fans.
7. My mother said that if I don't do my homework, she's going to take (**away** / off / after) my video games.

Crystals

3



◀ amethyst and citrine crystals in a museum in Washington, U.S.A.

Warm Up

Talk with a partner.

1. What do you know about crystals? What colors can crystals be?
2. How big do you think the biggest crystals are?

3A

Crystal Palace



▲ The Cave of Crystals is deep inside a mountain in northern Mexico. Until 2000, no one knew about it. But then people discovered it—and its amazing crystals!

Before You Read

A Discussion. Look at the photograph above. Would you like to visit this cave? Talk about your ideas with a partner.

B Definitions. Match the words with their meanings.

- | | | | |
|------------|-----------|----------------|---------------|
| 1. prepare | 2. wear | 3. conditions | 4. protection |
| 5. visitor | 6. across | 7. temperature | 8. enough |

- _____ a. from one side to the other
_____ b. a person going to a place or to see another person
_____ c. as much as you need
_____ d. something to keep someone from getting hurt

- _____ e. You can _____ a shirt, shoes or a hat.
_____ f. how hot or cold something is
_____ g. to do what you need to do before you start something
_____ h. how something is

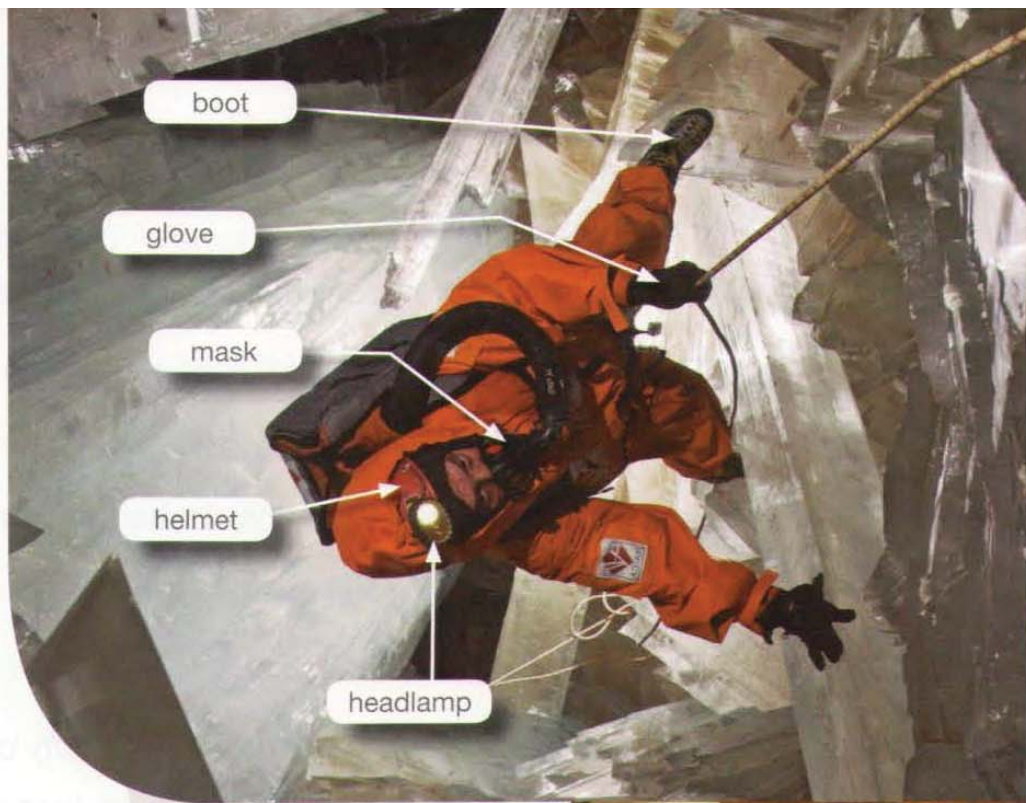
An explorer wears a protective suit in the cave. ▶

Reading

Strategy: Predicting.

Which is hotter, the Cave of Crystals or the Sahara Desert in Africa?

Read the passage to check your answer.



Preparing for the Cave of Crystals



▲ tired explorers inside the Cave of Crystals

1 The Cave of Crystals is an amazing place. One **visitor** described it as “like a child’s dream.” The huge crystals are possible because of the hot, wet **conditions** in the cave. However, those same conditions also make it impossible for humans to stay in the cave for very long.

5 The **temperature** of the Cave of Crystals is 45°C.¹ That is almost as hot as the hottest days in the Sahara Desert! You can’t just walk in. You need to **prepare** carefully and **wear** special clothes. First, you have to put on a vest,² which has more than 12 ice packs³ **across** the front and back. After this comes another vest. This keeps the heat away from the ice. Over this, you have to wear a bright orange caving suit. You also need a mask that blows ice-cooled air. Then there is the helmet with a headlamp. Finally, you need to put on gloves and boots.



² a vest



³ an ice pack

Even with all this **protection**, being inside the cave is very tiring.⁴ Most people don’t go inside for more than 20 minutes. Even a few minutes can be **enough**.

15 However, visitors to the cave think its beauty is worth **the difficulty**. In the words of another explorer, it’s as though you are “standing inside a star.”

¹ 45°C = 113°F

⁴ When something is **tiring**, you feel you need to stop and rest.

Reading Comprehension

A Circle the correct answer.

Gist 1. Which of these is a possible title for this passage?

- a. Like a Child's Dream
- b. How the Crystal Cave was Made
- c. Who Found the Crystal Cave?

Inference 2. From the passage, we can infer that _____ the cave.

- a. many tourists go into
- b. no one lives in
- c. animals live in

Reference 3. In line 15, **the difficulty** means *the difficulty of* _____ *the cave*.

- a. going inside
- b. traveling to
- c. discovering

Sequence 4. Which of the following do explorers put on last?

- a. a vest
- b. a caving suit
- c. gloves

B Strategy: Identifying true, false, or not given. Are these sentences about the passage true (T), false (F), or is the information not given in the passage (NG)?

- | | | | |
|--|---|---|----|
| 1. The crystals needed heat to grow. | T | F | NG |
| 2. The air in the cave is difficult to breathe. | T | F | NG |
| 3. With special clothes, people can stay in the cave for days. | T | F | NG |
| 4. The ice packs are orange. | T | F | NG |
| 5. It is very dry inside the cave. | T | F | NG |
| 6. Only two explorers can visit the cave at one time. | T | F | NG |

The Cave of Crystals has about 170 huge crystals.



Language Practice

A Vocabulary: Words in context. Answer the questions below.
Share your answers with a partner.

1. What is something you have to **prepare** for? _____
2. What are you **wearing** now? _____
3. What are the weather **conditions** today? _____
4. What are some jobs you need to wear **protection** for? _____
5. What can **visitors** do in your city? _____
6. What is **across** from your house? _____
7. What is the hottest **temperature** in your city in summer? _____
8. What don't you have **enough** of right now? _____

Word Partners

Use **protect** with:

(n.) protect **against attacks**, protect **children**,
protect the **environment**, protect **people**
(adj.) **designed to** protect, **supposed to** protect,
necessary to protect



¹ an oven

B Grammar: Using as though. Read the example sentences.
Sentence **b** is from the passage.

- a. Standing in the Cave of Crystals, it's **as though** you are standing in an oven.¹
- b. . . . it's **as though** you are "standing inside a star."

Complete the sentences using **as though**.

1. He talks to people as though he's _____.
2. The car looks as though _____.
3. It seems _____.
4. It's _____.

Crystal Skulls



The British Museum ►
in London bought this
crystal skull in 1881.

Before You Read

A Discussion. Look at the picture. Where do you think this skull is from? Who do you think made it? Talk about your ideas with a partner.

B Definitions. Match the words with their meanings.

- | | | | |
|---------------|------------|-------------|-----------|
| 1. source | 2. believe | 3. ability | 4. modern |
| 5. technology | 6. certain | 7. evidence | 8. debate |

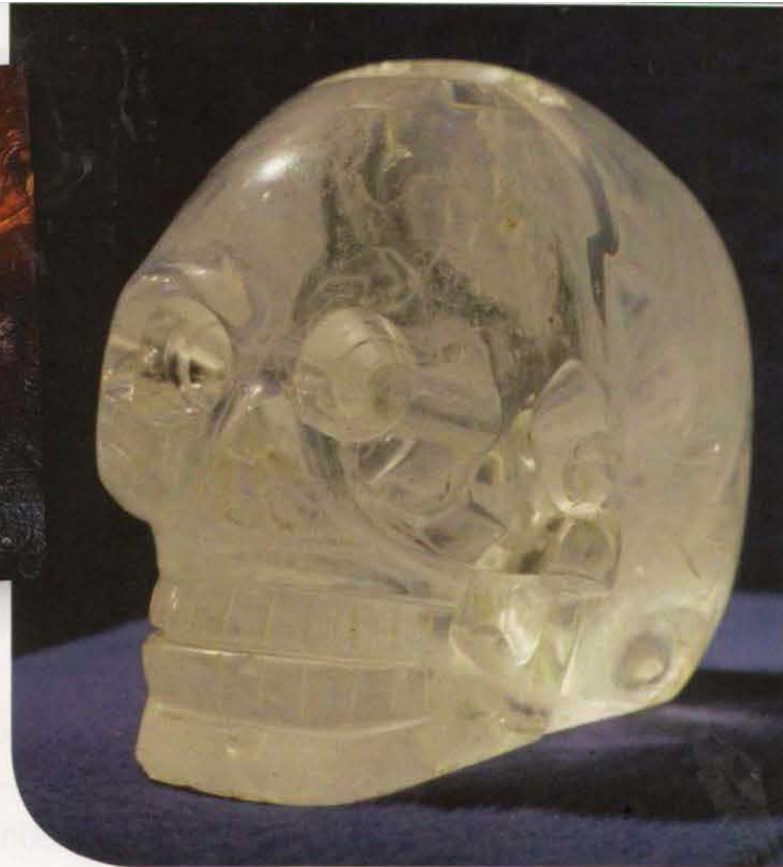
- | | |
|--|---|
| _____ a. machines and ways of making things by using science | _____ e. something showing another thing is true |
| _____ b. where something is from | _____ f. new |
| _____ c. a discussion between people with very different ideas | _____ g. When you are 100% sure about something, you are _____. |
| _____ d. When someone can do something, they have this. | _____ h. to think something is real or the truth |

The 2008 movie *Indiana Jones and the Kingdom of the Crystal Skull* was about the mystery of the crystal skulls.



Reading

Strategy: Scanning. Read the text quickly. How many crystal skulls have the British Museum's archeologists excavated?



▲ This crystal skull is in the Musée de l'Homme (Museum of Man) in Paris, France.

THE MYSTERY GOES ON

1 For years, a few famous crystal skulls have been a **source** of mystery and discussion. Even now, no one knows exactly who made them, and no one can say when.

Some people **believe** the Mesoamerican people¹ made the skulls thousands of years ago. Some stories say they have special powers, such as the **ability** to make sick people well.

5 Moviemakers love these stories. In the 2008 movie *Indiana Jones and the Kingdom of the Crystal Skull*, the skulls had great power. In the movie, a crystal skull is actually the head of an alien.²

However, most scientists don't believe these stories. They think the skulls are more **modern**. Scientists have found marks on the skulls that they believe only more modern **technology** could make. Because of this, scientists are **certain** the skulls are not thousands of years old. Instead, they think the skulls are from the 19th century. Scientists also **point to** the British Museum's excavations.³ The museum's archeologists⁴ have found many Mesoamerican objects, but they have never found a crystal skull. Scientists say this is more **evidence** to show they are fakes, and not really Mesoamerican.

15 Until we know more about the skulls, the mystery—and the **debate**—will keep going.

¹ The **Mesoamerican people** lived in Central America before the 16th century.

² An **alien** is a person or animal from space.

³ An **excavation** is a place where people dig in the ground to find old things.

⁴ An **archeologist** is a scientist studying people, events, and things from a long time ago.

Reading Comprehension

A Circle the correct answer.

Gist 1. What is this passage mainly about?

- a. what the crystal skulls are
- b. who made the skulls
- c. the debate about the skulls

Detail 2. Some people believe the skulls help people _____.

- a. get better
- b. make other people sick
- c. become famous

Inference 3. Which of these statements about *Indiana Jones and the Kingdom of the Crystal Skull* is correct?

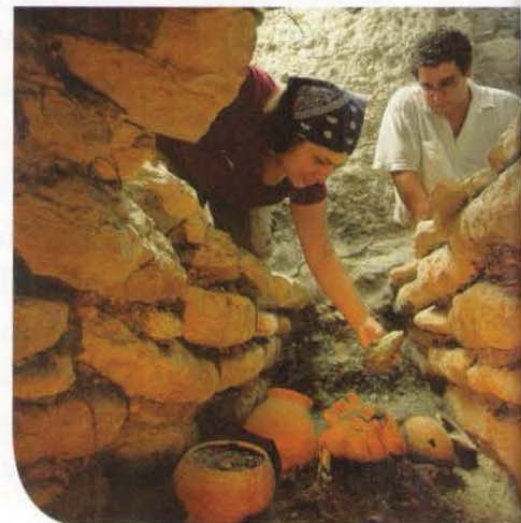
- a. It is about the British Museum.
- b. Scientists think it is not true.
- c. It gives evidence about the crystal skulls.

Paraphrase 4. In line 12, the phrase **point to** means _____.

- a. use your finger to show something
- b. give as an example
- c. choose something

B Strategy: Identifying supporting ideas. Most scientists think the crystal skulls are not thousands of years old. Which of these ideas from the passage supports this view? Check (✓) them.

- 1. Mesoamericans might have made the skulls.
- 2. Humans need modern technology to make the skulls.
- 3. People think the skulls have special powers.
- 4. There are marks on the skulls.
- 5. Some people say that the skulls can help people feel better.
- 6. Archeologists have not found a crystal skull during an excavation.



▲ archeologists at a Mesoamerican excavation in Guatemala

Language Practice

A Vocabulary: Completion. Complete the sentences using a word from the box.

source
technology

believing
certain

ability
evidence

modern
debate

1. Scientists today are _____ that the Earth is round.
2. All humans have the _____ to learn languages, but some people are better at it than others.
3. Not having enough money can be the _____ of many problems.
4. There is a popular English saying, "Seeing is _____."
5. Scientists believe you need _____ technology to make crystal skulls.
6. Because _____ is always changing, today's computers will seem really old in five years.
7. Some people can't have a(n) _____ without getting angry.
8. Archeologists look for _____ to show they are correct.

B Grammar: Present perfect. Read these sentences. The first two are from the passage.

- a. For years, a few famous crystal skulls **have been** a source of mystery and discussion.
- b. . . . they **have never found** a crystal skull.
- c. Scientists **have found** evidence to show the skulls are modern.

Complete the sentences with your ideas. Share your answers with a partner.

1. I have studied English for _____ years.
2. I've been to _____.
3. My teacher has _____.
4. I've never _____.

Word Partners

Use **debate** with:

(v.) **open to** debate

(adj.) **ongoing** debate, **televised** debate, **major** debate, **political** debate

(n.) debate **over something**, debate **the issue**

Video Crystals



table salt ▲



▲ salt crystals near the Dead Sea, Jordan

A Preview. Look at the pictures above and read the information below. Look up the words in **blue** in a dictionary. Do you know any other minerals? Discuss with a partner.

There are thousands of different **minerals** on Earth, and each one has a unique **form**. For example, **salt** (NaCl) is made of **atoms** from two **elements**: **sodium** (Na) and **chlorine** (Cl). These atoms join in a unique **pattern** to form salt crystals.

B As you watch. Are these statements about the video true (**T**) or false (**F**)?

- | | | |
|---|----------|----------|
| 1. Each mineral on Earth is made of two substances. | T | F |
| 2. The process of making a crystal is called crystallization. | T | F |
| 3. Some people believe that crystals have the ability to change their feelings. | T | F |
| 4. There are about 6,000 different minerals in the world. | T | F |
| 5. You can tell what family a crystal comes from by looking at its color. | T | F |
| 6. There are seven unique crystal systems in the world. | T | F |

C Think about it. Why do you think people are interested in crystals?

Life on the Move

4



wildebeest and zebra
migrating in Serengeti
National Park, Tanzania

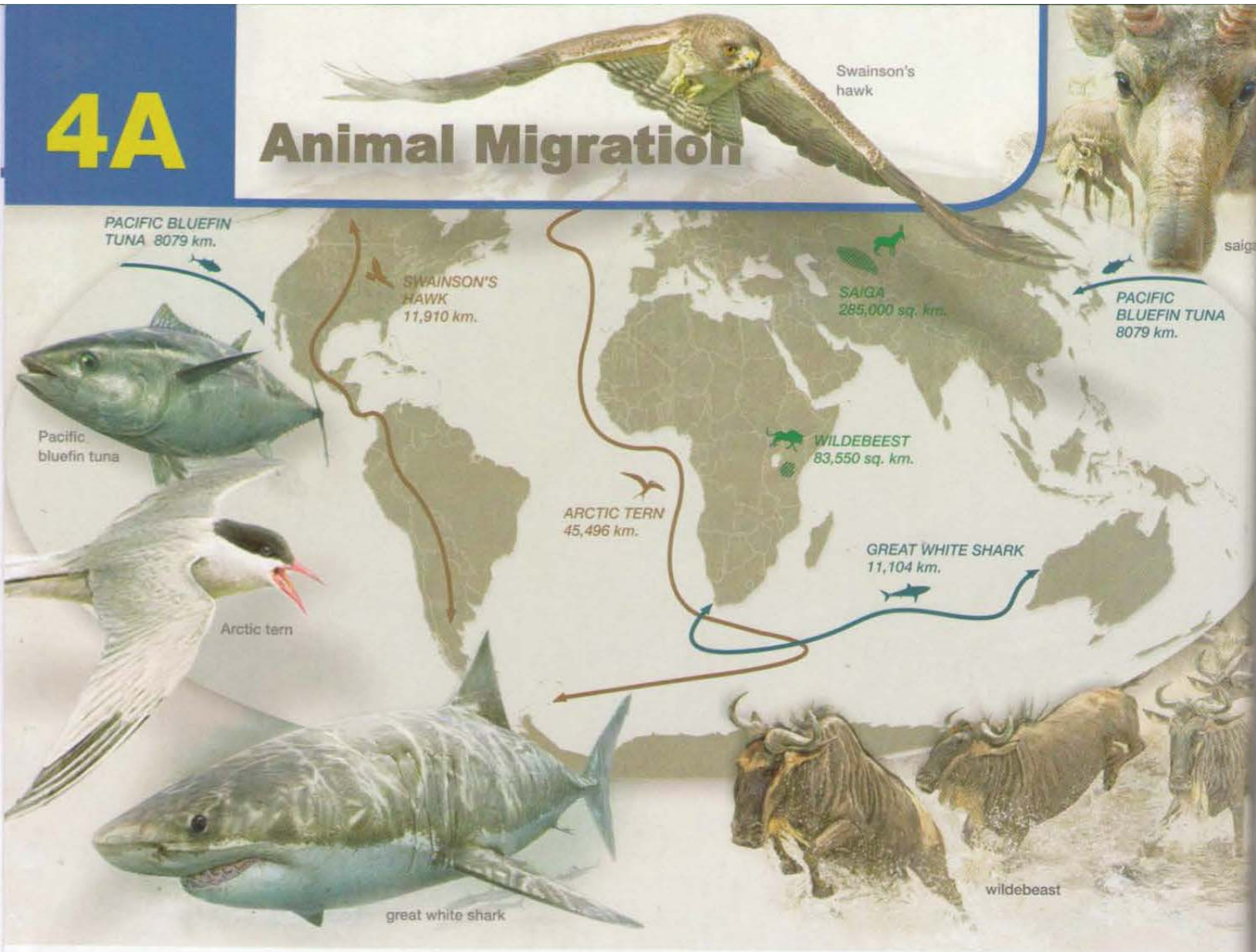
Warm Up

Talk with a partner.

1. When animals migrate, they move from one place to another place. Why do you think animals migrate?
2. Which animals do you know migrate?

4A

Animal Migration



Before You Read

A Strategy: Reading a map. Look at the map. How does each animal migrate—by air, sea, or land? Which animal travels the longest distance? Talk about your answers with a partner.

B Definitions. Match the words with their meanings .

- | | | | |
|---------------|--------------|----------|----------------|
| 1. completely | 2. in common | 3. swim | 4. survive |
| 5. face (v.) | 6. challenge | 7. avoid | 8. in addition |

- | | |
|--|--|
| _____ a. also | _____ e. having something the same |
| _____ b. to move through the water | _____ f. to keep living |
| _____ c. a problem, or difficult thing | _____ g. 100% |
| _____ d. to try not to be near a person or thing | _____ h. to meet and try to fix a problem or bad condition |

Reading

Strategy: Skimming.

Quickly read the passage and write the number of the paragraph that has the answers to each question.

- a. How much water? _____
- b. Why migrate? _____
- c. How dangerous? _____
- d. How far? _____



▲ a pronghorn herd runs across Wyoming, U.S.A.

Move as Millions, SURVIVE AS ONE

1 Great white sharks in the Pacific Ocean. Wildebeest in Africa. Arctic terns in the Atlantic. At first, these animals seem **completely** different. One **swims**, one walks, and the other flies. But they all have one thing **in common**. They all migrate.

5 Some migrating animals move to a place with a better temperature. Some go to find food or water. The groups travel as one, trying to **survive**. During the trip, they **face** many different **challenges**.

One challenge is distance. Some migrating animals take very long trips. They go far away from their home areas. For example, one great white shark swam from Australia to South Africa and back. In nine months, it swam about 20,000 kilometers.¹

10 Another challenge is finding enough food and water during the journey. For example, each Mali elephant needs over 200 liters of water each day. To get this, they need to go from one waterhole to another.

15 **In addition**, migrating animals have to **avoid** other animals that want to eat them. For example, the zebra has to stay away from lions. Traveling as a group helps keep them safe. All the zebras in the group can watch for danger. When one zebra is in trouble, the other members make a circle around it.

By working as a group, migrating animals can survive some of the world's most extraordinary journeys.

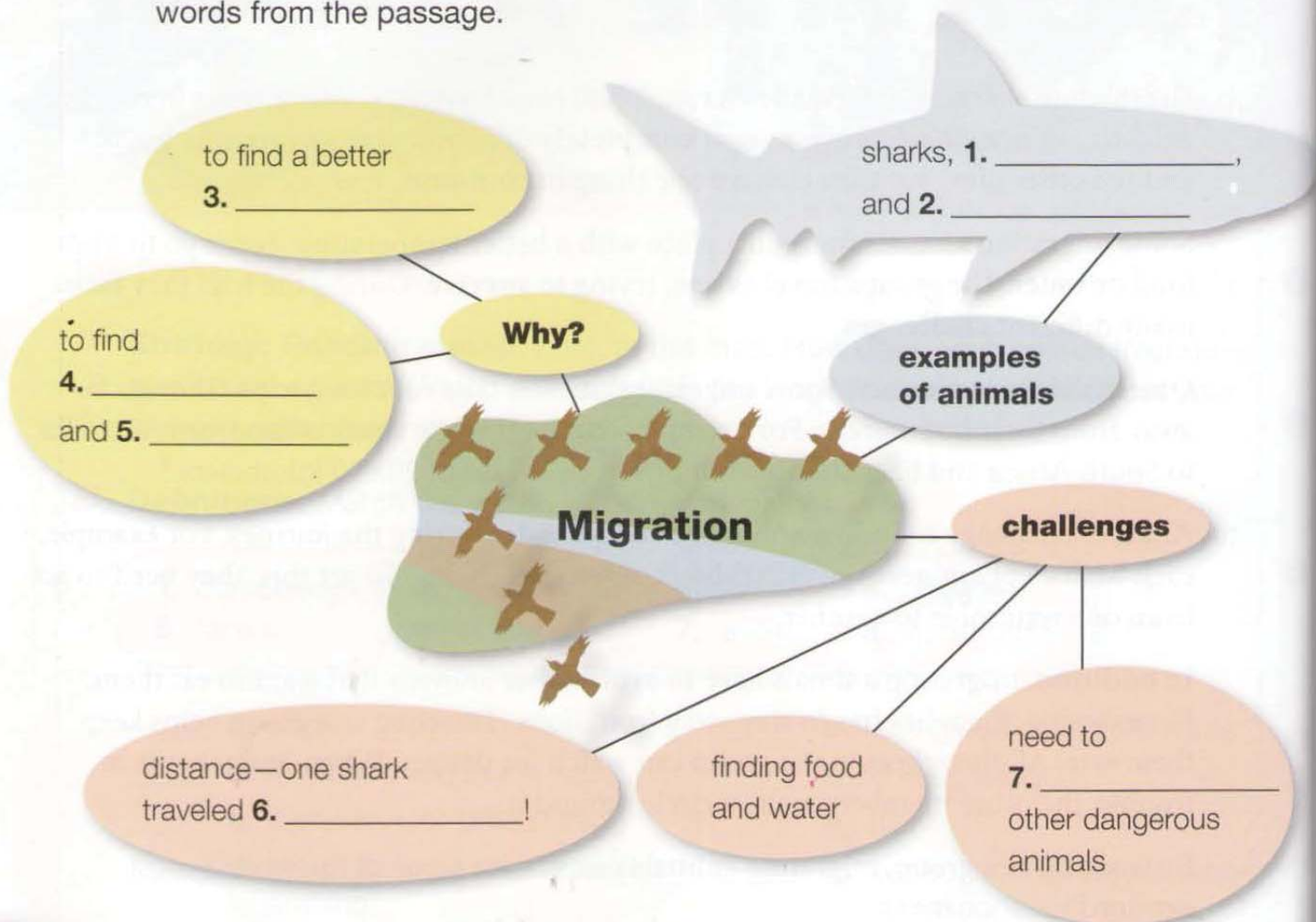
¹ 20,000 kilometers = 12,500 miles

Reading Comprehension

A Circle the correct answer.

- Main Idea** 1. The main idea of the first paragraph is that _____ animals migrate.
 a. not all kinds of b. only similar c. different kinds of
- Detail** 2. The passage talks about _____ big challenges for the animals.
 a. two b. three c. four
- Detail** 3. Which of the following statements is NOT true?
 a. It's about 20,000 kilometers from South Africa to Australia.
 b. An elephant needs more than 100 liters of water a day.
 c. Zebras help each other when they are in trouble.
- Inference** 4. From the passage, we can infer that _____.
 a. lions may eat zebras b. lions travel in groups c. lions try to avoid zebras

B Strategy: Summary completion. Complete the word web using words from the passage.



Language Practice

A Vocabulary: Words in context. Answer the questions below.

1. Who is **completely** different from you? Why?

2. What do you have **in common** with your parents?

3. Do you know how to **swim**? When did you learn?

4. What is one dangerous situation that is difficult to **survive**? Why?

5. What is one problem you have **faced** in the past? What did you do?

6. What is one **challenge** you have now?

7. What is something that you want to **avoid**? Why?

8. **In addition** to English, are there any languages you want to learn? What are they?

B Grammar: Relative clauses with *that*. Read these sentences. Sentence **b** is from the passage.

- a. The animals also have to avoid other animals. Those animals want to eat them.
- b. . . . the animals have to avoid other animals **that** want to eat them.
- c. There are marks on the skulls. Scientists believe only modern technology can make these marks.
- d. There are marks on the skulls **that** scientists believe only modern technology can make.

Word Partners

Use **common** with:

(*n.*) common **belief**, common **language**,
common **problem**

(*adj.*) **more/most** common

(*v.*) **have something in** common

Join the sentences. Use **that**.

1. The team discovered a tiny tree mouse. This animal travels from one tree to another.

2. First, you have to put on a vest. It has more than 12 ice packs across the front and back.

3. Migrating sharks make a 20,000-kilometer trip. The trip takes nine months.

4. Archeologists have found evidence. The evidence shows the skulls are probably fakes.

4B

Butterfly Migration



—▲ Monarch butterflies rest on a tree on their migration to Mexico.

Before You Read

A Quiz. How much do you know about monarch butterflies?

Take the quiz. Circle True (T) or False (F). Then check your answers below.

- | | | |
|--|---|---|
| 1. Monarchs weigh less than a penny. ¹ | T | F |
| 2. A monarch butterfly can only fly 10 kilometers a day. | T | F |
| 3. Monarch butterflies migrate further than any bird. | T | F |



¹ a penny

B Definitions. Match the words with their meanings.

- | | | | |
|---------------|------------|------------|--------------|
| 1. everywhere | 2. in fact | 3. somehow | 4. arrive |
| 5. gather | 6. young | 7. smile | 8. encourage |

- | | |
|---------------------------|--|
| _____ a. to reach a place | _____ e. in a way that is surprising or hard to explain |
| _____ b. in all places | _____ f. the following is true or gives more information |
| _____ c. → 😊 | _____ g. to make someone feel more like doing something |
| _____ d. not old | _____ h. to bring people or things together |

Reading

Strategy: Predicting. Look quickly at the title, headings, pictures, and captions and answer the questions below. Then read the passage to check your answers.

1. Do monarch butterflies prefer warm or cool temperatures? _____
2. How do people feel when they see the monarchs? _____



Migration route

← Monarch butterfly

0 mi 500
0 km 500

Monarch Butterfly Biosphere Reserve

← ² a shadow

The monarch butterflies have the power to make people smile. ▶



Heading South for the Winter

1 One monarch butterfly flies by. Then another, and another. As they fly, the butterflies seem to float¹ in the sky. They make beautiful shadows² on the ground below. They seem to be **everywhere**. In fact, there are so many butterflies that the groups look like beehives³ in the trees. And when they fly, the sound of 150 million monarchs' wings creates a soft sound, as though it is raining. People say Mexico is the only place in the world where you can hear the sound of butterflies' wings moving.



³ a beehive

The Migration

10 Every year, millions and millions of monarch butterflies migrate from the U.S.A. and Canada. They go to a place high in the mountains of Mexico. There, they can escape from North America's cold winter temperatures. To get there, the monarchs often travel over 80 kilometers⁴ a day. But what's really amazing is that the butterflies make the trip only once. **Somehow** they know exactly where to go.

The Effect on People

15 After the butterflies **arrive** in Mexico, people **gather** to watch. The effect on people is amazing. **Young** and old, men and women, locals and people from far away—everyone is **smiling** and friendly. It's as though the butterflies **encourage** people to be their best.

¹ When something **floats**, it moves quietly and slowly through the sky or water.

⁴ 80 kilometers = 50 miles

Reading Comprehension

A Circle the correct answer.

Inference 1. According to the passage, the sound of the butterflies moving is _____.

- a. something people want to avoid
- b. easy to imagine
- c. nice to listen to

Vocabulary 2. Each monarch butterfly joins the migration _____.

- a. just one time
- b. a few times
- c. one time a year

Detail 3. According to the passage, _____ will like watching the butterflies.

- a. almost everyone
- b. mainly butterfly experts
- c. mainly young people

Inference 4. The writer probably _____ the butterflies know where to go.

- a. understands exactly how
- b. thinks it's extraordinary that
- c. has written a book about how

B Strategy: Summary completion. Use no more than two words in each blank to complete the summary about the passage.

Every year, 1. _____ of monarch butterflies leave North America before it gets too 2. _____. They travel to 3. _____ where the temperature is warmer. It's a long trip, and they sometimes fly more than 4. _____ every day. Not one of the butterflies has been there before, but 5. _____ they go to the same place each year. There, people 6. _____ to see them. Maybe the butterflies make everyone happy, because everyone seems to be 7. _____ as they watch them.

Language Practice

A Vocabulary: Words in context. In each sentence, circle the best answer.

- Everywhere** on Earth, people wear _____.
a. gloves b. clothes
- At which of these places might people **gather**?
a. a bed b. a stadium
- If you **somehow** pass a test, it is _____ for you.
a. easy b. difficult
- When do most people **arrive** at school?
a. in the morning b. in the afternoon
- Which of these is **young**?
a. a puppy¹ b. a grandparent
- People usually **smile** when they are _____.
a. happy b. unhappy
- When someone **encourages** you to do something, they want you to _____ it.
a. try b. avoid
- When you say **in fact**, you are usually _____ information.
a. asking for b. giving



¹ a puppy

B Grammar: Relative clauses with where. Read these sentences.

Sentence **a** is from the passage.

- Mexico is the only place in the world **where** you can hear the sound of butterflies' wings moving.
- Sometimes they move to a place **where** there is a better temperature.

Complete each sentence using **where** and information that is true for you. Share your answers with a partner.

- I want to go to a country where _____.
- Last week I went to _____ where I _____.
- I love places where I can _____.
- _____.

Word Partners

Use smile with:

(v.) smile **and laugh**, **make someone** smile, **see someone** smile
(adj.) **big/little/small** smile, **friendly** smile, **sad** smile, **shy** smile, **warm** smile, **wide** smile

Monarch Migration



A Preview. The video discusses some problems that monarch butterflies face when they reach Mexico. Which do you think are some of these problems?

- | | |
|--|--|
| <input type="checkbox"/> cold temperatures | <input type="checkbox"/> too many tourists |
| <input type="checkbox"/> hot temperatures | <input type="checkbox"/> people cutting down trees |
| <input type="checkbox"/> storms | <input type="checkbox"/> people catching butterflies |

B As you watch. Circle the correct answer in each sentence.

- Every year, 300 (**million** / **billion**) butterflies travel from North America to the butterfly sanctuary.
- In 2002, a (**rain storm** / **wildfire**) killed millions of monarch butterflies.
- Mike Quinn is worried about (**the number of tourists** / **the loss of trees**).
- In 30 years, the number of (**trees** / **butterflies**) in the area has gone down 50 percent.
- The Mexican government is paying money to (**land owners** / **butterfly farmers**) to help the butterflies.

C Think about it. What else can people do to help the butterflies?

Vocabulary Review

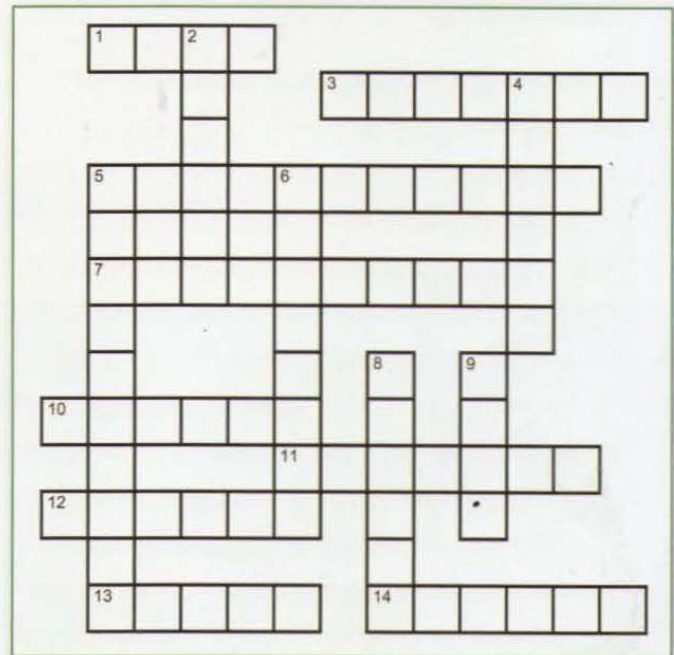
Crossword. Complete the crossword puzzle with words from Units 3 and 4.

Across

1. to meet a difficult situation you have to deal with
3. to get ready or make something ready
5. how hot or cold something is
7. the things that affect someone or something
10. new and using the latest ideas
11. sure, having no doubts
12. the cause of something
13. not old
14. equal to what is needed or wanted

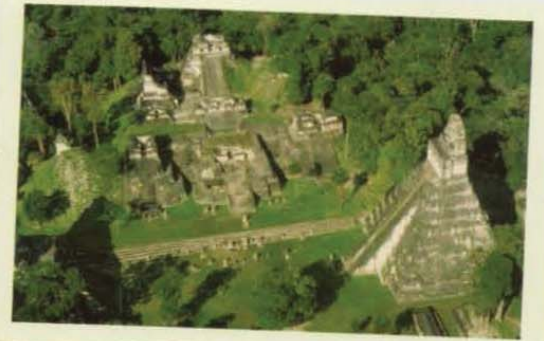
Down

2. shared by two or more people or groups
4. from one side to the other
5. the use of science in solving problems
6. something that shows that something else exists or is true
8. to come to or reach a place after traveling
9. to use or have something (such as clothing) over part of your body



World Heritage Notes

Notes Completion. Scan the information on pages 58 and 59 to complete the notes.



What: Tikal National Park

Where: El Peten, Guatemala

Data:

- Tikal was once the largest city of _____.
- By A.D. 950, all the people had _____.
- There were once about 3,000 _____ at Tikal, including six _____.
- The _____ on the buildings help us understand what the Maya were like and how they lived.
- Experts believe people left the city because there was not enough _____, and too many _____ with other cities.
- The Tikal National Park contains the largest area of _____ in Central America.

Tikal National Park

Site: **Tikal National Park**

Location: **El Peten, Guatemala**

Category: **Natural and Cultural**

Status: **World Heritage Site since 1987**



3114–3113 B.C.

According to the Mayan calendar, the four original gods create the Earth.

400–300 B.C.

The Maya build pyramids at Tikal.

A.D. 500

Tikal becomes the first great Mayan city.

A.D. 899–950

The Maya abandon Tikal.

A.D. 1517

The Spanish arrive in South America. They bring with them new diseases which kill 90 per cent of the native people.

In the heart of the jungles of Central America is one of the most important sites of the Mayan civilization—the ruins of Tikal. Tikal was once the largest city in the Mayan world. Experts think 90,000 people used to live here. However, by A.D. 950, all the people had left the city. Then the rain forests returned to completely cover the land.

Today, historians and tourists can visit Tikal and see some of the 3,000 ancient structures that once stood there. Among the ruins are six huge pyramids. Some are more than 60 meters (200 feet) high. On these pyramids are carved pictures. They help us understand what the Maya were like and how they lived. The ruins of Tikal also give us important clues to solve the mystery of why they left and never returned.

Experts believe there were a few reasons the Maya left Tikal. It didn't rain very often, so there was not enough water to drink or to grow food. Also, Tikal was always at war with other cities, and some people may have left to avoid the war.

Today, in addition to its important ruins, Tikal National Park contains the largest area of wild rain forest in Central America. It protects thousands of unique plant and animal species.



A.D. 1695

While lost in the jungle, a Spanish priest discovers the ruins of Tikal.

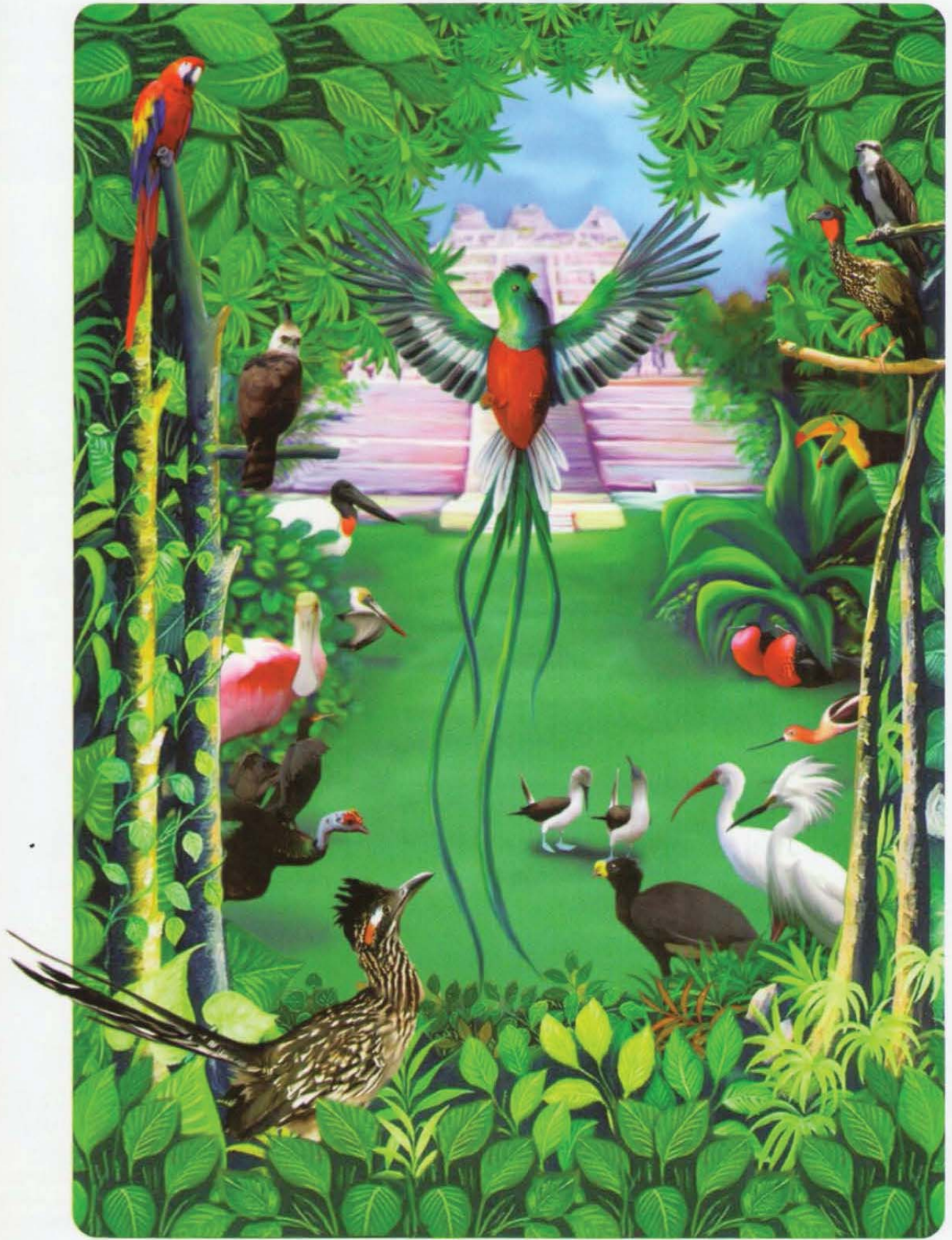
A.D. 1839

Explorer John Lloyd Stephens and artist Frederick Catherwood discover more Mayan ruins. Their maps and drawings show the whole world how amazing the ancient Mayan civilization was.

A.D. 1956–1980

American and Guatemalan archeologists dig up more ruins at Tikal. They clean up many of the structures we can see at Tikal today.





A MAYAN FOLKTALE

THE KING OF THE BIRDS

1 One day, the Great Spirit who guarded the Mayan world told the birds that they must choose a king.

Almost every bird thought it should be king. The only bird that stayed quiet was the quetzal. The quetzal wanted to be king, but his feathers were a dull brown,
5 and he looked quite plain. He didn't think anyone would choose him.

The quetzal went to the road-runner, a very colorful bird, and said, "Your feathers are beautiful, but you are too busy being the messenger of the roads to become king. Lend me your feathers. I'll return them after I become king, and I'll share the wealth and fame with you."

10 At first, the road-runner said no. But the quetzal would not stop asking him. At last, the road-runner agreed.

One by one, the road-runner's feathers magically disappeared and then appeared on the clever quetzal's body. Soon, the quetzal's body and tail were a rich blue-green, his chest was bright red, and his beak had turned a lovely glowing yellow.

15 The Great Spirit was very surprised by the quetzal's new beauty and chose him to be king of all the birds. From that day on, the quetzal was so busy being king, he had no time to return the road-runner's feathers. He soon forgot all about his promise to the road-runner.

Days later, the other birds found the road-runner hiding deep in the forest.
20 He had no feathers, and he was very cold. He told the birds about the quetzal's promise.

The birds felt sorry for the road-runner, and each gave up a few feathers to cover him. That is why, today, the road-runner's feathers are such an odd mix of drab and faded colors, and why he always watches the Mayan roads. He is still
25 looking for the quetzal that took away his feathers.

Reading Comprehension

Strategy: Sequencing. Number the events in the story on pages 60 and 61 from **1** (the first) to **8** (the last).

- a. _____ The Great Spirit spoke to all the birds.
- b. _____ The quetzal stayed quiet.
- c. _____ The road-runner agreed.
- d. _____ The quetzal went to see the road-runner.
- e. _____ The road-runner looked for the quetzal.
- f. _____ The quetzal's feathers became beautiful.
- g. _____ The birds found the road-runner hiding in the forest.
- h. _____ The quetzal became very busy.

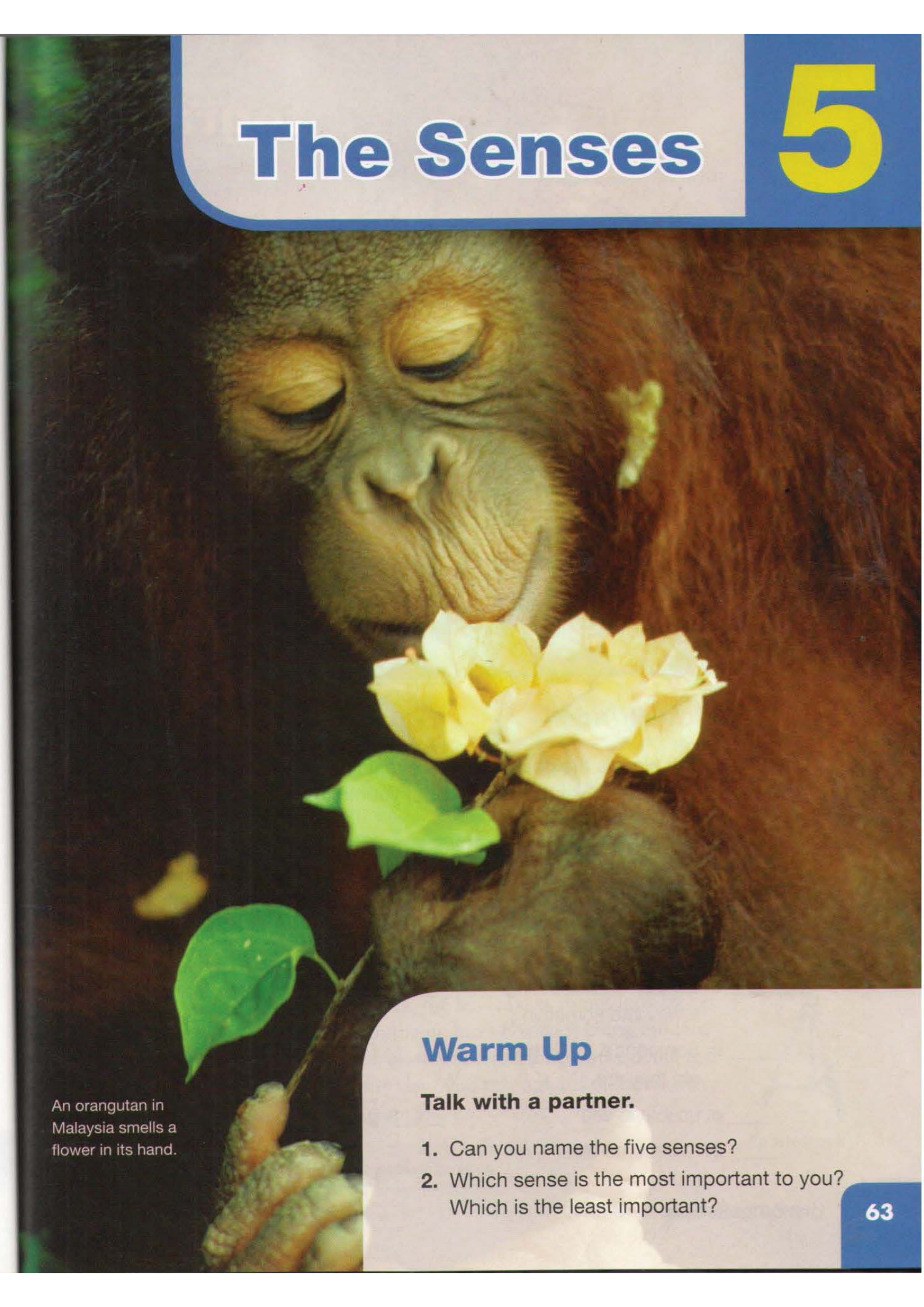
Vocabulary Extension

Vocabulary: Describing color. There are many words we can use to talk about colors. Circle the words in the folktale that describe color. Which are positive and which are negative?

1. Cathy's hair was very (**dull** / **beautiful**). So she brushed it every day to make it shiny.
2. The colors of a peacock's feathers are usually very (**rich** / **plain**).
3. That shirt was originally (**bright** / **drab**) red. But after it was washed many times, it became so (**colorful** / **faded**), it was pink.
4. Sam's room has a big rainbow on the wall. It's so (**dull** / **colorful**).
5. We wanted the school to look warm and friendly, so we painted it a (**drab** / **glowing**) yellow.

The Senses

5

A close-up photograph of an orangutan's face. The orangutan has its eyes closed and is holding a small branch with several bright yellow flowers and green leaves in its hand, appearing to smell them. The background is dark and out of focus.

An orangutan in Malaysia smells a flower in its hand.

Warm Up

Talk with a partner.

1. Can you name the five senses?
2. Which sense is the most important to you? Which is the least important?



Before You Read

A Discussion. How is the photograph above unusual? Why do you think the photographer took it like that? Talk about your ideas with a partner.

B Definitions. Match the words with their meanings.

- | | | | |
|-------------|--------------------------|---------------|------------|
| 1. blind | 2. age (<i>n.</i>) | 3. experience | 4. grow up |
| 5. neighbor | 6. opening (<i>n.</i>) | 7. decision | 8. ignore |

_____ **a.** the start of something;
a way into something

_____ **b.** Someone's _____ is how
old they are.

_____ **c.** unable to see

_____ **d.** to become older

_____ **e.** to act as though you don't see or
hear something or someone

_____ **f.** a choice, often made after thinking
about something

_____ **g.** something that you do or that
happens to you

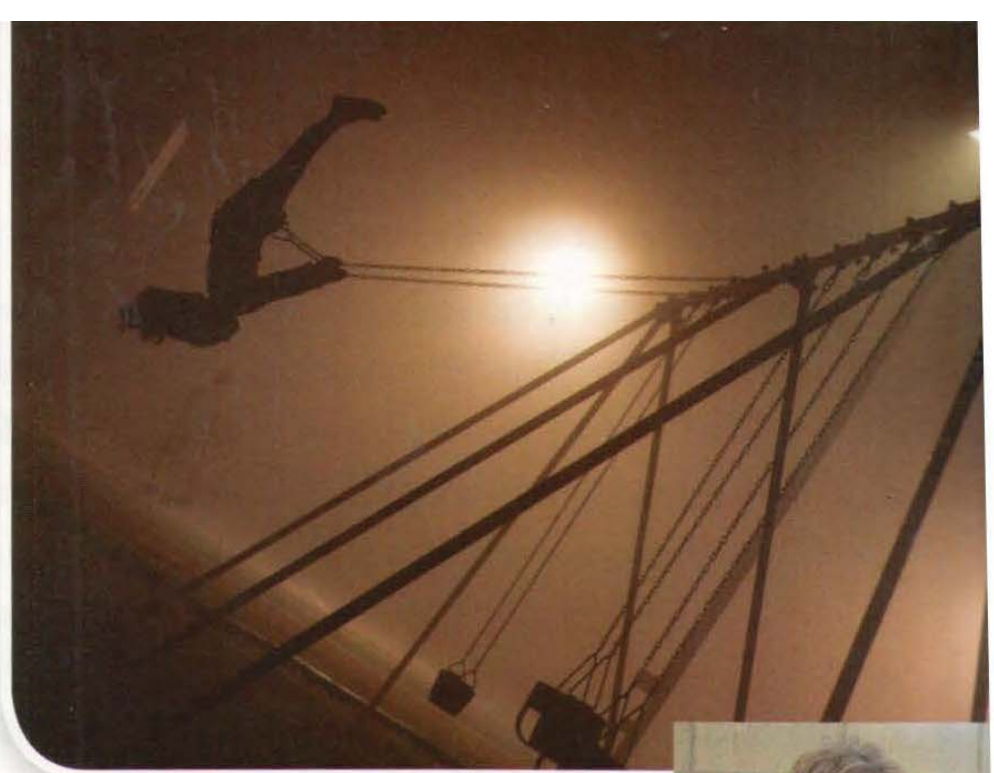
_____ **h.** a person who lives near you

Reading

Strategy: Skimming.

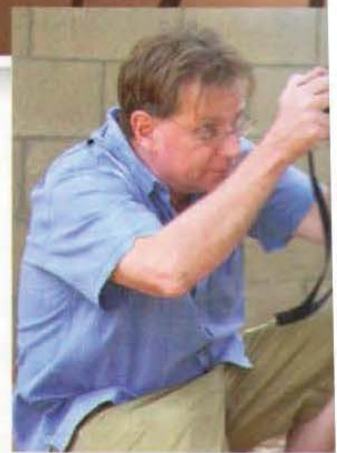
What is unusual about photographer Bruce Hall?

This photograph by ►
Bruce Hall shows a girl
riding a swing at night.



Through the Camera Lens

- 1 When you stand outside at night, what do you see? The stars? Maybe a planet? Bruce Hall can't see any of these things. That's because Hall is almost **blind**. Even though he can't see more than a few centimeters in front of him, he's a photographer. When
- 5 he looks through the lens of the camera, he sees the world—sometimes for the first time.



Bruce Hall ▲

Discovering Another World

- It all started at the **age** of nine when Hall had an eye-opening¹ **experience**. He **grew up** hearing about stars. However, he had never seen them. All he saw was darkness. Then
- 10 one night a **neighbor** let him look through his telescope.² “It was like an **opening** into another world!” He decided to become a photographer. The **decision** changed his life. He discovered how to see the world! Now he can't live without photographs. “I think all photographers take pictures to see, but I can't see without cameras,” he says.

“Seeing”

- 15 When Hall looks through his camera, the lens makes things look bigger. Then he sees things again through the pictures he takes. Using modern technology, Hall can look at them closely and examine all the detail that most of us see—but **ignore**—every day. And through his pictures, we can learn new things about the world around us.



² a telescope

¹ Something that is **eye-opening** is surprising and teaches you something.

Reading Comprehension

A Circle the correct answer.

- Main Idea** 1. The main idea of the second paragraph is that, using technology, Hall became able to see _____.
a. everything b. the night sky c. photographs
- Detail** 2. How is Hall different from other photographers?
a. He uses a special camera.
b. Only Hall uses a camera to be able to see.
c. He only takes photographs of other blind people.
- Inference** 3. Which of these sentences about Bruce Hall is most likely true?
a. He is happy he is blind.
b. He lives in the same house he lived in when he was nine.
c. He is happy he started taking photos.
- Detail** 4. Hall's pictures help us _____.
a. think about things in a new way
b. understand how technology works
c. picture ourselves as blind

B Strategy: Identifying cause and effect. Match the causes and effects to make sentences.

- | | | |
|--|-----|--|
| 1. Hall looked through a telescope and | ○ ○ | a. learn new things about the world. |
| 2. Hall decided to become a photographer and | ○ ○ | b. everything looks bigger to him. |
| 3. Hall looks through a camera and | ○ ○ | c. now he can't live without cameras. |
| 4. Hall looks at pictures closely and | ○ ○ | d. sees things that other people ignore. |
| 5. We look at Hall's pictures and | ○ ○ | e. saw stars for the first time. |

Language Practice

A Vocabulary: Words in context. In each sentence, circle the best answer.

1. Scientists can use science to tell the (**age** / **years**) of things.
2. An eye-opening (**experience** / **experiment**) is something amazing.
3. Choosing a job is a difficult (**debate** / **decision**) for most people.
4. Hall probably doesn't (**experience** / **ignore**) small details.
5. Most countries want to live happily with their (**experiments** / **neighbors**).
6. Humans (**grow** / **age**) up throughout elementary school.
7. The Olympics have (**an opening** / **a beginning**) event to start the games.
8. (**Blind people** / **Neighbors**) sometimes use a white stick when walking outside.

B Grammar: Using let. Read these sentences. Sentence **a** is from the passage.

- a. Then one night a neighbor **let** him look through his telescope.
- b. Our teacher **lets** us use our notebooks during the test.

The sentences below all have mistakes. Rewrite the sentences, correcting the mistakes.

1. Hall lets we learn new things about the world around us.

2. Migration lets survive animals.

3. Their problems monarch butterflies let people forget.

4. Scientists let modern technology understand more about crystal skulls.

Word Partners

Use **experience** with:

(*adj.*) **professional** experience, **valuable** experience,

past experience, **shared** experience, **learning** experience

(*n.*) **work** experience, **life** experience

Senses in Poetry



A deaf woman uses sign language to communicate in Paris, France.

Before You Read

A Strategy: Using a dictionary.

Work with a partner.

1. Look up these words in a dictionary. With which senses do you use each word? Check (✓) all the senses each word matches.
2. Is each word positive (+), negative (-), or neither (N)? Write the best answer for each word. Talk about your answers with a partner.

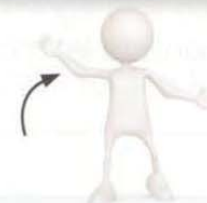
	touch	taste	sight	hearing	smell
___ 1. tingle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
___ 2. mmm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
___ 3. yuck	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
___ 4. yum	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
___ 5. sniff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
___ 6. lovely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
___ 7. whiff	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B Definitions. Match the words with their meanings.

1. translate 2. arm 3. embrace 4. lick 5. pick (v.) 6. lovely 7. tasty 8. action

- ___ a. beautiful; very nice
- ___ b. to have someone or something in your arms
- ___ c. to touch something with your tongue
- ___ d. something that someone or something does

___ e.



- ___ f. (for food) very nice to eat
- ___ g. to change something from one language to another
- ___ h. to choose; to take a flower or other plant

Reading

Strategy: Scanning. A stanza is a paragraph from a poem. With which words do almost all of the stanzas in this poem start? _____

Five Senses

- 1 Paul Scott is deaf. He can't hear, but he writes poems. His poems are usually "said" using sign language. This poem was **translated** from British Sign Language by Rachel Sutton-Spence.

Excuse me, but who are you?
Who am I? Come with me and see.

- 5 Feel your **arms** tingle at my **embrace**.
Reach out—oh, that's cold!
Reach out—oh, that's hot!
So, now you know me.

Excuse me, but who are you?

- 10 Who am I? Come with me and see.
A **lick** of ice-cream—mmm!
A scoop of that—yuck!
A scoop of this—yum!
So, now you know me.

¹ cheese ▼

- 15 Excuse me, but who are you?
Who am I? Come with me and see.
Pick a flower and sniff—**lovely!**
Take some cheese¹ from the fridge²—whiffy!
Pop this **tasty** morsel³ in your mouth,

- 20 Yes, and it smells good too.
So, now you know me.

² a fridge ►

Excuse me, but who are you?
Excuse me?

Excuse me, but what's wrong with him?

- 25 Oh, we're together.
Together?
Yes, come with us and see.
Eyes wide open, seeing and understanding.
Information and learning,

- 30 Colors, speed, **action**.
Learning and **drinking in the world**
through the eyes.
So now you know us.

And now you know me.



The Alphabet
in British Sign
Language

³ A **morsel** is a small piece of food.

Language Practice

A Vocabulary: Words in context. Answer these questions. Share your answers with a partner.

1. What is something that you have never **licked**?

2. When do people in your country **embrace** each other?

3. Have you ever read a book that was **translated** from English? Which one?

4. Would you rather have strong **arms** or legs? Why?

5. What is the **tastiest** thing you've ever eaten?

6. What is one thing you think is **lovely**?

7. Do you enjoy **picking** flowers? Why?

8. An English expression says "**Actions** speak louder than words." Do you agree?

B Grammar: Repetition. In poetry, words or phrases often repeat. Authors also use words with opposite meanings. Read these lines from the poem.

- a.** Reach out—oh, that's cold!
Reach out—oh, that's hot!
- b.** A scoop of that—yuck!
A scoop of this—yum!

On a piece of paper, write a short poem. Use repetition and opposites. Then read it to a partner.

Word Partners

Use **arms** with:

(v.) arms **crossed**, arms **folded**, **hold in your** arms, **join** arms

(adj.) **open** arms

Video
The Senses





A Preview. Label each picture above with the name of a sense and the part of the body used for that sense.

Senses

smell

taste

touch

sight

hearing

Parts of the body

~~skin~~

eye

ear

nose

tongue

B After you watch. Which sense does each of these statements talk about? Write the correct sense next to each statement.

1. Cells in the retina turn light into nerve signals. _____
2. The part of the brain that controls this sense is near the part that helps us remember things. _____
3. This sense feels temperature or pain. _____
4. This sense uses tiny bumps that identify sweet, sour, salty, and bitter. _____
5. Vibrating hairs create nerve signals which then travel to the brain. _____

C Think about it. Do you think people have more than the five senses discussed in the video? If so, what other senses do people have?



Museum workers at the Louvre Museum in Paris take Leonardo da Vinci's *Mona Lisa* for examination.

Warm Up

Talk with a partner.

1. A museum is a place where you can see art. Do you like to look at art in museums?
2. What famous paintings do you know? What do you think is the most famous painting in the world?

6A

Stealing Mona Lisa



▲ Crowds of people take photos of *Mona Lisa*. Six million people see the painting in the Louvre every year.

Before You Read

A Quiz. *Mona Lisa* is one of the most famous paintings in the world. What do you know about it? Circle **True** or **False** for the sentences below. Then check your answers at the bottom of the page.

- | | | |
|--|-------------|--------------|
| 1. Leonardo da Vinci painted <i>Mona Lisa</i> . | True | False |
| 2. <i>Mona Lisa</i> is a painting of Leonardo da Vinci's wife. | True | False |
| 3. <i>Mona Lisa</i> is unfinished. | True | False |
| 4. <i>Mona Lisa</i> is about 500 years old. | True | False |

B Definitions. Match the words with their meanings.

- | | | | |
|-------------|-------------|------------------|---------------|
| 1. wait | 2. steal | 3. pay attention | 4. incredible |
| 5. continue | 6. original | 7. pass (v.) | 8. deal (v.) |

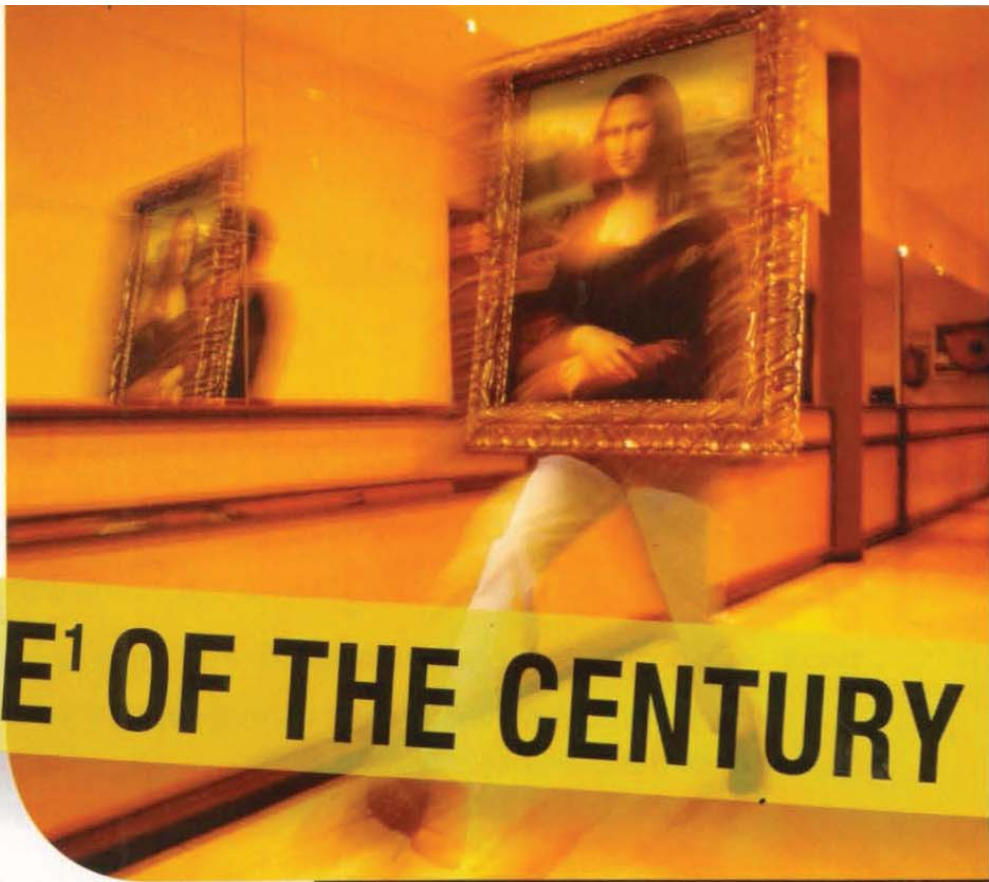
- | | |
|---|--|
| _____ a. to carefully watch or listen | _____ e. to buy and sell things as a job |
| _____ b. to do nothing; to stay in a place until something happens or someone comes | _____ f. to take something without asking and without paying |
| _____ c. the first one; the thing made first | _____ g. to go by (a place); (for time) to go by |
| _____ d. really amazing; almost impossible to believe | _____ h. to not stop doing something |

1. T. 2. F. The woman in the painting is Lisa del Giocondo. She was the wife of a rich man, who paid Leonardo. 3. F. Leonardo finished the painting just before he died. 4. T. Leonardo started the painting in about 1503.

Reading

Strategy: Scanning. In this passage a man steals *Mona Lisa*. When did he do it? _____

A man carries a copy of *Mona Lisa* at a museum in Spain. ▶



THE CRIME¹ OF THE CENTURY

- 1 As he walked out of the Louvre Museum in Paris, France, he looked like an average repairman.² But what he carried
- 5 was very unusual. Under his jacket, Vincenzo Perugia was carrying *Mona Lisa*, one of the most famous paintings in the world. And he was **stealing** it!

- It sounds **incredible**, but it's a true story. On
- 10 August 20, 1911, Perugia went into the museum and hid. He **waited** 15 hours until the next morning. On the day of the crime, the museum was closed for repairs. Perugia walked out into the museum wearing the same kind of clothes as the other repairmen.
- 15 **No one paid attention** to him as he walked out the door!

- Police looked all over the world—Russia, Japan, and Brazil. They even interviewed Perugia, but they let him go! Police **continued** to look for the painting. Two years **passed** before Perugia brought *Mona Lisa* to a man in Florence, Italy, who **dealt** in art. Florence is the city where Leonardo da Vinci painted *Mona Lisa*. Unfortunately for Perugia, the art
- 20 dealer called the police, who arrested³ him.

Perugia said he wanted to return *Mona Lisa* to its “real” home. The police believed he wanted to sell copies of the painting and keep the **original** for himself. To this day, nobody really knows why he did it.

¹ A **crime** is an action that is wrong or illegal.

² A **repairman** makes broken things work again.

³ Police **arrest** someone when they catch them for a crime.



▲ The Louvre is the most visited art museum in the world. It gets 15,000 visitors a day.

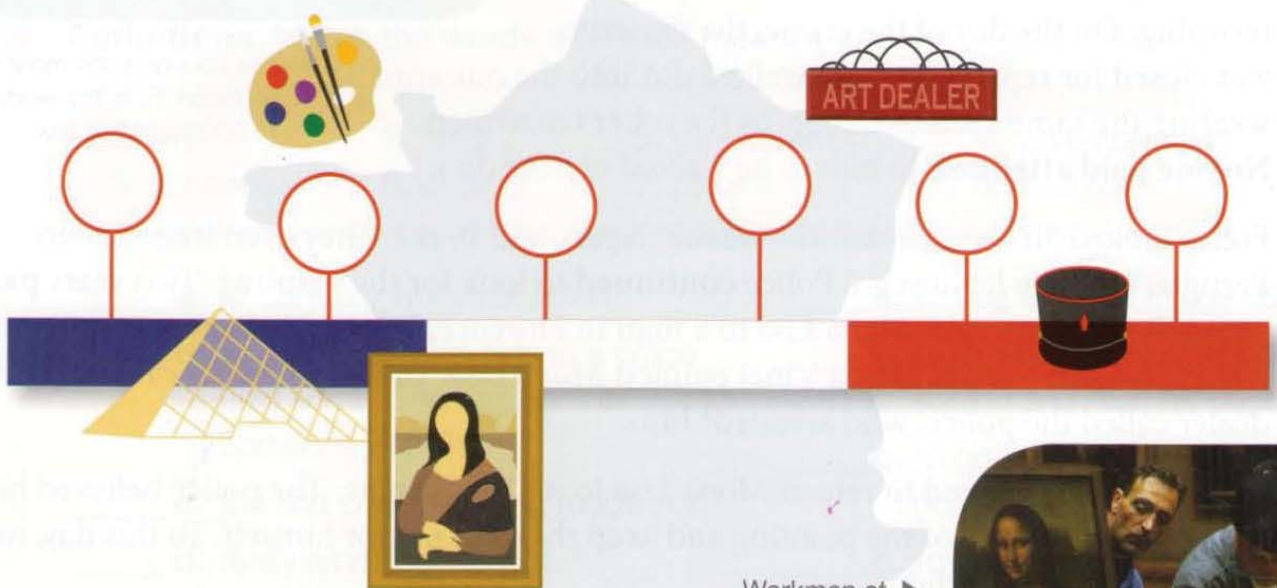
Reading Comprehension

A Circle the correct answer.

- Reference** 1. In line 15, **no one** refers to _____.
a. other repairmen b. the police c. museum visitors
- Detail** 2. The police got *Mona Lisa* back because _____ helped them.
a. an artist b. an art dealer c. da Vinci
- Inference** 3. Perugia said that he wanted to return *Mona Lisa* to Florence because _____ there.
a. da Vinci painted it b. his real home was c. art dealers lived
- Detail** 4. The author probably thinks it's amazing that _____.
a. Perugia waited to steal the painting
b. the dealer called the police
c. the police interviewed Perugia, but let him go.

B Strategy: Sequencing. Put these events in order.

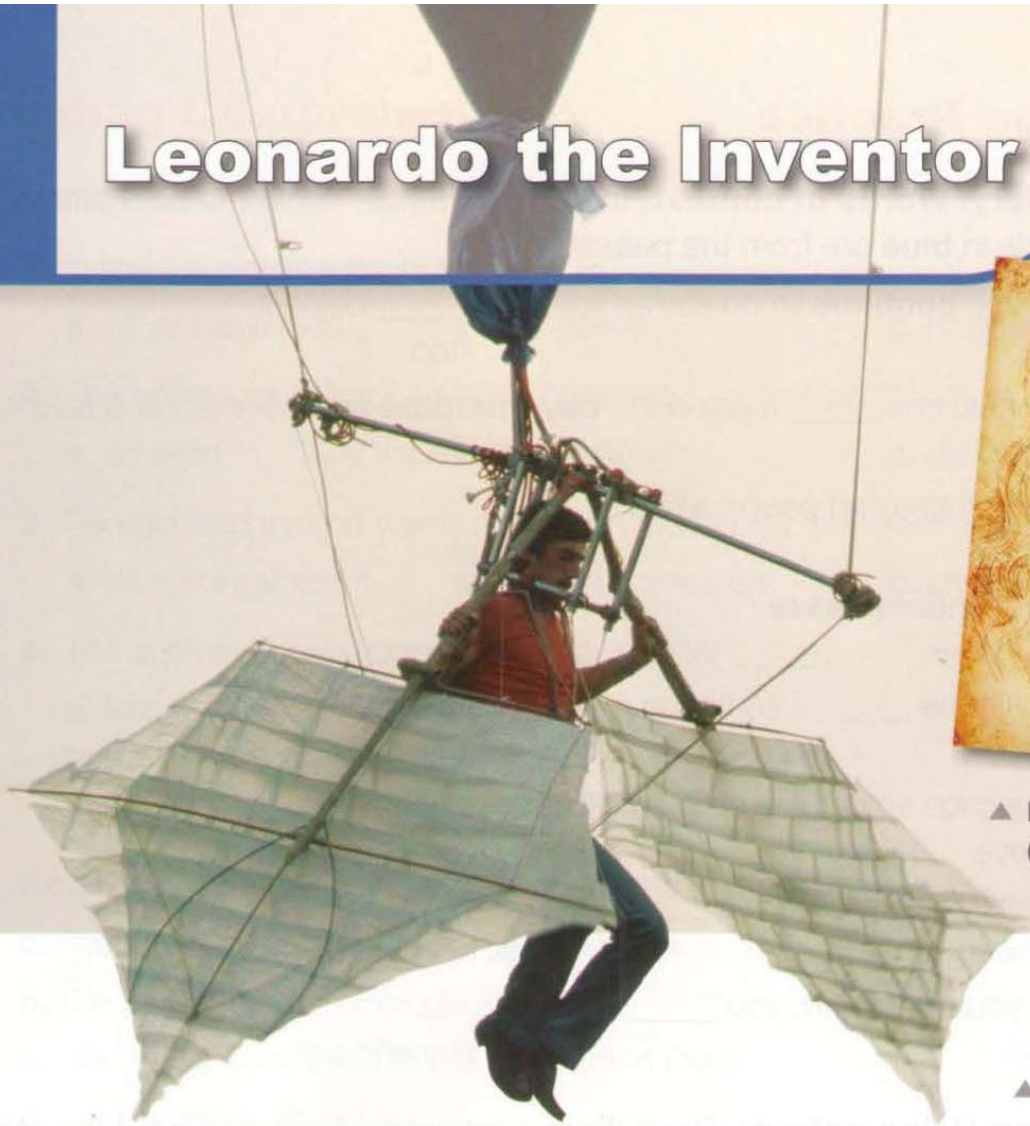
- Police looked for *Mona Lisa* for two years.
- The police arrested Perugia.
- Mona Lisa* went back to the museum in Paris.
- Perugia stole *Mona Lisa*.
- Perugia took the painting to an art dealer.
- Perugia went to the Louvre and hid somewhere so that no one could see him.



Workmen at the Louvre clean *Mona Lisa*'s frame.



Leonardo the Inventor



▲ Leonardo da Vinci
(1452–1519)

▲ As well as painting many famous paintings, Leonardo da Vinci was an inventor. This flying machine is based on one of his inventions.

Before You Read

A Discussion. What do you know about Leonardo da Vinci's inventions? Look at the inventions on this page and the next. Do you think they would work? Discuss with a partner.

B Definitions. Match the words with their meanings.

1. complete

2. artist

3. invent

4. future

5. knowledge

6. draw

7. design (*n.*)

8. model

___ a. a person who makes art

___ e. to finish

___ b. information

___ f. the time after now, often much later

___ c. a plan for something

___ g. to create things for the first time

___ d. a small copy of something

___ h. to make a picture with pens, pencils, etc.

Reading

Strategy: Skimming. What are three of Leonardo da Vinci's inventions?

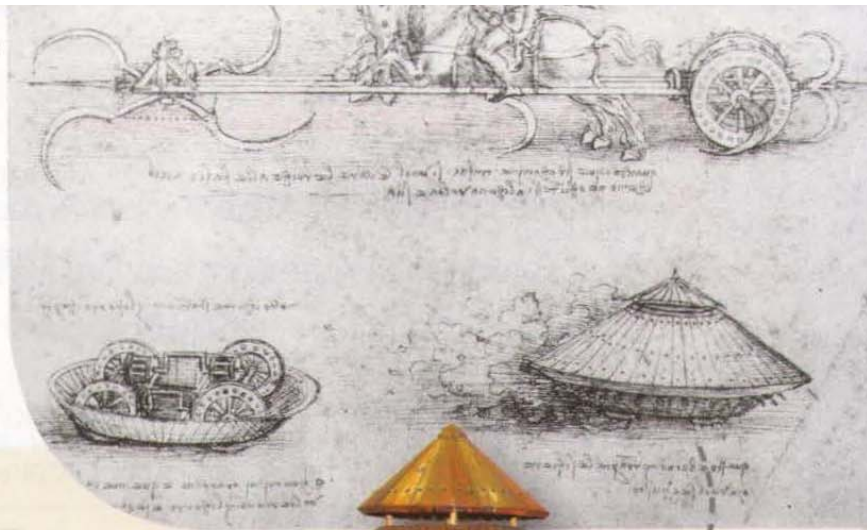
Inventor of the Future

- 1 Leonardo da Vinci once said, "Art is never finished." So it may not be surprising that he only **completed** about 12 paintings. These, however, include
- 5 *Mona Lisa* and *The Last Supper*, two of the world's most famous paintings. Today, everyone knows about Leonardo the **artist**. But he was more than that. He was also a scientist.

- 10 Leonardo da Vinci is often called one of history's greatest thinkers. Imagine the world of 500 years ago. At that time, few people were **inventing** new things. Bulent Atalay, who wrote a book about Leonardo, says, "He invented the **future**."
- 15 Leonardo studied engineering and physics.¹ He was also interested in the science of flight. With all of that **knowledge**, he imagined flying machines—400 years before the first airplane!

- Leonardo **drew** many of his ideas. They had incredible detail. Other people have used his **designs** to make parachutes, and inventions similar to today's submarine and telescope.
- 20 Leonardo's drawings showed all these things hundreds of years before anyone else! His drawings also showed how the machines of his day worked. In fact, today we can still use them to make **models** that work!

¹ **Physics** is the science of energy, light, and sound.



▲ Leonardo da Vinci drew plans for this tank 500 years ago.



▲ Leonardo da Vinci was interested in the parts of the body, and drew many sketches of bones and muscles in his notebooks.

Reading Comprehension

A Circle the correct answer.

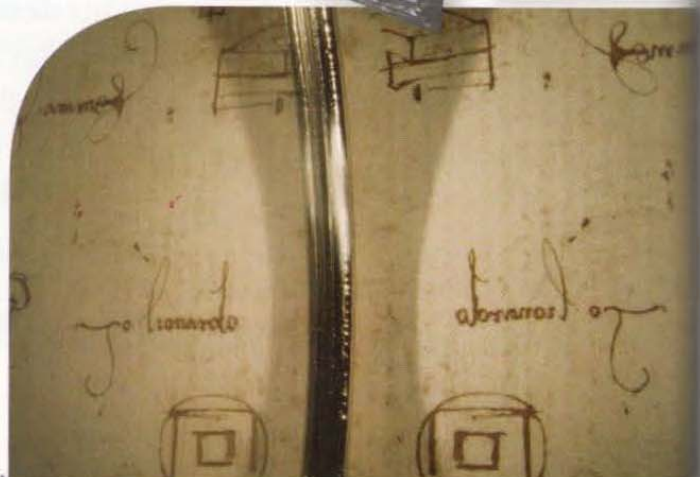
- Reference** 1. According to the passage, Leonardo is best known today for his _____.
a. inventions b. paintings c. scientific research
- Detail** 2. Who made a submarine from Leonardo's drawings?
a. Leonardo da Vinci b. Bulent Atalay c. other people
- Detail** 3. Which of these statements about Leonardo's inventions is true?
a. They have few things in common with today's technology.
b. They were extraordinary for the time.
c. They can't be understood by most people, even today.
- Inference** 4. According to the passage, Leonardo was _____.
a. less experienced in painting than inventing things
b. very good at making working models of his drawings
c. very careful when he drew and painted

B Strategy: Identifying supporting ideas. Match each of the topics (1–3) with two supporting ideas (a–f).

1. Leonardo the artist 2. Leonardo the scientist 3. Leonardo the inventor

- _____ a. He wanted to understand how things work.
- _____ b. He created a flying machine hundreds of years before an airplane flew.
- _____ c. He used his drawing ability to show others his ideas.
- _____ d. He made designs of things no one had seen before.
- _____ e. He wanted to know more about energy and light.
- _____ f. He painted extremely famous paintings.

Leonardo da Vinci kept many notebooks of ideas. To keep his writing secret, he used mirror-writing.



Language Practice

A Vocabulary: Words in context. Answer the questions below so they are true for you. Share your answers with a partner.

1. What is something you want to **complete** this year?

2. Other than Leonardo da Vinci, who are two other famous **artists** you know?

3. What is one thing you would like to **invent**? Why?

4. What is one thing you think will be different in the **future**?

5. What is a subject you have a lot of **knowledge** about?

6. What is one thing you are able to **draw**?

7. Imagine you can **design** your perfect bedroom. What is in it?

8. Do you like to make **models**? Why or why not?

B Grammar: Talking about interests. Read these sentences. Sentence **a** is from the passage.

- a. He was also **interested in** the science of flight.
- b. The scientists were very **interested in** the animals they discovered.
- c. Dr. Rodgers is **interested in** finding out where hurricanes are.

Complete the sentences with your ideas. Share your answers with a partner.

1. Two years ago, I was interested in _____, but I'm not now.
2. Most people I know are interested in _____.
3. I'm interested in _____.
4. I'm not interested in _____.

Word Link

-ist = a person who does something:
artist, tourist, scientist, violinist, guitarist

Video

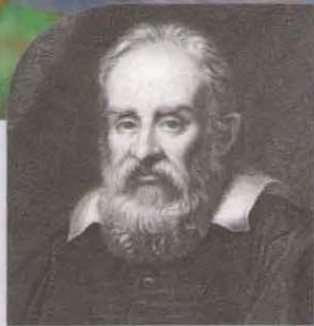
The Renaissance



The Creation of Adam is part of the famous ceiling of the Sistine Chapel, Vatican City.



Galileo Galilei ▶



◀ Nicolaus Copernicus

A Preview. The Renaissance started in Italy in the late 1300s and continued until the 17th century. During this time, people became more interested in books and poems. What else do you think they became interested in? Discuss with a partner.

B After you watch. Match the people to their descriptions.

- | | | |
|------------------------|----------------------|-----------------|
| a. Galileo Galilei | b. Leonardo da Vinci | c. Michelangelo |
| d. Nicolaus Copernicus | e. The Medici family | |

- ___ a. an artist who made the statue of David and painted the Vatican's Sistine Chapel
- ___ b. an artist, scientist, and inventor
- ___ c. inventor of the thermometer and the first to use a telescope to look at the sky
- ___ d. one of the powerful families that ruled Italian cities
- ___ e. the first person to say that the Earth goes around the sun

C Think about it. We remember Galileo, Michelangelo, and Leonardo da Vinci more than 500 years after they died. Are there people living today who will be famous 500 years from now?

Vocabulary Review

Review 3

Words in context. Unscramble the words to complete the sentences.

1. In the past, many _____ (**lndbi**) people _____ (**grwe**) up without books to read. But since now many books are _____ (**tteadaslrn**) into Braille, they can enjoy the _____ (**ecernpxiee**) of reading.
2. Leonardo da Vinci was not just a(n) _____ (**saittr**), he had a lot of _____ (**kelgedwon**) about many things. He _____ (**nvienetd**) many machines that looked like they came from the _____ (**utfreu**). Today, we can see drawings and _____ (**emosdl**) of his inventions in museums.
3. The thief had a(n) _____ (**eicnlbrdie**) plan. He dressed up like a policeman, so no one paid _____ (**nioaenttt**) to him when he _____ (**sdsepa**) them carrying the painting. They had no idea he was _____ (**ingsleta**).
4. While we _____ (**dtiwea**) for our parents to make a _____ (**iocdsein**) about where to go for dinner, we helped our _____ (**igehorbn**) with her garden.
5. At the _____ (**ega**) of five, Mozart was already writing _____ (**inroailg**) pieces of music.

World Heritage Notes

Notes Completion. Scan the information on pages 84 and 85 to complete the notes.



What: Historic Center of Florence

Where: Tuscany, Italy

Data:

- Florence was once a small village for Roman soldiers.
- The Palazzo Vecchio is the _____ of Florence.
- The Uffizi Gallery is one of the oldest and most famous _____ in the world.
- The Ponte Vecchio (or old bridge) is special because it's the last bridge in Italy that is _____.
- The Duomo's dome is the largest _____ ever made.
- The Bargello is the oldest public building in Florence. In the past, it was a police station and _____.

Florence, Italy

Site: **Historic Center of Florence**

Location: **Tuscany, Italy**

Category: **Cultural**

Status: **World Heritage Site since 1982**



The **Ponte Vecchio** (or old bridge), built in the 14th century, was the only bridge in Florence that was not destroyed in World War II. It is unique because it's the last bridge in Italy that is lined with shops.

The **Uffizi Gallery** used to contain the offices for the city's government. Today, it is one of the most famous art museums in the world. Artists like Leonardo da Vinci and Michelangelo often came to the Uffizi to work and enjoy the art.

The **Palazzo Vecchio** is the town hall of Florence. In the square below stands Michelangelo's *David*, Florence's most famous sculpture.

From street artists to world-famous art galleries, Florence has always been a city of art. In ancient times, it was once a small village for Roman soldiers. However, in the 14th and 15th centuries, the Medici family became rulers of the city. They ordered and paid for many of the buildings and works of art that the city is now famous for, and it became the birthplace of the European Renaissance. Today, it is one of the world's loveliest cities.

The **Bargello** is the oldest public building in Florence. During the Middle Ages and Renaissance periods, it was a police station and prison, but it is now an art museum.

Reaching 90 meters into the air, the **Duomo** was once the largest dome in the world, and is still the largest brick dome ever constructed.



An Italian Folktale

A Happy Man's Shirt

1 Once upon a time, there lived a good and honest king. But he was very unhappy. He was so sad, he wouldn't eat, and couldn't sleep. So the queen called for the best doctor in the kingdom.

5 The wise doctor said, "To be happy again, the king must find and wear the shirt of a happy man."

The king looked up from his bed. "That's all?" he asked. "Ask the prime minister¹ to give me his shirt. He is very powerful, and his wife is very beautiful. He must be a very happy man."

10 But the prime minister said, "Oh, no. I'm not a happy man. My son doesn't want to be a minister like me. He wants to run away to be a treasure hunter." He began to cry.

So the queen called all the rich people in the kingdom to come to the castle. All were healthy, and most had big houses and a lot of expensive things. Their families were clever and beautiful. But not one of them could say they were really happy.

15 But the queen would not give up. She asked her soldiers to look all over the kingdom for a happy man. All the soldiers came back with the same story. They couldn't find a man who was really happy.

20 Then one day, a young soldier saw a man sitting in a field. The man was singing a loud happy song. "Why are you singing? You are poor and dirty, and you have nothing," the soldier said.

"I am happy because I have everything I want, and I've never wanted what I couldn't have," the cheerful man said.

The soldier did not believe him. But when he told the queen about it, she asked the soldier to bring the happy man to the castle.

25 At last, the happy man arrived at the castle. When the king saw him, he was surprised. Then he started to laugh. The happy man wore no shirt.

¹ In some countries, the leader of the government is called the **prime minister**.

Reading Comprehension

Strategy: Sequencing. Number the events in the story on pages 86 and 87 from **1** (the first) to **8** (the last).

- a. _____ The king was unhappy, and couldn't sleep.
- b. _____ The king was happy once more.
- c. _____ The queen called for the doctor.
- d. _____ A young soldier found a poor, dirty, but cheerful man.
- e. _____ The cheerful man came to see the king.
- f. _____ The unhappy prime minister began to cry.
- g. _____ All the rich people came to the castle.
- h. _____ The queen's soldiers searched the whole kingdom.

Vocabulary Extension

Vocabulary: Describing people. Circle the words in the folktale that are used to describe people. Then match the describing words below with their definitions. Which are positive and which are negative?

- | | | | |
|-------------|-----------------------|-----------------------|---|
| 1. cheerful | <input type="radio"/> | <input type="radio"/> | very strong; able to control people and events |
| 2. clever | <input type="radio"/> | <input type="radio"/> | usually happy |
| 3. dirty | <input type="radio"/> | <input type="radio"/> | smart; intelligent |
| 4. honest | <input type="radio"/> | <input type="radio"/> | not clean |
| 5. poor | <input type="radio"/> | <input type="radio"/> | having little or no money |
| 6. powerful | <input type="radio"/> | <input type="radio"/> | having a lot of money or things |
| 7. rich | <input type="radio"/> | <input type="radio"/> | fair; not lying or cheating |
| 8. wise | <input type="radio"/> | <input type="radio"/> | able to use their experience to make good decisions |

Festivals

7



Men form a human ►
pyramid at the festival of
Saint Felix in Vilafranca
del Penedès, Spain.

Warm Up

Talk with a partner.

1. What festivals are important in your country? Make a list.
2. What do people do during those festivals?

7A

A Korean Festival



▲ colorful lanterns at Bulguksa, a temple in South Korea

Before You Read

A Discussion. Look at the photos above and on the next page. This passage is about a famous Korean festival. What do you think people do for this festival? Discuss with a partner.

B Definitions. Match the words with their meanings.

- | | | | |
|-------------|---------------|------------|----------------|
| 1. activity | 2. instrument | 3. metal | 4. miss |
| 5. sight | 6. site | 7. suggest | 8. traditional |

___ a. a hard thing like gold, silver, iron, or tin

___ b. to say something so another person thinks about doing it

___ c. something to see

___ d. to not do or see

___ e. a place where something is or happened

___ f. something that has been the same way for a long time

___ g. something used to make music

___ h. something people do

Reading

Strategy: Scanning. What are three things people do at the festival?

SEOUL, KOREA: THE LANTERN FESTIVAL

1 Seoul is the **site** of one of the most amazing festivals in the Korean calendar—the Lantern Festival. Look for it in April or May. Here are a few of the fantastic **sights** you can see.

5 Women wear **traditional** Korean clothes in bright greens, pinks, peaches, and purples. Some of them carry fans with bright pink flowers on them. The fans can be longer than their arms! Other women carry lanterns of all shapes and sizes.

Regular visitors to the festival **suggest** going to the music and dance shows to see poongmulnori. Poongmulnori is a traditional Korean drum music. It mixes dancing, acting,¹ and acrobatics² all in one. In the past, people used the music to celebrate. They also used it to frighten away demons. The show starts with the sounds of **instruments**. At first, you may think the noise of **metal** hitting metal can't get louder—but it will! And the excitement grows as the music and dances continue. By the end of the show, it's hard not to join in!

20 During the festival, painting on wood is a popular **activity**. Try painting lotus flowers.³ They are both beautiful and the **symbol** of the festival.

25 The lantern festival really is a must-see for any tourist to Korea. You don't want to **miss** it!



Fan dancing is a popular sight at the festival.

Poongmulnori drummers wear traditional Korean clothes.



▲ Anyone can join in the wood painting.



² people doing acrobatics



³ a lotus flower

¹ **Acting** is when someone tries to be like another person, for example, in a movie.

Reading Comprehension

A Circle the correct answer.

Detail 1. According to the passage, which of these come in many different sizes.
a. fans b. lanterns c. drums

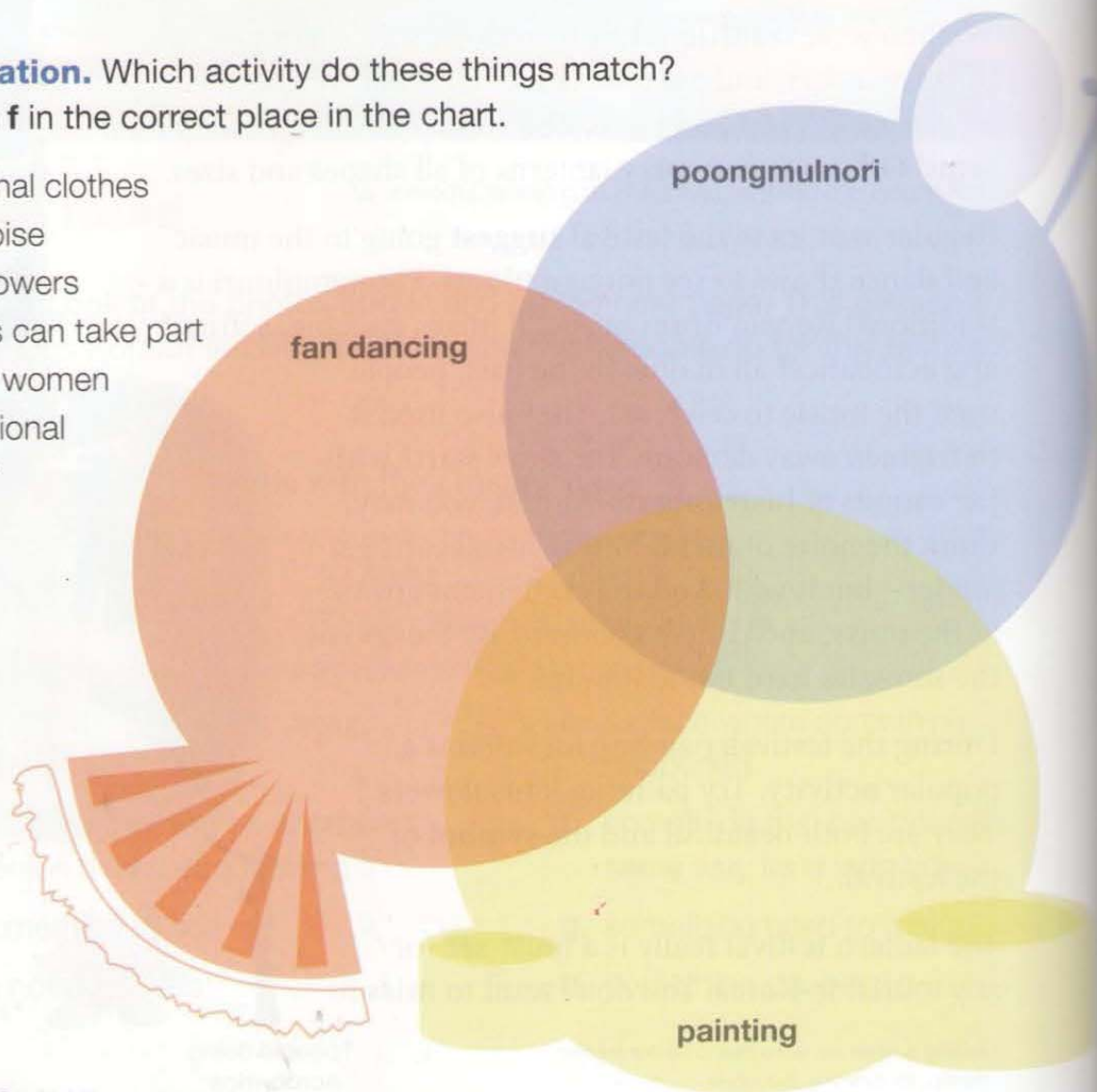
Inference 2. In everyday life, Korean women _____ wear the bright clothes discussed in the passage.
a. rarely b. always c. usually

Detail 3. The poongmulnori is probably _____.
a. loud at first but then gets quiet
b. quiet at first but then gets loud
c. loud from beginning to end

Vocabulary 4. In line 22, the word **symbol** means a(n) _____.
a. act b. thing c. event

B Classification. Which activity do these things match?
Write **a** to **f** in the correct place in the chart.

- a. traditional clothes
- b. loud noise
- c. lotus flowers
- d. tourists can take part
- e. mostly women
- f. a traditional activity



Language Practice

A Vocabulary: Words in context. Answer the questions below. Talk about your answers with a partner.

1. What shouldn't people **miss** in your area?

2. Is your area more **traditional** or more modern?

3. What is one **activity** you do every day?

4. Do you like to drink from **metal**¹ or plastic bottles?² Why?

5. Can you **suggest** a good place to eat near your home?

6. What is your favorite musical **instrument**? Why?

7. Are kangaroos³ a common **sight** in your area?

8. What is a famous **site** in your country?



¹ a metal bottle



² a plastic bottle



³ a kangaroo

B Grammar: Using *by* to talk about time. Read these sentences. Sentence **a** is from the passage.

a. **By** the end of the show, it's hard not to join in!

b. The shark had swum 20,000 kilometers **by the time** it got back to Australia.

Usage

A **site** is a place where something happens or happened, e.g. **campsite, historical site, archeological site.**

A **sight** is something you see, e.g. **a beautiful sight, an amazing sight.**

Complete these sentences. Share your answers with a partner.

1. The teacher said, "Turn in your homework by _____."

2. I want to _____ by the time _____.

3. By the time _____.

4. _____.

The Sun Also Rises



▲ The "Running of the Bulls." Runners race around a **corner** to escape **galloping** (running) bulls during the Festival of San Fermin in Pamplona, Spain.



◀ Ernest Hemingway (left) with his wife and friends at a café in Pamplona in 1925—the same year he wrote *The Sun Also Rises*.

Before You Read

Ernest Hemingway (1899–1961) was a famous American author. *The Sun Also Rises* (1925) was his first novel. Hemingway wrote many other books, including *A Farewell to Arms* and *The Old Man and the Sea*.

A Discussion. The passage on the next page is from Hemingway's novel *The Sun Also Rises*. In the story, a man is watching the Festival of San Fermin. Look at the picture above. What do you think happens during this festival? Talk about your ideas with a partner.

B Definitions. Match the words with their meanings.

- | | | | |
|-------------|----------|--------------|------------|
| 1. behind | 2. space | 3. edge | 4. notice |
| 5. announce | 6. empty | 7. wake (up) | 8. release |



- | | |
|--|-------------------------------------|
| _____ a. the place or line where something stops | _____ e. to stop sleeping |
| _____ b. to say, usually in an important way | _____ f. to see or pay attention to |
| _____ c. something with nothing in it is _____ | _____ g. to let go of |
| _____ d. not in front of | _____ h. an area |

Reading

Strategy: Scanning. Quickly read the passage. Does the writer run in the race?

THE BULLS RUN

1 When I **woke** it was the sound of the rocket¹ exploding that **announced** the **release** of the bulls from the corrals² at the **edge** of town. They would race through the streets and out to the bullring.

Down below, the narrow street
5 was **empty**. All the balconies were crowded with people. ¹ a rocket Suddenly a crowd came down the street. They were all running, packed close together. They passed
10 along and up the street toward the bullring and **behind** them came more men running faster, and then some stragglers³ who were really running. Behind



▲ People watch the run from balconies.



▲ the bullring in Pamplona

15 and then the bulls galloping, tossing their heads⁵ up and down. **It all** went out of sight around the corner. One man fell, rolled to the gutter,⁶ and lay quiet. But the bulls went right on and did not **notice** him.
20 They were all running together.

After they went out of sight, a **great roar** came from the bullring. It kept on. Then finally the **pop** of the rocket that meant the bulls
25 had gotten through the people in the ring and into the corrals.

² A **corral** is an area with a fence around to keep in animals like horses or cows.

³ **Stragglers** are people who are slower than the rest of the group.

⁴ If a room or area is **bare**, it is empty.

⁵ When someone **tosses their head**, they move it quickly, often angrily.

⁶ The **gutter** is the edge of the road, where rain flows away.

Reading Comprehension

A Circle the correct answer.

Detail 1. What woke the man up?

- a. an announcement b. an explosion c. the bulls

Reference 2. In line 16, the words **It all** refer to the _____.

- a. bulls b. stragglers c. race

Vocabulary 4. A **great roar** (line 23) and a **pop** (line 24) are both a kind of _____.

- a. sight b. sound c. event

Detail 3. Where did the race finish?

- a. at the edge of town b. at the bullring c. under the writer's balcony

B Strategy: Identifying True, False, or Not Given. Are these statements about the reading true (T), false (F), or is the information not given in the passage (NG)?

- | | | | |
|---|---|---|----|
| 1. The writer heard two rockets. | T | F | NG |
| 2. Before the race, the streets were crowded. | T | F | NG |
| 3. The writer's friends were in the race. | T | F | NG |
| 4. The bulls killed one man. | T | F | NG |
| 4. The stragglers were behind the bulls. | T | F | NG |
| 5. There are corrals at the start and finish of the race. | T | F | NG |



The fireworks bull, or *Toro de Fuego*, is part of Pamplona's Festival of San Fermin.

Language Practice

A Vocabulary: Summary completion. Use the words in the box to complete the summary of the story.

empty noticed edge announced space behind released woke

As I was sleeping, a loud sound **1.** _____ me. The bulls had been **2.** _____! They were running! I quickly got up and went to the balcony. Below, the race hadn't arrived yet, so the streets were still **3.** _____.

"It won't be long," I thought. The other balconies were already filled with people. There wasn't enough **4.** _____ for even one more person on some of them.

Suddenly, I heard them below. A large group of people was running fast. Soon, I saw more people, running more quickly. And then **5.** _____ them, I **6.** _____ some people who looked afraid. Why? Suddenly, the bulls came running through the street. That's why they looked so afraid! One man fell, but he moved to the **7.** _____ of the road, and was OK. Then, as quickly as they came, they left.

Then I heard the rocket which **8.** _____ that the day's run was over.

B Grammar: Past perfect. Read these sentences. Sentence **a** is from the passage.

- a.** Then finally the pop of the rocket that meant the bulls **had gotten** through the people in the ring and into the corrals.
- b.** When I went out, I saw that people **had** already **started** standing on their balconies.

Complete the sentences using the past perfect form of the words in the box.

arrive drop leave study

1. I got to school and discovered I _____ my homework at home.
2. I was late to school—when I got there, everyone else _____ already _____.
3. On the ground, I found a wallet¹ that someone _____.
4. I _____ for the test, but I didn't pass it.



¹ a wallet

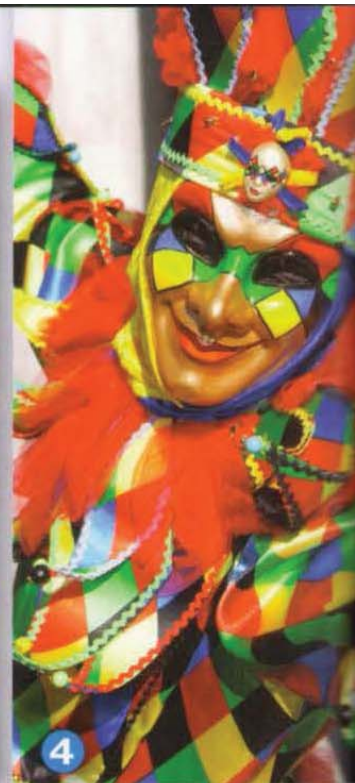
Word Partners

Use wake with:

(phrases) wake **up during the night**, wake **up in the middle of the night**, wake **up in the morning**

(adv.) wake **(someone) up**

Video
Mardi Gras



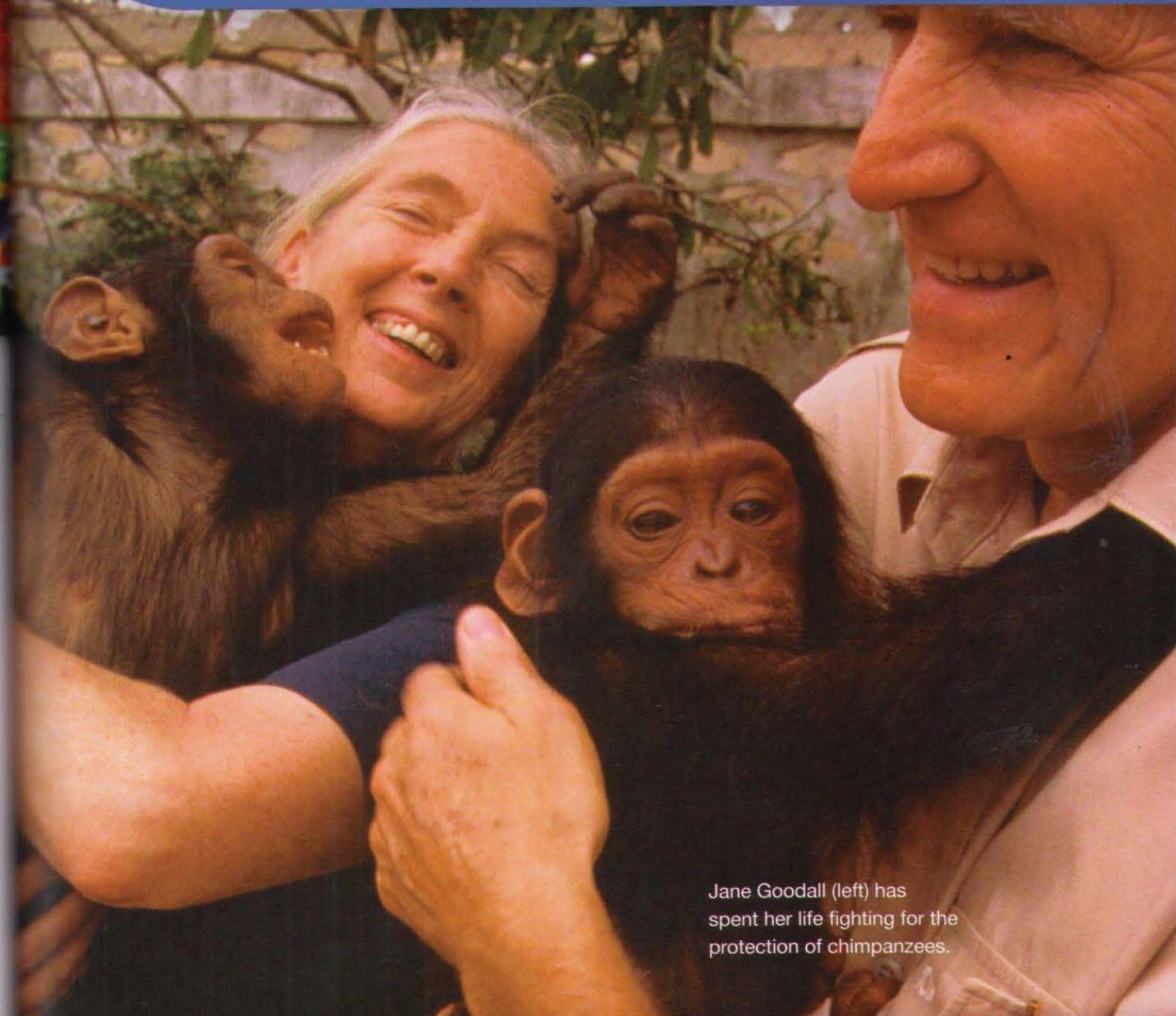
A Preview. You will hear these words in the video. Match the words in the box to the correct pictures. -

costume float king cake parade

B As you watch. Number these events in order.

- a. ___ A million visitors come to see Mardi Gras every year.
- b. ___ A secret club, called the Mystick Krewe of Comus, held a parade with floats.
- c. ___ Christianity grew in Europe and old festivals became Church holidays.
- d. ___ French people came to live in New Orleans.
- e. ___ In ancient Rome, people celebrated the arrival of spring.
- f. ___ Other groups added their own floats.
- g. ___ The Roman festival of spring became Carnival.

C Think about it. What do you know about the history of a festival in your country? Tell a partner.

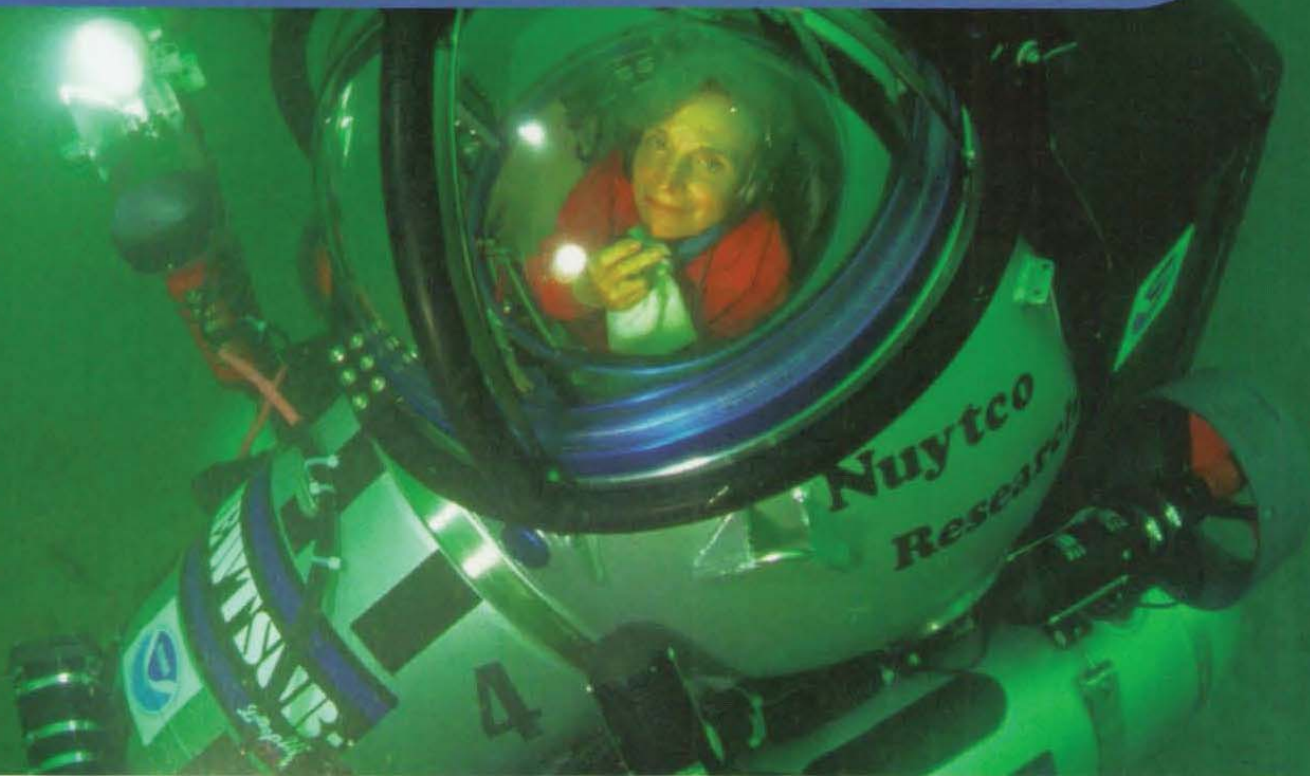


Jane Goodall (left) has spent her life fighting for the protection of chimpanzees.

Warm Up

Talk with a partner.

1. What makes a person a hero?
2. Name a few of your heroes. Why are they your heroes?



▲ Sylvia Earle in a one-person deep sea vehicle

Before You Read

A Discussion. Sylvia Earle is one of the world's best known marine scientists (people who study the oceans). She said, "The next ten years is likely to be the most important time [for the sea] in the next 10,000 years." What do you think this means? Talk about your ideas with a partner.

B Definitions. Match the words with their meanings.

1. spend

2. solve

3. attach

4. inspire

5. talent

6. advise

7. improve

8. leader

_____ a. to join two or more things together

_____ e. to tell someone what you think they should do

_____ b. to make better

_____ f. the person who is above the other people in a group

_____ c. an ability

_____ d. to help make a person want to do something

_____ g. to use time or money

_____ h. to find an answer to a problem

Reading

Strategy: Predicting. Which questions do you think this passage will answer? Read the passage to check.

- Why is Sylvia Earle famous?
- Why is the ocean important for life?
- What can people do to help the ocean?

Earle doing research with
an underwater photographer



Sylvia Earle: Oceanographer



▲ Sylvia Earle,
marine scientist

- 1 A living **legend**. A hero for the planet. These are just two of the many descriptions of Sylvia Earle and her love for the ocean. It's a love that started when she was a child, and has continued her whole adult¹ life.

A Woman of Firsts

- 5 For over 40 years, Earle has been a **leader** on deep ocean expeditions² around the world. Earle says that the great thing about exploration is that it's never over. Even so, **spending** 6,000 hours underwater—like she has—is amazing!

Earle wasn't happy to just follow others. She was the leader of the first team of women to live underwater. And in 1979, she walked on the ocean floor. **Unattached** to any
10 boat, she walked deeper in the ocean than any woman before or since.

Inspiring Others

Being a marine scientist isn't Earle's only job. She believes she must **inspire** people to **solve** the ocean's problems. She wants people to use their **talents** to **improve** the world. "Don't take no for an answer," she **advises** people. "Find out what you want to do. Then
15 find a way to make it happen . . . If you have a dream of your own, don't wait!"

¹ An **adult** is someone who is no longer a child.

² An **expedition** is a trip to do something (for example, to study new animals).

Reading Comprehension

A Circle the correct answer.

- Vocabulary** 1. In line 1, the word **legend** means _____.
a. an old story b. information on a map c. a famous person
- Detail** 2. According to the passage, how many hours has Earle spent underwater?
a. 40 b. 1,979 c. 6,000
- Inference** 3. Which of these statements does Earle probably NOT believe?
a. People should always have a dream.
b. Women should avoid challenges.
c. Anyone can make a difference.
- Detail** 4. Which of these statements about Earle is true?
a. She led the first team of women to live underwater.
b. She was the first woman to scuba dive.
c. She has gone deeper in the ocean than any other person.

B Strategy: Identifying fact or opinion. Which of these statements about Earle are facts (F) and which are opinions (O)?

- a. _____ Earle is a hero.
- b. _____ Earle has explored oceans all over the world.
- c. _____ Earle is a marine scientist.
- d. _____ Earle has loved the sea for over 40 years.
- e. _____ Earle's advice is very useful.
- f. _____ Earle is an inspiration.

Sylvia Earle (right) and another scientist in 1971. Earle has been doing underwater research for over forty years.



Language Practice

A Vocabulary: Words in context. Answer the questions below so they are true for you. Share your answers with a partner.

1. How do you usually **spend** the weekend?

2. When you have a problem, how do you **solve** it?

3. How often do you **attach** pictures to emails?

4. Who is one person that **inspires** you? Why?

5. What are two **talents** you have?

6. What do you think of Earle's **advice** in the last paragraph of the passage?

7. What can you do to **improve** the world?

8. Would you like to be a **leader**? Why or why not?

B Grammar: Using *must*. Read these sentences. Sentence **a** is from the passage.

a. She believes she **must** inspire people to solve the ocean's problems.

b. To go into the Cave of Crystals, you **must** wear a lot of protective clothing.

Complete these sentences using **must**. Then share your sentences with a partner.

1. A good leader _____.

2. To protect our oceans, we _____.

3. _____.

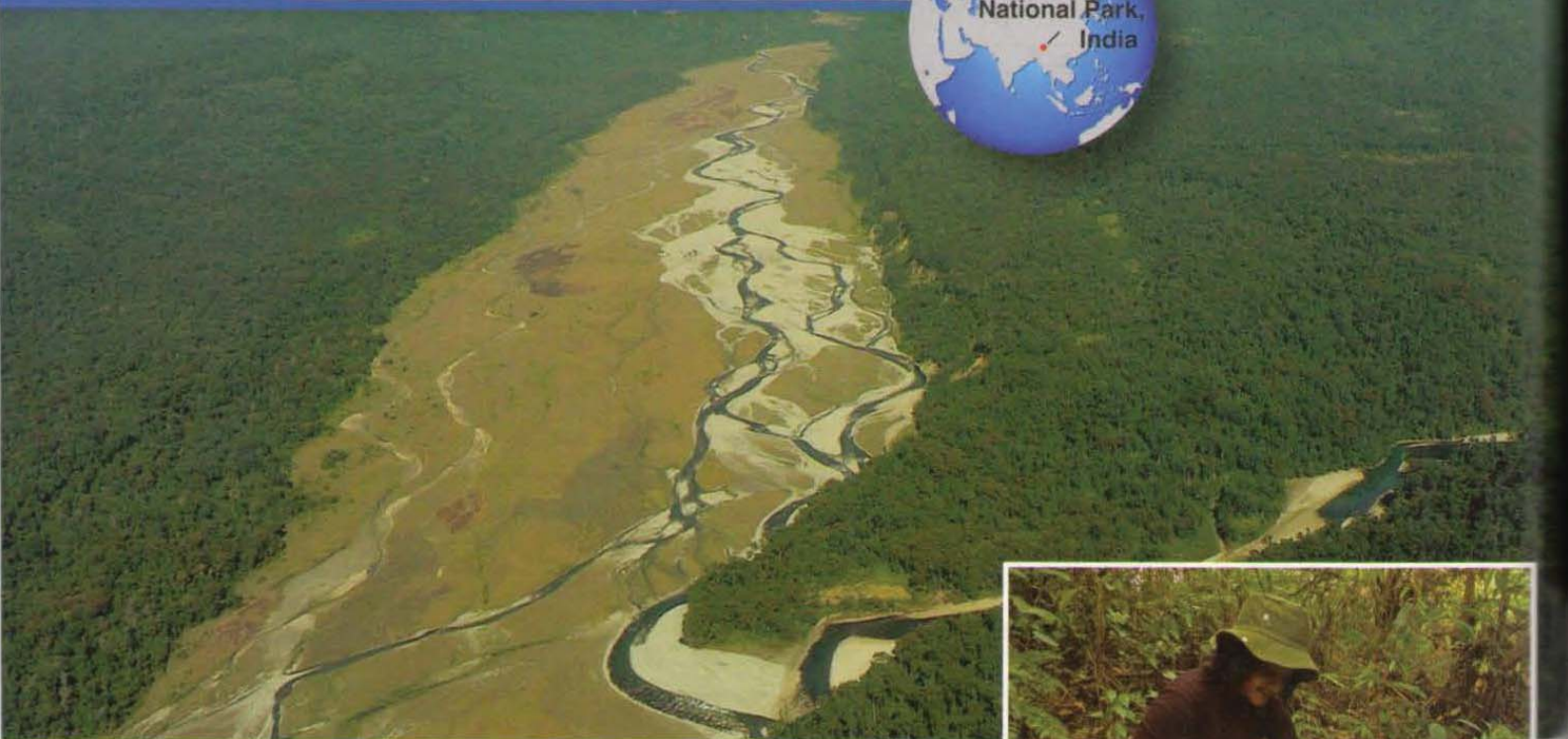
Usage

advice and advise

Be careful not to confuse *advice* and *advise*. *Advice* is a noun, and the *c* is pronounced like the *ss* in *less*. *Advise* is a verb, and the *s* is pronounced like *z* in *size*. *Hiroko advised Paolo not to give people advice!*

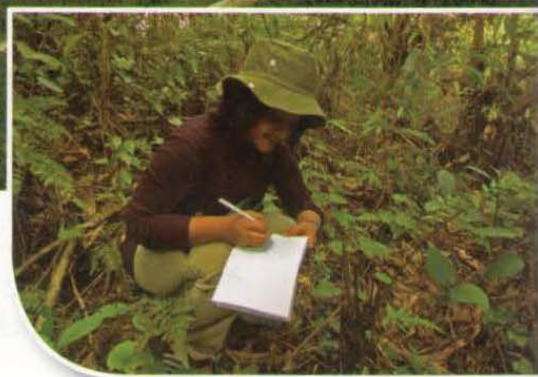
8B

Saving India's Forests



▲ Namdapha National Park is the largest national park in India.

Aparajita Datta ► doing research in the forests of Namdapha National Park



Before You Read

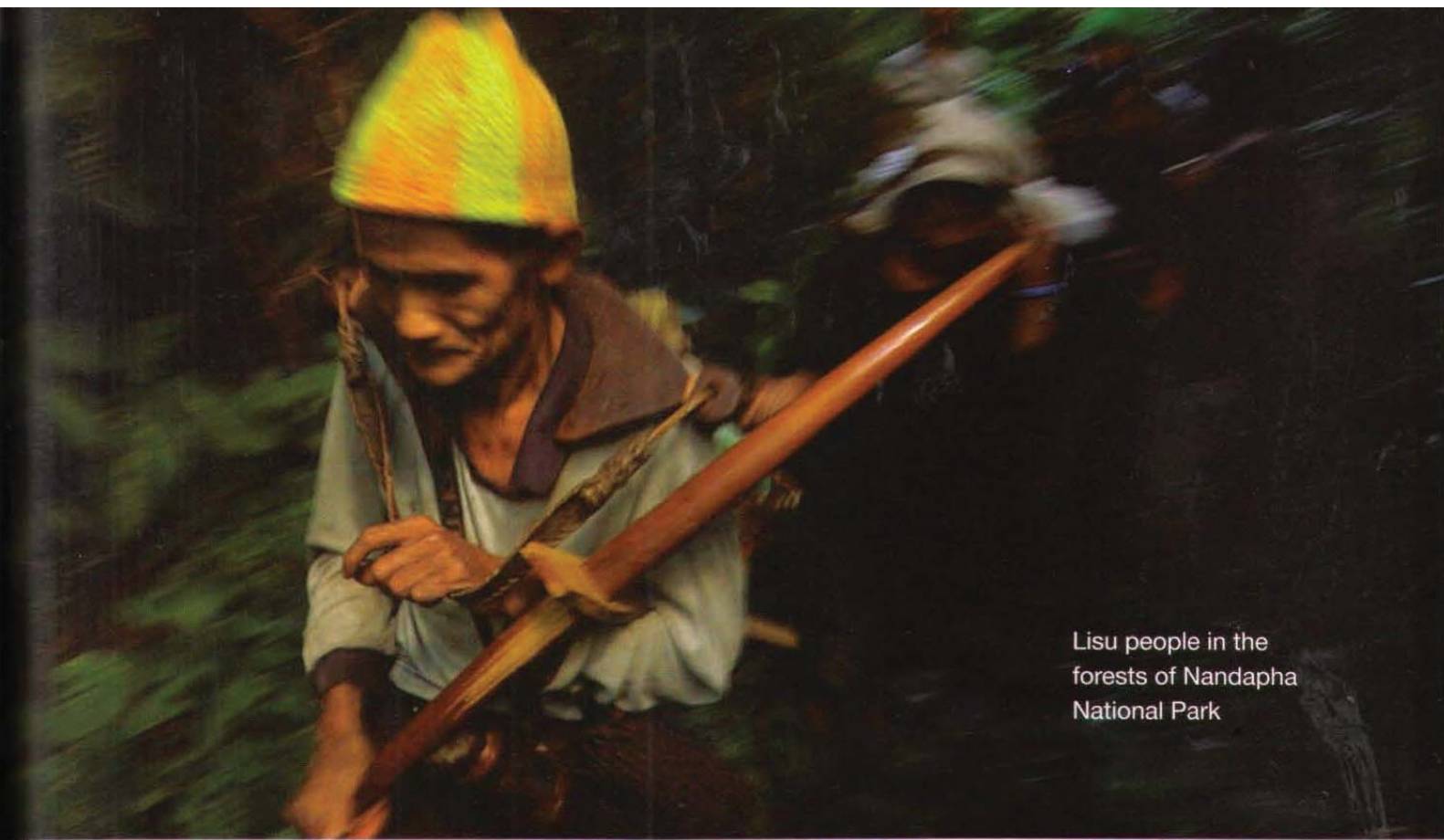
A Discussion. What do you think life is like for people who live in a forest? Do you think those people hurt or help the forests? Talk with a partner.

B Definitions. Match the words with their meanings.

- | | | | |
|-----------|----------------|-------------|-------------|
| 1. enter | 2. environment | 3. national | 4. natural |
| 5. region | 6. thick | 7. variety | 8. wildlife |

- ___ a. the opposite of thin
- ___ b. about or by a country
- ___ c. from nature; not made by humans
- ___ d. an area, often different than other areas near it

- ___ e. the animals living in nature
- ___ f. to go into a place
- ___ g. many kinds
- ___ h. the conditions of an area that affect the animals, plants, and people there



Lisu people in the forests of Nandapha National Park

Reading

Strategy: Scanning. How long has Aparajita Datta been working in the area?

Saving the Animals and the People

1 In Namdapha **National** Park, in northeast India, Aparajita Datta moves slowly across a bridge¹ high above the river. On the other side, she **enters** the **thick** tropical forest. Later, Datta calls the **variety** of **wildlife** in the area “mind-boggling.”

This area is the most species-rich **environment** in India. There are over 100 mammal species
5 here. There are 500 species of birds and more than a thousand different plants. For about eight years, Datta has worked to protect the **region**. After two years in the area, she understood something important—she needed the support of the local people to protect the forest. Ever since then, she has been focusing her attention on the people of the Lisu tribe.²

The Lisu people have lived in the area of the Namdapha National Park since before it was
10 protected in 1983. The Lisu are far from everything. They need to walk four days to reach the nearest town. They have to hunt and grow their own food. With little land to grow rice, they have to cut down the trees in the forests. But this destroys the plants’ and animals’ **natural** habitats.

Datta started working with the Lisu. She started a program which reduces hunting, and helps
15 save wildlife. It also tries to find solutions that can help protect for the future the **diversity** that makes the area so special.

¹ A **bridge** lets people cross a river, road, or other place that cannot be crossed easily.

² A **tribe** is a group of people with the same language, history, and general ideas.

Reading Comprehension

A Circle the correct answer.

- Detail** 1. After Datta had worked in the area for a few years, she believed the Lisu _____.
a. wanted a national park to protect the area
b. had to change their way of living
c. needed roads to get to town more easily
- Detail** 2. According to the passage, there are more kinds of bird species in the area than kinds of _____.
a. mammals b. animals c. plants
- Inference** 3. The author probably _____ the importance of having the Lisu protect the forest.
a. agrees with b. doesn't understand c. disagrees with
- Vocabulary** 4. Examples of the area's **diversity** (line 15) are all of the _____.
a. Lisu people b. plants and animals c. forest trees

B Strategy: Sequencing. Number these statements in order from 1 to 5.

- a. _____ Datta started trying to save the wildlife.
- b. _____ India made the Namdapha area a national park.
- c. _____ The Lisu started living in the area.
- d. _____ Datta slowly went across the bridge in the story.
- e. _____ The Lisu stopped some of their hunting.

Aparajita Datta (right) and ▶
another researcher in
the forests of Namdapha
National Park



Video

Bluefin Rescue



A Preview. What food do you eat that comes from the oceans?
Talk about your ideas with a partner.

B After you watch. Circle the correct answer in each sentence.

1. On average, wild bluefin tuna are becoming (**larger** / smaller).
2. When Masuma finds tuna eggs, he moves them to (**small tanks¹** / the sea).
3. When the baby tuna grow up, Masuma will (**return them to the sea** / **sell them to restaurants**).
4. Sylvia Earle is impressed with Masuma's work because (**he is fighting tuna predators** / **he is the first scientist to grow baby bluefins on a farm**).
5. Scientists say that we must (**reduce the number of bluefin tunas humans catch** / **only catch young tuna**).

C Think about it. What do you think of Masuma's work? Do you think that one scientist can save an endangered species?

¹A **tank** is a container for holding liquids, such as water.

Vocabulary Review

Review

4

Words in context. Unscramble the words to complete the sentences.

1. Although Death Valley _____ (**Nlnotiaa**) Park is in the hottest and driest _____ (**goreni**) of the United States, it has a wide _____ (**taiveyr**) of unique desert _____ (**fwiidell**).
2. Even archeologists who have a(n) _____ (**aenltt**) for _____ (**lovgins**) mysteries need to _____ (**dneps**) many years working to _____ (**imrpeov**) their skills.
3. Many animals live in unique _____ (**reonnivsmnte**). So, animal experts often _____ (**sveadi**) people not to remove animals from their _____ (**tnluaar**) habitats.
4. During the festival, people gather at the _____ (**tise**) of the old temple. They play musical _____ (**usntsrenitm**), and eat many _____ (**triaatoildn**) sweets.
5. Once the monkeys were healthy again, the staff at the shelter _____ (**dsaeelr**) them at the _____ (**eged**) of the rain forest.

World Heritage Notes

Notes Completion. Scan the information on pages 110 and 111 to complete the notes.



What: The Jantar Mantar

Where: Jaipur, India

Data:

- A Jantar Mantar is actually a huge _____. There were originally _____ Jantar Mantars.
- The Jantar Mantar in Jaipur was made a World Heritage site because it is the _____ and _____ of all the Jantar Mantars.
- Maharaja Jai Singh II built the giant Jantar Mantars because he believed that if the instruments were much bigger and _____, people could _____.
- The Jantar Mantar includes two _____. These helped people to _____.
- The Rashivalaya Yantra contains smaller instruments used to find and follow the Western _____.
- The Ram Yantra and Digansa Yantra helped astronomers note the _____ of objects in the sky.

The Jantar Mantar

Site: **The Jantar Mantar**

Location: **Jaipur, India**

Category: **Cultural**

Status: **World Heritage Site since 2010**



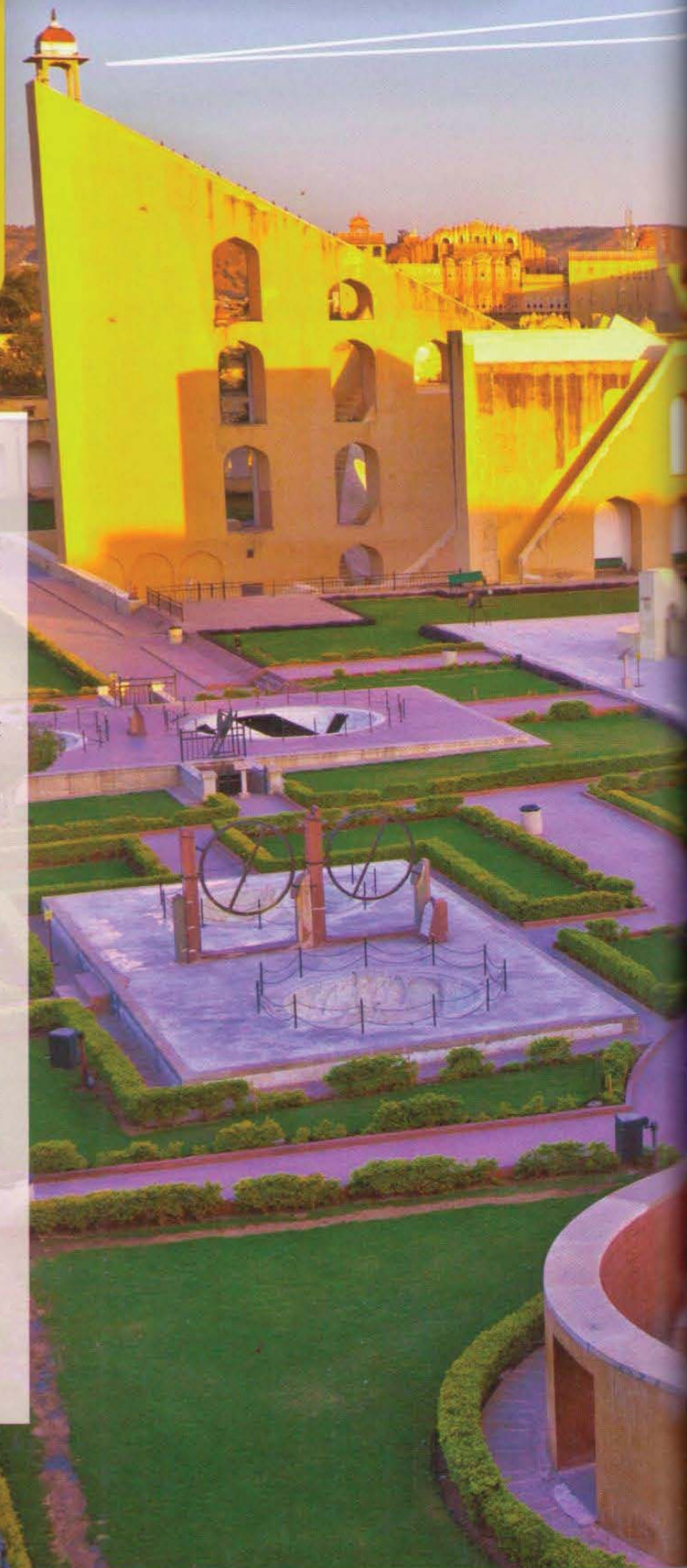
In the early 18th century, Maharaja Jai Singh II built five huge parks where people could go to study the skies. He called them Jantar Mantars. The name Jantar Mantar means calculation¹ instrument.


The Jantar Mantar in Jaipur is the largest and the best preserved of the five. It has 20 different stone structures used to find out the position and movement of the sun, stars, and planets.

Before the giant Jantar Mantars were built, the kingdom's official stargazers would use smaller, often handheld instruments to study the skies. However, they often had arguments about whose measurements were correct. Maharaja Jai Singh II built the giant Jantar Mantars because he believed that if the instruments were much bigger and carefully fixed in position, people could take better measurements. The Jantar Mantar at Jaipur is considered one of the Maharaja's greatest achievements.²

¹ When you make a **calculation**, you use math to find out something or to solve a problem.

² An **achievement** is something you have succeeded in, usually after a lot of work.



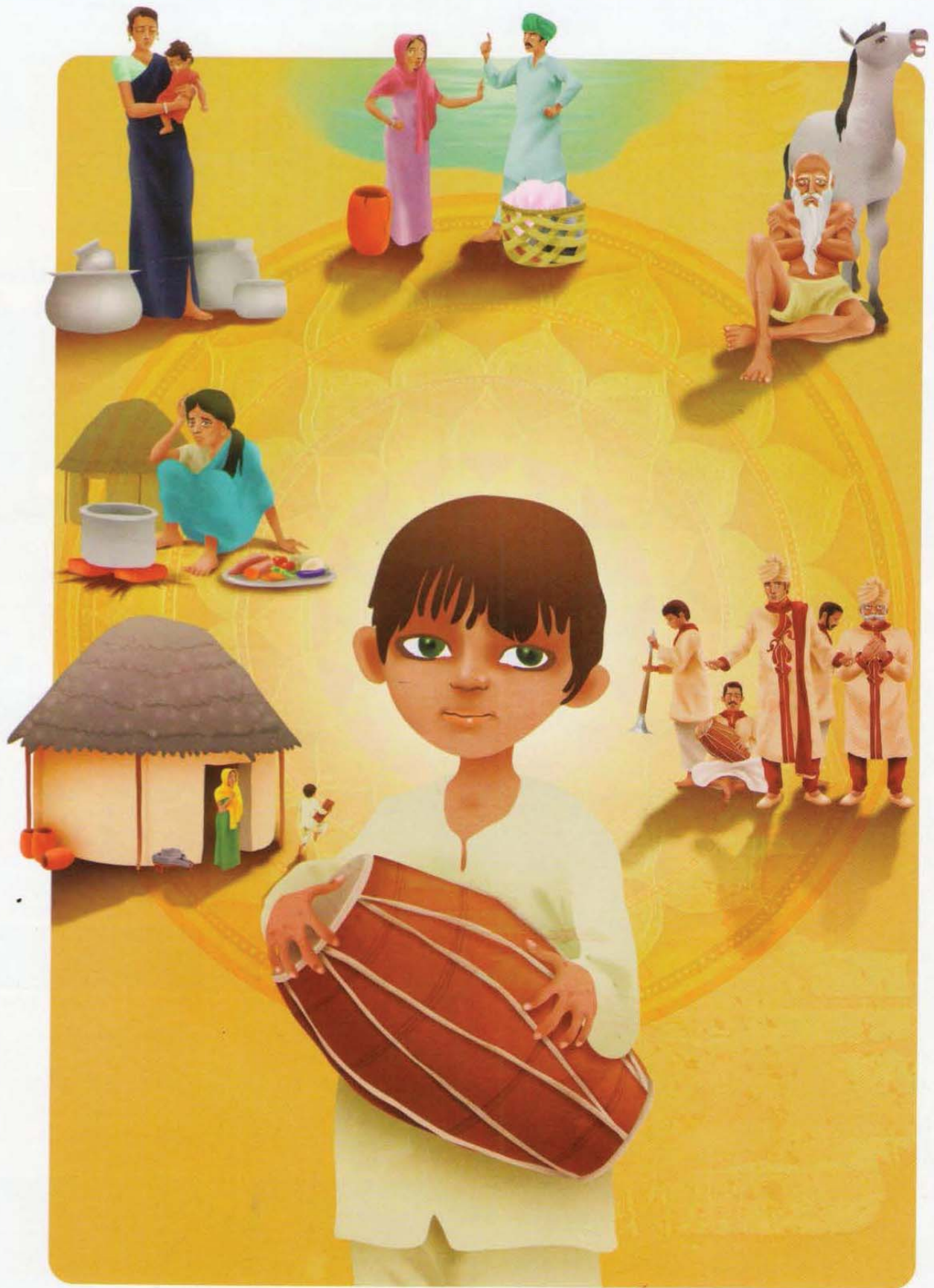


The Jantar Mantar at Jaipur includes two massive sundials which were used to tell the time. At 27 meters high, the **Samrat Yantra** is the largest sundial in the world—its shadow moves at one millimeter a second!

The **Rashivalaya Yantra** contains twelve smaller sundial-like instruments. Each one is carefully positioned so that stargazers of the time could find and follow one of the twelve western zodiac signs.

The spaces between the columns of the **Ram Yantra** let in sunlight. By examining the shadow of a stick in the center, astronomers could note the exact position of the sun in the sky.

The **Digansa Yantra** had two wires across its top, which held a metal plate with a small hole in the center. At night, astronomers used to lie down on the floor, and look at a star or planet through the hole to calculate its position.



An Indian Folktale

The Boy and the Drum

1 There was once a poor woman with only one son. One day, she asked her son if there was anything he wanted. The boy said he wanted a drum. The mother left for the market, feeling very sad, because she did not have enough money to buy a drum.

5 On the way home, she found a piece of wood and gave it to her son to play with. Later that day, the boy went outside to play. Along the road, he saw an old woman crying. The old woman was trying to start a fire to cook some food, but she didn't have any wood. Hearing this, the boy gave her his piece of wood. The old woman gave him a piece of the bread she had made.

10 Then, further down the road, the boy met a pot maker's wife and her crying child. The boy asked her what was wrong. The woman said she had no food to give to her hungry child. The boy gave the woman the piece of bread, and she gave him a pot. The boy walked on.

Before long, he saw a husband and wife arguing.¹ He asked them why they were
15 arguing. They said, "We have broken our pot and have nothing to clean our clothes in." The boy gave his pot to them, and they gave the boy a new coat.

Next, the boy saw a man who had no shirt. The man said he had been robbed on his way home. The robbers had taken his money, and his shirt. The boy gave the
20 man his new coat. The man was so happy, he gave the boy his horse.

Finally, on his way home, the boy met a huge group of people going to a wedding. There were musicians, the bridegroom,² and his family. Everyone looked sad. The bridegroom's father said, "We are waiting for a horse. If it doesn't come soon, we will be late for the wedding." The boy gave them his new horse. The group asked
25 the boy what they could give him, and he replied, "A drum." So, the musicians gave him their drum. The boy ran home to tell his mother how he had at last gotten the drum he had wanted.

¹ If two people **argue**, they speak angrily to each other about something they disagree about.

² A **bridegroom** is a man who is getting married.

Reading Comprehension

Match the words from the three columns below to complete the sentences.

The boy met . . .

He/She/They needed . . .

He/She/They gave the boy . . .

- | | | |
|--------------------------------|-------|-------|
| 1. the sad old woman | _____ | _____ |
| 2. the pot maker's wife | _____ | _____ |
| 3. the arguing couple | _____ | _____ |
| 4. the man who had been robbed | _____ | _____ |
| 5. the bridegroom | _____ | _____ |

Vocabulary Extension

Vocabulary: Expressing time. A number of words and phrases are used to show the order of events in a story. Complete the sentences with the correct words from the box. Then circle the words and phrases in the folktale that are used to discuss time or describe the sequence of events.

before long later finally one day next

- _____, I'm going to be a rock star. I'll be rich and famous then.
- Pam went to school in the morning. _____ that day, she met some friends for tea.
- First you must mix the milk, eggs, and butter. _____, you put in the flour.
- When school ended, he ran out to meet his sister. _____, they were on their way home.
- Tony worked hard on his project for days. _____, it was finished.

1 Exploring The Congo

Narrator: It's September in the Congo, just north of the Equator. An international team of scientists is exploring an extraordinary place. The team members are walking more than 1,900 kilometers across an enormous forest. They want to record all the animals and plants they discover here. This is the lead explorer, Dr. Michael Fay. He is here to do what he calls a Megatransect.

Michael Fay, Wildlife Conservation Society: What I'm trying to do in a desperate way is to show the world that we're just about to lose the last little gem in the African continent, and if we don't do something now, if we don't do it today, we can forget about it.

Narrator: The Congo Basin contains about one-quarter of the world's rain forests, and about half of all of Africa's plant and animals species. People hardly ever come so deep into the forest. There are many species which are unique to this area. Dr. Fay has spent eight months in the forest studying them. At last, the track they are following leads them out of the forests of Gabon. They climb onto mountains that rise high above the trees. This might be the scientists' last chance to explore this amazing land.

Michael Fay: We can see a long way here, you know, 70 or 80 kilometers in every direction, we can see 360 degrees around. There are no humans. There's not a single village, there's not a single road. It's an amazing place.

Narrator: Now, the team has to cross the Kongou Chutes, a big, fast river.

Michael Fay: Okay, wow!

Narrator: It is this river and waterfall that keep this land alive. But if nothing is done to protect the forests, they might all be cut down. Here, the river is only a few hundred meters wide. But the water is still very strong and fast. The team moves slowly and carefully. Over a year after they started, the team walks out of the forest.

Michael Fay: We'd been walking in the woods in our own little world for fifteen months and now it was over.

Narrator: The Megatransect is over, but the impact of the team's discoveries on helping to save the forest has just begun.

Video Scripts

2 Smokejumper School

Narrator: This is the smokejumper school in Montana, U.S.A. Here, people learn how to be smokejumpers, special firefighters trained to fight wildfires. On average, there are about 100,000 wildfires in the U.S. every year. And in the summer heat, these fires can become very big. Every year, more people want to be smokejumpers. Most of the students are already firefighters.

Smokejumper: I don't know, I mean, it's the upper level of firefighting, it's the crème de la crème, it's the, you know, those are the cool guys, the smokejumpers.

Narrator: Smokejumpers don't just learn to fight fires. To reach the fires, they have to be able to jump from airplanes flying far above the forest. It is especially difficult to land safely in the forests if strong winds are blowing.

Every day, for about a month, the students run and jump to get ready for the real fires.

All of the firefighters know how dangerous the job is. This memorial is for the many brave firefighters who have died fighting wildfires.

Jumping from a plane is scary. But the firefighters know they're doing important work.

Fighting forest fires is important for nature and for people. Small forest fires can be good. They burn away dead plants and help new plants grow. They make the forest a better place for animals to live. But if a forest fire is too big, it can become dangerous for people who live nearby. It is a smokejumper's job to stop that from happening.

When a wildfire happens deep in the forests, smokejumpers are the only people that can get to it. Each smokejumper team must learn to work as a team, as well as with other teams. In the middle of a wildfire, each person has to know exactly what to do.

Smokejumper: The smokejumpers at any given time on the airplane, you have to be able to jump a 4, 6, 8, 10 person fire, and pull together as a team even though you're from different bases in different parts of the country.

Narrator: It is a smokejumper's job to stop these fires from burning out of control, and keep the land and its people safe. The smokejumpers are people who want to be part of something special. They know how difficult and dangerous it is, but they want to be here to help the forest and to save lives.

3 Crystals

Narrator: The Earth's surface is made out of rocks. These rocks are made out of different minerals. Each mineral is made of only one substance.

Minerals usually come in the form of crystals. Crystals like quartz, olivine, and diamond. Crystals usually form when rocks melt at high temperatures and gradually cool down.

Salt crystals, for example, are made from chlorine and sodium atoms. These atoms make a very small cube. It's called a unit cell. When many unit cells come together, as though making a bigger cube, they make a crystal. This process is called crystallization.

Crystals come in all kinds of different shapes and colors. And they have many uses. Some crystals, like diamonds, rubies, and topaz, are hard to find, and beautiful to look at. People wear them as jewelry. Some people believe that crystals have the ability to change our feelings and provide protection from bad energy. People use other crystals as parts of modern machines. They make certain types of technology, like solar cells, work.

There are about 3,500 different minerals in the world. Each of them comes in the form of a crystal. At first, they all look different. However, minerals belong to different families. A crystal's family depends on the shape of the mineral's crystals. To tell them apart, we have to look at the shape of each crystal's unit cell.

These unit cell patterns are called crystal systems. So far, scientists have only found evidence of seven unique crystal systems. In perfect conditions, the crystal follows one of these patterns exactly. But in the real world, crystals all have a unique look.



4 Monarch Migration

Narrator: Every year, 300 million monarch butterflies somehow travel more than 3,000 kilometers from northern America to forests west of Mexico City. When they gather here, they completely cover some of the trees. It's one of the most extraordinary sights in nature.

The monarchs are beautiful. But to survive the long trip, they have to face many challenges. Then, even after they arrive safely at the El Rosario butterfly sanctuary, they aren't always safe. In 2002, a rainstorm hit the forest. The temperature dropped. It was too cold for the butterflies, and many died. Their bodies fell everywhere across the forest floor.

This is Mike Quinn, a biologist with Monarch Watch. He thinks that in addition to the cold weather, the loss of trees in the area has made the problem worse.

Quinn says people have been cutting down trees around the forests where the butterflies stay. And that lets the cold air come into the forest. When there are enough trees around the sanctuary, the forest protects the butterflies. In the past thirty years, almost 50 percent of the trees in the area have been cut down.

The Mexican government and the World Wildlife Fund are trying to save the monarchs.

They are encouraging people NOT to cut down trees. In fact, they are paying the people who own the land money to protect the trees. But the money isn't enough. So the monarchs are still in danger. The 2002 storm wasn't the first big storm in the area. And it won't be the last.

But for now, millions of monarchs will still fly to Mexico each year.





Video Scripts

5 The Senses

Narrator: Sight. Hearing. Smell. Taste. And touch.

In our daily lives, these five senses work together, and so do the different parts of our bodies, or organs, that control the senses.

Sight

Sight is our most highly developed sense. It lets us learn different shapes, types of movement, distances, and colors. The eye is the main organ of sight. An opening in the front of the eye, the pupil, lets light through to the retina, which senses light. Millions of cells in the retina turn the light into nerve signals. These nerve signals then travel to the brain. When this process has a problem, people can become short-sighted, or even blind.

Hearing

The ear has three different parts which work together so we can hear. The outer ear, its opening, picks up sound waves. When these sound waves reach the middle ear, they touch the eardrum, and make the eardrum vibrate. When the eardrum vibrates, sound reaches tiny hairs in the cochlea, the inner ear. These tiny hairs then move. This creates nerve signals that the brain understands as sound.

Smell

Humans can smell over 10,000 different smells. We do this with millions of smell sensors inside the nose. When smells come into the nose, the sensors pick up the information and then the nervous system takes the message to the brain. All this happens in under a second. The brain translates it, so we can understand what the smell is. Some of the “smelling” areas in the brain are the same areas that help us remember things.



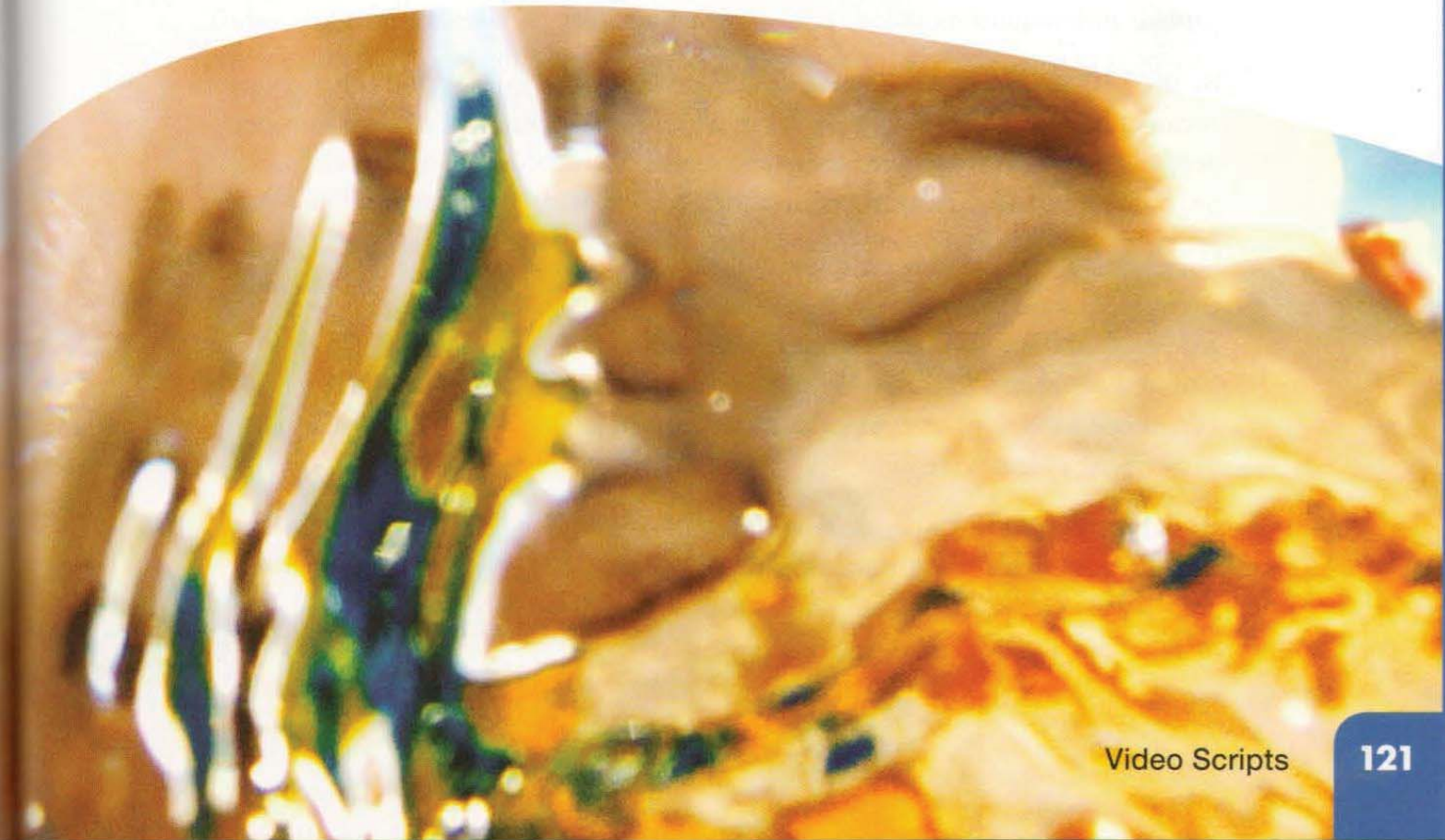
Taste

The tongue is the main organ of taste. This is because tiny bumps called taste buds cover the tongue. These taste buds contain many taste receptors. When we lick something, or pop a morsel of food into our mouths, the receptors send a message to the brain that tell us exactly what we are eating, and if it's tasty. However, we can only taste four different tastes: sweet, salty, sour, and bitter.

Touch

Our skin protects us from things outside our body. It also lets us feel touch. We have more than four million touch receptors. These receptors help us feel things like a poke on an arm, or a friend's embrace. Other receptors feel temperature or pain. As with all our senses, the information is taken to the brain which makes decisions and tells the body to ignore the information or to take action.

The skin. The ears. The nose. The eyes. And the tongue. With the help of the brain, it is these body parts that help human beings keep safe and fully experience the world around us.



6 The Renaissance

Narrator: Florence, Italy. The birthplace of an incredible period of history we call the Renaissance. In fact, everywhere you look in Italy, you can find reminders of the Renaissance and its impact on the modern world.

By the late 1300s, Italy was enjoying a time of health and wealth. Nobody really worried about war and survival. They began to be interested in the future and paid more attention to the arts. By 1434, powerful families, like the Medici family, ruled Italian cities.

Italy grew in wealth and fame, and soon became the center of art, literature, and culture in Europe.

In the past, the work of great scholars and artists mainly dealt with ideas about God. But during the Renaissance, many people became interested in the art of the ancient Greeks and Romans. A new, original, way of thinking was born, focused on humans themselves.

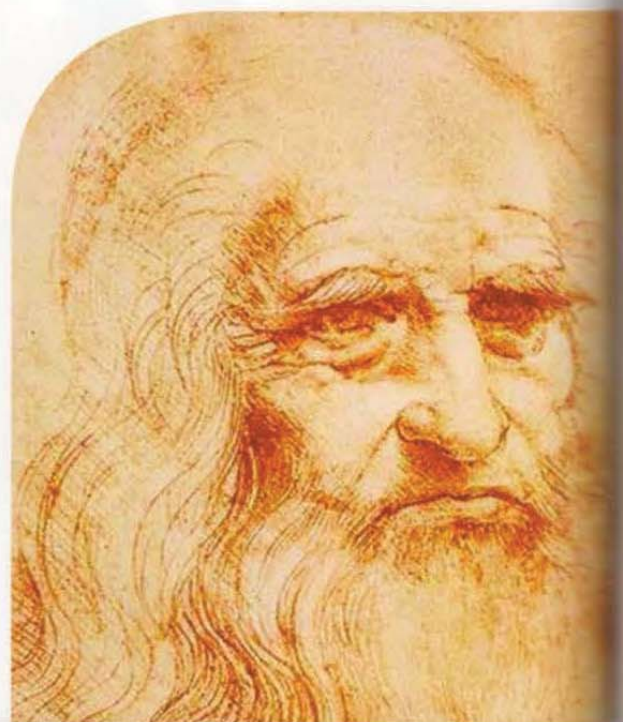
In this time, Italian artists created extraordinary art that showed the beauty of man and nature, and the challenges of the human experience. One of these artists, Michelangelo, completed the lovely statue of David, and covered the Vatican's Sistine chapel with amazing stories and designs.

Then there was Leonardo da Vinci—artist, scientist, and inventor. To make his art feel more real, Leonardo studied the human body carefully. The faces he drew were both life-like and mysterious.

By the 1500s, Italy had become a model for the rest of Europe and other countries became interested in building knowledge as well. For example, all over Europe, people wanted to know more about the world. So, they looked at science and reason for answers.

For example, the Polish astronomer Nicolaus Copernicus was the first to say that the Earth goes around the sun. Galileo Galilei, who invented the thermometer, was the first to use a telescope to look up at the skies, and saw that Copernicus's ideas were right.

It is great minds like Copernicus and Galileo that began the scientific revolution and a thirst for knowledge that has continued until our modern times.



7 Mardi Gras

Narrator: Every year, New Orleans, Louisiana, is the site of a world-famous party called Mardi Gras.

The history of Mardi Gras actually began a long time ago, in ancient Rome. As Christianity grew in Europe, some ancient festivals were changed into Church holidays, and the original Roman festival of Spring became *Carnival*.

Carnival's a chance for people to have fun, before Lent begins. During Lent, many Catholics avoid eating rich foods like fat, butter, and meat. In 1718, French people came to live in New Orleans. They brought these traditions with them. Today, every year, the people of New Orleans gather in the streets to play instruments and celebrate Mardi Gras.

In French, the name *Mardi Gras* means *Fat Tuesday*. It comes from the tradition of using all the butter and other fats in the kitchen before Lent begins the next day. Across Europe, Mardi Gras celebrations were usually costume parties, where people wore masks and danced.

But New Orleans soon started its own traditions. In 1857, a secret club, called the Mystick Krewe of Comus, held a parade with floats. Soon, other groups added their own floats and the modern Mardi Gras was born.

Today, the New Orleans' Mardi Gras celebration is the biggest in the U.S. Then, you can see the traditional colors of Mardi Gras everywhere. There's purple, green, and gold. Each color has a different meaning.

You can also see these colors on the tops of king cakes. A long time ago, bakers baked a little coin or bean inside these tasty cakes. In New Orleans, bakers continue the tradition. They hide a small toy baby in each cake. Whoever gets the baby in their piece of cake, has to buy the next king cake.

Although there are many people still in the streets on Mardi Gras, the celebration actually ends at midnight. And the people of New Orleans have to put away their colorful costumes until Carnival season comes again next year.

Video Scripts

8 Bluefin Rescue

Narrator: This is Japanese scientist Shukei Masuma, a leader in tuna research. He is worried because too many tuna fish are being killed.

Today, bluefin tuna have become rare. Some people spend hundreds of thousands of dollars for one fish. And on average, the fish they can get are getting smaller. This means that bluefin tuna are being killed before they're old enough to have babies.

To help solve this problem, Masuma has been breeding bluefin tuna on his fish farm. Masuma says he is trying hard to learn about the tuna, and how to help them.

Every evening, Masuma waits at the edge of the breeding pool to see if there are any new tuna eggs. If there are new eggs, Masuma must carefully catch them and move them to small tanks in the main house, where they will be safe and he can take care of them. Here he can watch the tuna grow up, and learn more about them.

Masuma is afraid that if people don't do something, the groups of tuna in the region may soon be destroyed. His goal is to keep these tiny tuna alive until they are big enough to be returned to the sea.

It's a difficult job. Many of the baby tuna in Masuma's farm don't survive to become adults.

But after spending years trying, Masuma has found the right combination of food and temperature to keep the baby tuna alive in large numbers.

Today, Masuma has a visitor. Talented oceanographer, Dr. Sylvia Earle, studies ocean wildlife.

She is worried about improving the tuna's chances of survival, and wants them to be safe in their natural environment. Dr. Earle is very impressed with Masuma's work. She can see that the baby tuna at his farm are healthy. Masuma is the first scientist who is able to grow baby bluefin tuna in a farm. Masuma's work is very inspiring.

Someday these tuna might swim in the wild, and from them may come a completely new population of bluefins. But first they must survive a variety of dangers, especially human predators.

Scientists say the Atlantic bluefin tuna population is now only about 20 percent of what it was in the 1970s. In the Mediterranean, the species is in great danger as well. And in the Pacific, scientists have been reporting that the bluefin has almost disappeared. But there is hope. Scientists' advice is that we must have stricter rules on the size and number of fish humans can catch each year.

