

READING EXPLORER

THIRD EDITION



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SCOPE AND SEQUENCE

UNIT	THEME	READING	VIDEO
1	Amazing Animals	A: The Incredible Dolphin B: Master of Disguise	A Chameleon's Colors
2	Travel and Adventure	A: The Trip of a Lifetime B: Adventure Islands	Exploring Laponia
3	The Power of Music	A: Move to the Music B: A Musical Boost	The Mozart Effect
4	Into Space	A: Life Beyond Earth? B: Living in Space	The Red Planet
5	City Life	A: Global Cities B: A Taste of Two Cities	New York Skyscraper
6	Backyard Discoveries	A: In One Cubic Foot B: What's in Your Neighborhood?	BioBlitz
7	When Dinosaurs Ruled	A: The Truth about Dinosaurs B: Mystery of the Terrible Hand	Dinosaurs: A Brief History
8	Stories and Storytellers	A: The Brothers Grimm B: The Seven Ravens	Fairy-tale Castle
9	Unusual Jobs	A: Meet the Meteorite Hunter B: Smokejumpers	Snake Catchers
10	Uncovering the Past	A: The Army's True Colors B: Wonders of Egypt	City in the Clouds
11	Plastic Planet	A: The Problem with Plastic B: Five Tips for Using Less Plastic	Our Plastic World
12	Vanished!	A: Mystery on the Mountain B: The Missing Pilot	Earhart Mystery

ACADEMIC SKILLS

READING SKILL	VOCABULARY BUILDING	CRITICAL THINKING
A: Skimming for Gist B: Identifying Main Ideas in Paragraphs	A: Suffixes <i>-ance</i> and <i>-ence</i> B: Word forms of <i>survive</i>	A: Identifying Ideas B: Comparing; Reflecting
A: Understanding Maps B: Scanning for Key Details	A: Words acting as nouns and verbs B: Collocations with <i>original</i>	A: Interpreting Visual Information B: Reflecting
A: Identifying Supporting Details B: Identifying Supporting Reasons (1)	A: Collocations with <i>control</i> B: Suffix <i>-ion</i>	A: Reflecting B: Relating to Personal Experience; Evaluating Methods
A: Summarizing: Using a Concept Map B: Identifying Supporting Reasons (2)	A: Suffix <i>-ful</i> B: Collocations with <i>environment</i>	A: Speculating B: Reflecting; Ranking Tasks
A: Understanding Charts and Graphs B: Summarizing: Using a T-chart (1)	A: Prefix <i>inter-</i> B: Suffix <i>-ation</i>	A: Ranking Cities B: Relating; Evaluating Pros and Cons
A: Understanding Sequence (1)—Processes B: Understanding Sequence (2)—Instructions or Directions	A: Phrasal verbs with <i>break</i> B: Collocations with <i>take</i>	A: Applying Ideas B: Analyzing Information; Applying Ideas
A: Identifying Supporting Examples B: Finding Meaning (1)—Using Definitions	A: Suffixes <i>-er</i> and <i>-or</i> B: Collocations with <i>opinion</i>	A: Analyzing Theories B: Speculating; Reflecting
A: Annotating Text (1) B: Understanding Pronoun Reference	A: Suffix <i>-al</i> B: Word usage: <i>affect</i> vs. <i>effect</i>	A: Analyzing Stories B: Applying Ideas; Making Predictions
A: Identifying Exact vs. Approximate Numbers B: Annotating Text (2)	A: Collocations with <i>treasure</i> B: Suffix <i>-ment</i>	A: Justifying an Opinion B: Ranking/Speculating; Reflecting
A: Finding Meaning (2)—Identifying Homonyms B: Creating an Outline Summary	A: Collocations with <i>reveal</i> B: Collocations with <i>task</i>	A: Evaluating Pros and Cons B: Analyzing Evidence; Justifying an Opinion
A: Understanding a Writer's Use of Quotes B: Finding Meaning (3)—Using Context	A: Prefix <i>ex-</i> B: Collocations with <i>global</i>	A: Inferring Effects B: Ranking Suggestions; Applying Ideas
A: Summarizing: Using a T-chart (2) B: Recognizing Degrees of Certainty	A: Suffix <i>-ever</i> B: Prefix <i>dis-</i>	A: Evaluating Evidence B: Evaluating Theories; Reflecting

READING EXPLORER brings the world to your classroom.

With *Reading Explorer* you learn about real people and places, experience the world, and explore topics that matter.

What you'll see in the Third Edition:

Real-world stories give you a better understanding of the world and your place in it.

6B BEFORE YOU READ

DISCUSS A. Read this information. Then answer the questions below.

To learn about something in a field, an animal or a plant, scientists must collect a lot of data. This can take a very long time. But now, regular people are helping scientists get important information more quickly. These "citizen scientists" take photos or interview other people. They then share their pictures and information with scientists on the Internet. Today, there are hundreds of citizen science projects—and anyone can join!

1. What does a citizen scientist do?

2. Why is this work important?

DISCUSS B. Read the introduction and the interview questions on the next page. Check off the topics you think Gabby Salazar will discuss. Then read the interview to check your answers.

☐ a. different citizen science projects

☐ b. the problems with citizen science

☐ c. how to be a citizen scientist

WHAT'S IN YOUR NEIGHBORHOOD?

Gabby Salazar takes photographs of new species and teaches people about them. In this interview, she answers questions about her experience with citizen science.

What was your first citizen science project?

Gabby Salazar: It was near 10 years ago. One of my friends in Peru was very interested in birds. So we walked around with our cameras and notebooks for a day. We saw many different species, and we took photos of them. Later, we posted all our data on eBird.

What is eBird?

Gabby Salazar: It's an Internet-based citizen science project at Cornell University in the United States. People around the world record information about birds they see. Today, eBird has over 100 million observations of more than 10,000 different bird species. Scientists use this data to answer important questions. For example, "Where do certain birds live? How many are there?"

How can a person become a citizen scientist?

Gabby Salazar: It's easy! First, find a project that you like. eBird is one. Then, download the project's app¹ and use your phone to take pictures. For example, you can photograph different kinds of trees near your home or school. When you're done, upload your photos to eBird. If you don't know the name of an animal or plant, other people can tell you. It's a great way to learn about your environment, and you also assist scientists with their research.

If you can't take photos, you can still contribute to citizen science. For example, you can take part in a fun project called WildWatch Kenya. Experts hold cameras in trees and other places. When an animal moves past the camera lens, it shows. Citizen scientists then review the images online and identify the animals they see.

THE LOST LADYBUG PROJECT

For years, scientists in North America thought the now-extinct ladybug (pictured below) was extinct. Then citizen scientist David Thibault photographed the insect in New York. He sent his photo to the Lost Ladybug Project, a site that is creating a map of different ladybug species. Some scientists know something important: The now-extinct ladybug is not, but was extinct.

¹ An app is software that is designed to run on a smartphone or tablet.

² It is a program that is designed to run on a computer.

Size 08 85

A view of the Northern Lights near Lapland, Sweden (photographed by Orosly Haaberg)

EXPLORING LAPONIA

VIDEO

BEFORE YOU WATCH

PREVIEW A. Read the information. The words in bold appear in the video. Circle the correct words to complete the definitions (1-3).

Laponia in Sweden is a large **wilderness** area of high mountains, ancient forests, and beautiful lakes and rivers. A UNESCO World Heritage Site, it covers over 8,400 square kilometers of **untouched** nature. Eirik and Orosly Haaberg—a husband-and-wife team of nature photographers—have made several trips to this area. On each trip, they carry a lot of food, clothes, cameras, and camping **gear**. Orosly discusses taking photos here as "a real adventure."

1. A **wilderness** is an area of natural land that is / is not used by people.

2. An **untouched** piece of land is in its original state / changed by people.

3. A photographer's **gear** is the goal of their trip / set of things they take with them.

PREDICT B. What kinds of challenges do you think the Haabergs face on their trips to Lapland? Discuss with a partner and note some ideas.

Video 33

National Geographic Videos

expand on the unit topic and give you a chance to apply your language skills.

Reading Skill and **Reading Comprehension** sections provide the tools you need to become an effective reader.

READING SKILL

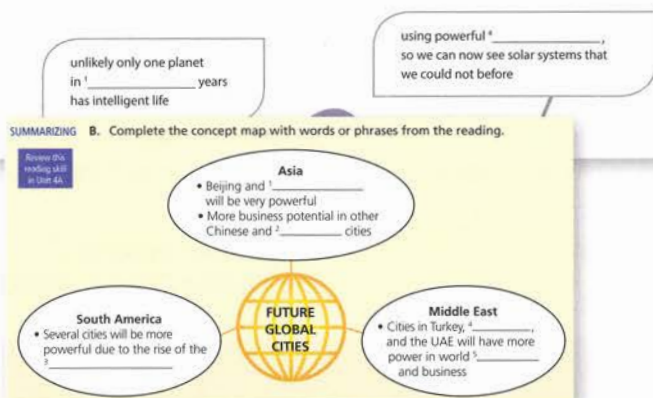
Summarizing: Using a Concept Map

When you summarize a text, you record the main ideas and key details. A concept map can help you organize these ideas in a clear and logical way, and can help you understand information better. In a concept map, the main ideas are linked by words and phrases that explain the connection between them.

You can create a concept map by first starting with a main idea, topic, or issue. Then note the key concepts that link to this main idea. The bigger and more general concepts come first, which are then linked to smaller, more specific concepts.

ANALYZING A. Look back at Reading A. Find the main ideas and key details in the text.

SUMMARIZING B. Complete the concept map below with words or phrases from Reading A.



CRITICAL THINKING Evaluating Theories Discuss these questions with a partner.

▶ Look back at Reading B. Of the theories about Amelia Earhart's disappearance, which does the author think is most likely?

Theory: _____

▶ Do you agree with the author? What do you think happened to Earhart and Noonan? Note your answers below. Then compare them with your ideas in Before You Read B (on page 166).

Expanded Vocabulary Practice sections teach you the most useful words and phrases needed for academic reading.

WORD PARTS C. The suffix **-ful** in **powerful** means "full of." Complete the sentences using the words in the box. One word is extra.

care harm power wonder

- Moon dust can be _____ful and can damage our DNA.
- Astronomers need to be very _____ful with the expensive equipment they use.
- The Falcon Heavy rocket is extremely _____ful. It can carry a load of 60,000 kg.

AMAZING ANIMALS

➤ A great gray owl is camouflaged against a tree.

WARM UP

Discuss these questions with a partner.

1. What is your favorite animal? Why?
2. What are some things animals can do that humans can't?

BEFORE YOU READ

LABELING

A. Look at the photo. Match each description (1-4) with the correct part of the dolphin.

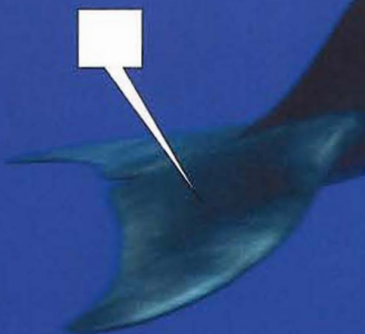
1. Dolphins sleep by resting one half of their **brain** at a time.
2. A dolphin's **tail** doesn't have any bones.
3. Dolphins "hear" through a special bone in their lower **jaw**.
4. The bones inside a dolphin's **flippers** look like the bones inside your arm and hand.

SKIMMING

B. Look at the reading title and headings. What is the reading about? Circle a, b, or c. Then read the passage to check your answer.

- a. types of dolphins
- b. things dolphins do
- c. what dolphins eat

➤ A spotted dolphin swims in the clear waters of the Caribbean.



THE INCREDIBLE DOLPHIN

- A Many people say dolphins are **intelligent**. They seem to be able to think, understand, and learn things quickly. But are they as **smart** as humans, or are they more like cats and dogs? Dolphins use their brains quite differently from the way people do. But scientists say dolphins and humans are **alike** in some ways. How?

Communication

- B Like humans, every dolphin has its own "name." The name is a **special** whistle.¹ Each dolphin chooses a whistle for itself, usually by its first birthday. Dolphins are like people in other ways, too. They "talk" to each other about a lot of things—such as their age, their

feelings, and possible danger. They also use a **system** of sounds and body language to **communicate**. Understanding dolphin conversation is not easy for humans. No one "speaks dolphin" yet, but some scientists are trying to learn.

Play

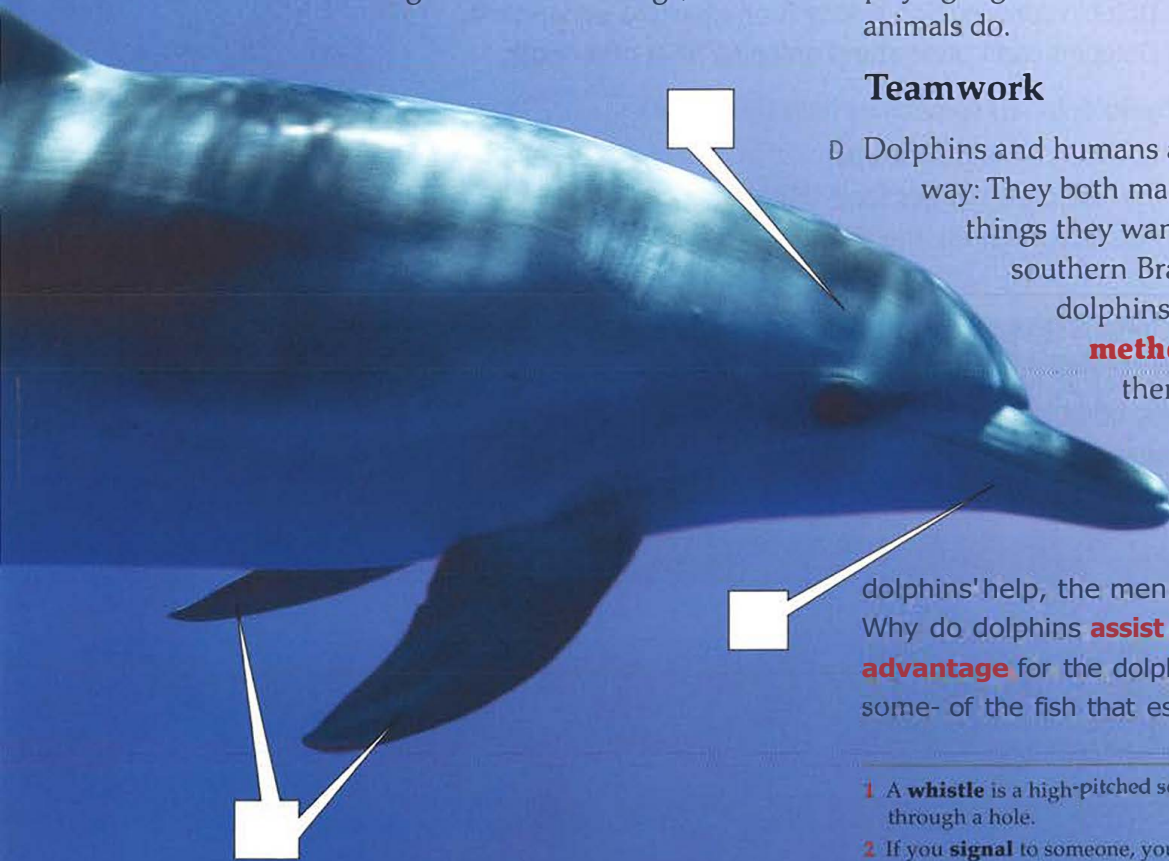
- C Dolphins live in groups called *pods*, and they often join other dolphins from different pods to play games and have fun—just like people. Sometimes they chase other dolphins carrying objects (e.g., seaweed) and throw these objects back and forth. Scientists believe playing together is something only intelligent animals do.

Teamwork

- D Dolphins and humans are similar in another way: They both make plans for getting things they want. In the seas of southern Brazil, for example, dolphins use an intelligent **method** to get food. When there are fish near a boat, dolphins **signal**² to the fishermen to put their nets in the water. With the dolphins' help, the men can catch a lot of fish. Why do dolphins **assist** the men? There is an **advantage** for the dolphins: They get to eat some of the fish that escape from the net.

¹ A **whistle** is a high-pitched sound made by blowing air through a hole.

² If you **signal** to someone, you make an action or a sound to tell them something.



READING COMPREHENSION

A. Choose the best answer for each question.

MAIN IDEA

1. What does the reading NOT mention?
 - a. how dolphins communicate with each other
 - b. how dolphins move quickly through the water
 - c. how dolphins play games and have fun

INFERENCE

2. The author mentions cats and dogs in paragraph A to show that _____.
 - a. cats and dogs are very intelligent
 - b. there are different levels of intelligence
 - c. scientists have studied the brains of cats and dogs

DETAIL

3. Where does a dolphin get its "name"?
 - a. It gets it from its mother.
 - b. It gets it from scientists.
 - c. It chooses it for itself.

DETAIL

4. Which sentence about dolphin language is true?
 - a. Dolphins "talk" to each other about many things.
 - b. Dolphin conversation is easy for humans to understand.
 - c. Dolphins can't understand dolphins from other pods.

DETAIL

5. Why do dolphins sometimes help fishermen?
 - a. Dolphins are kind animals.
 - b. The dolphins can get food that way.
 - c. The fishermen ask the dolphins for help.

CATEGORIZING

B. According to the reading passage, what do these dolphin behaviors (a–f) demonstrate? Add them to the chart.

- | | |
|------------------------|------------------------------------|
| a. using body language | d. joining other pods for games |
| b. chasing each other | e. helping fishermen catch fish |
| c. whistling | f. throwing seaweed back and forth |

Communication	Play	Teamwork

➤ A bottlenose dolphin in the Bay of Islands, New Zealand



Skimming for Gist

The **gist** of a passage is what the text is mainly about. When you want to get the gist of a passage, don't read every word. Skim the text quickly to find out what it is mostly about. Look at the title and any headings, photos, and captions. Another strategy is to read the first sentence of each paragraph.

SKIMMING

A. Skim Reading A again. What is the main idea of the passage? Circle a, b, or c.

- a. We can learn a lot from the way dolphins communicate, play, and work together.
- b. The dolphin is the most intelligent sea animal in the world.
- c. Dolphins are intelligent and—in some ways—are like humans.

SKIMMING

B. Skim this short passage and answer the questions (1–2) below. Then read the passage again and check your answers.

The albatross is one of the world's largest flying birds. It also has the largest wings of any bird—up to 3.4 meters from tip to tip. These giant birds use their wings to ride the ocean winds. They can fly for hours without rest, or even without moving their wings. Some may even be able to sleep while flying.

Most albatrosses spend nearly all their time in the air. In fact, they only return to land to breed.¹ A parent albatross might fly thousands of kilometers to find food for its young. In its lifetime, an albatross can fly a total of more than six million kilometers.

✓ A wandering albatross



¹ When animals **breed**, they have babies.

1. What is the above passage mainly about?
 - a. where albatrosses live
 - b. albatross flying behavior
 - c. albatross intelligence
2. What could be a title for this passage?
 - a. Riding the Ocean Winds
 - b. Catching Fish
 - c. The Smartest Bird

CRITICAL THINKING Identifying Ideas

- ▶ Reading A mentions three similarities between dolphins and humans. What are they?

- ▶ Can you think of other ways to tell if an animal is intelligent? Discuss with a partner and note some ideas.

VOCABULARY PRACTICE

DEFINITIONS

A. Read the paragraph below and match each word in **red** with its definition (1–5).

There are a few ways to test how **smart** animals are. One **method** is to test memory. Scientists in Japan showed a group of college students and a group of five-year-old chimps the numbers 1 to 9 in different places on a computer screen. The test was to see if the groups could remember the position of the numbers in the correct order. Each time, the chimps were faster than the students. Why? Were the chimps **special** in some way? Did someone **assist** them? No, but the chimps probably had an important **advantage**: They were young. As both humans and animals get older, their memory gets worse.

1. _____: a way of doing something
2. _____: to help
3. _____: clever
4. _____: better or more important than others
5. _____: something that helps you succeed

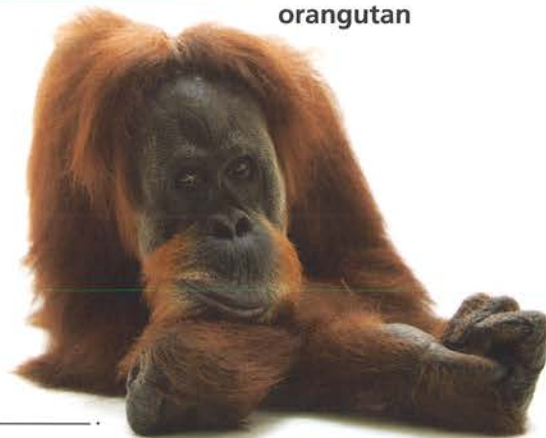
COMPLETION

B. Complete the information with the words from the box.

alike communicate feelings intelligent system

✓ A Sumatran orangutan

Orangutans and humans are ¹_____ in some ways. Both are very ²_____ animals. For example, to stay dry when it rains, orangutans take leaves from trees and use them like umbrellas. These apes don't have a complex¹ language ³_____ like humans do. But today, some orangutans are learning basic sign language to express their thoughts and ⁴_____. New research also suggests that orangutans can ⁵_____ about the past, just like humans.



¹ If something is **complex**, it is complicated or made up of many parts.

WORD PARTS

C. Some nouns use the suffixes **-ance** and **-ence**. Use the noun form of these words to complete the sentences. Add the correct suffix to each word.

assist different intelligent

1. What is the _____ between a dolphin and a porpoise?
2. The fact that apes use tools shows they have great _____.
3. Whales will often give _____ to other whales that are in danger.

BEFORE YOU READ

DEFINITIONS A. Read the caption below. Then circle the correct words to complete these definitions.

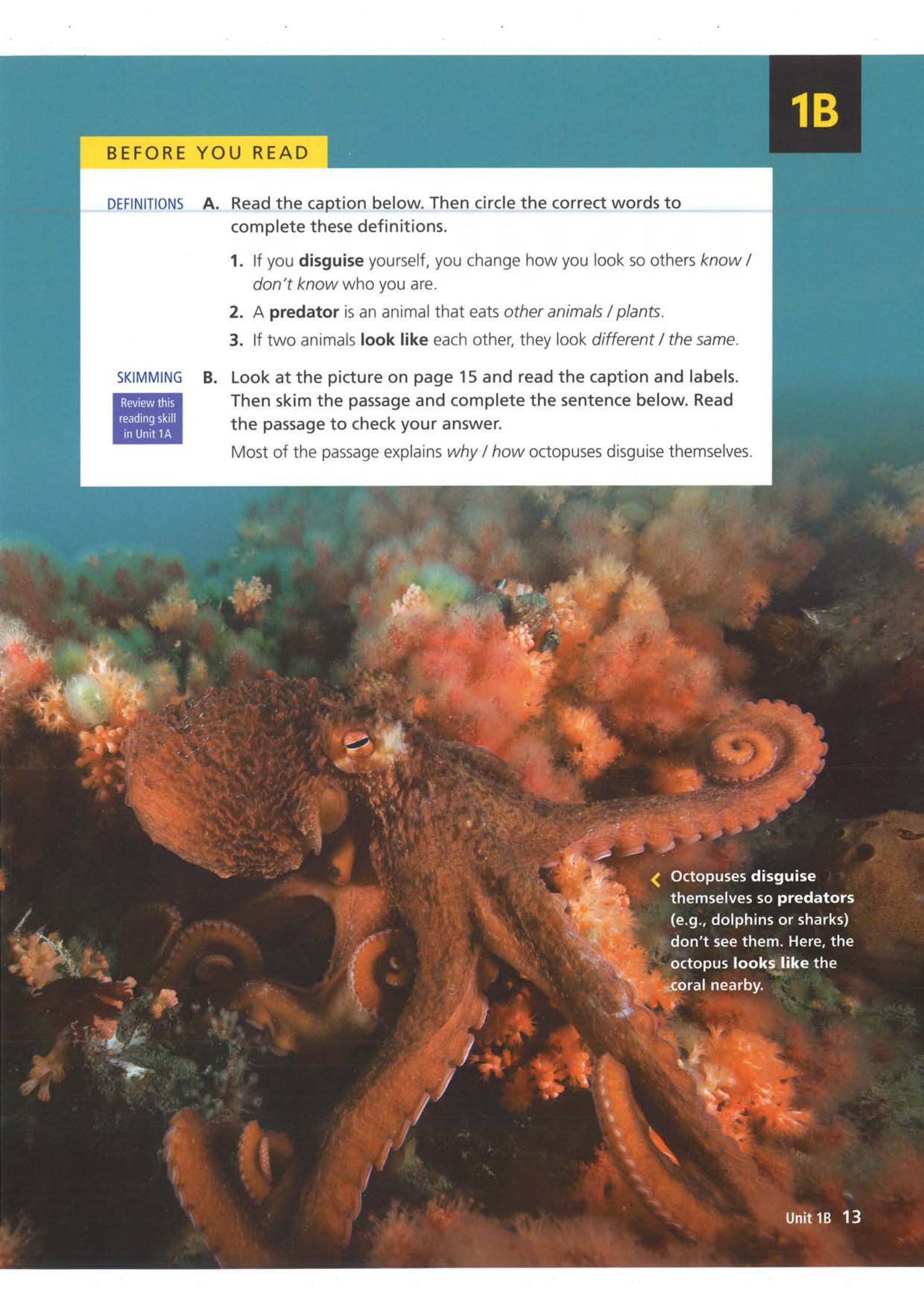
1. If you **disguise** yourself, you change how you look so others *know* / *don't know* who you are.
2. A **predator** is an animal that eats *other animals* / *plants*.
3. If two animals **look like** each other, they look *different* / *the same*.

SKIMMING

Review this
reading skill
in Unit 1A

- B. Look at the picture on page 15 and read the caption and labels. Then skim the passage and complete the sentence below. Read the passage to check your answer.

Most of the passage explains *why* / *how* octopuses disguise themselves.

A large octopus with a mottled brown and orange pattern is resting on a coral reef. Its tentacles are spread out, and its body is perfectly camouflaged against the surrounding coral and sea anemones. The background is a deep blue sea.

◀ Octopuses **disguise** themselves so **predators** (e.g., dolphins or sharks) don't see them. Here, the octopus **looks like** the coral nearby.

MASTER OF DISGUISE

- A Octopuses are famous for their round bodies, big eyes, and eight arms. There are many different types of octopuses, but all are alike in one way: They are masters¹ of disguise. Octopuses can change their **appearance** in less than a second to look like rocks, plants, or even other animals. How do they do this?
- B An octopus can disguise itself in three ways. One is by using color. An octopus's skin has special cells² called *chromatophores*. These cells are filled with yellow, brown, and red pigment.³ When an octopus moves its **muscles** a certain way, the cells become large and **produce** colorful spots and other **patterns** on its skin. Chromatophores can also reflect light. In blue light, for example, an octopus's skin will look blue. In white light, its skin will look white. With these cells, an octopus can produce many different skin colors and patterns.
- C An octopus can also change its skin texture.⁴ When the octopus moves its muscles, its skin can go from smooth to spiky. It might then look like a plant, or coral. Another way an octopus disguises itself is by changing its **shape**. Some, for example, roll their bodies into balls so they look like rocks. One type of octopus can change its form to look like other sea **creatures**—especially dangerous ones, such as sea snakes.
- D Why are octopuses so good at disguising themselves? They have to be. The ocean is not a safe place for them. Because they have no bones in their bodies, octopuses are like large pieces of meat. Many predators want to eat them—and they can eat them whole. To **survive**, octopuses have **developed** the amazing **ability** to change their appearance very quickly in order to **hide** from predators.

¹ A **master** is very good at doing something.

² A **cell** is the smallest living part of an animal or plant. Most animals have billions of cells in their bodies.

³ **Pigment** is a substance that gives something color. For example, green pigment makes most plants look green.

⁴ **Texture** is how something looks and feels (e.g., soft, smooth, spiky).

ALL MUSCLE, NO BONES

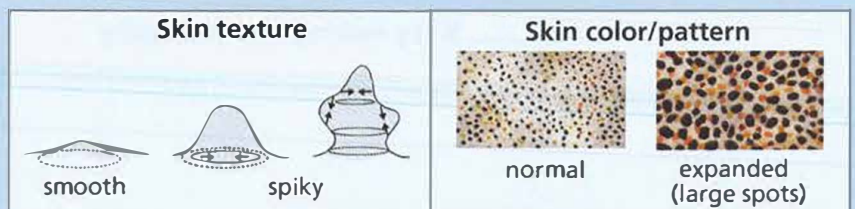
An octopus's body has many muscles. This makes it strong and fast. Octopuses also have no bones, so they can change their shape very quickly.

An octopus brain holds only one-third of the animal's neurons (nerve cells). It handles functions such as decision-making, learning, and memory.

An octopus has three hearts: one large central heart and two smaller ones on either side.

About two-thirds of an octopus's neurons are in its arms. These neurons control the arm movements.

Octopuses can change their appearance to match their surroundings. Once the brain gives a signal, the octopus's muscles move in a certain way, changing its skin from smooth to spiky and producing colorful spots or stripes on its skin.



READING COMPREHENSION

A. Choose the best answer for each question.

GIST

1. What would be the best alternative title for this passage?
 - a. The Mind of an Octopus
 - b. How an Octopus Hides
 - c. Octopus Numbers on the Rise

DETAIL

2. Which of these sentences is NOT true?
 - a. Chromatophores are light-reflecting cells.
 - b. Chromatophores can change in size.
 - c. Chromatophores produce an animal's skin texture.

INFERENCE

3. In red light, an octopus probably appears _____.
 - a. red
 - b. blue
 - c. white

INFERENCE

4. In paragraph C, the author suggests that some corals _____.
 - a. can change their color
 - b. can roll themselves into balls
 - c. have spiky outer surfaces

REFERENCE

5. What does *they* refer to in paragraph D, line 4?
 - a. octopuses
 - b. bones
 - c. predators

MATCHING

- B. Look at the list of ways octopuses disguise themselves (a–c) and the statements (1–5). Match each statement with the method of disguise. Write a, b, or c.

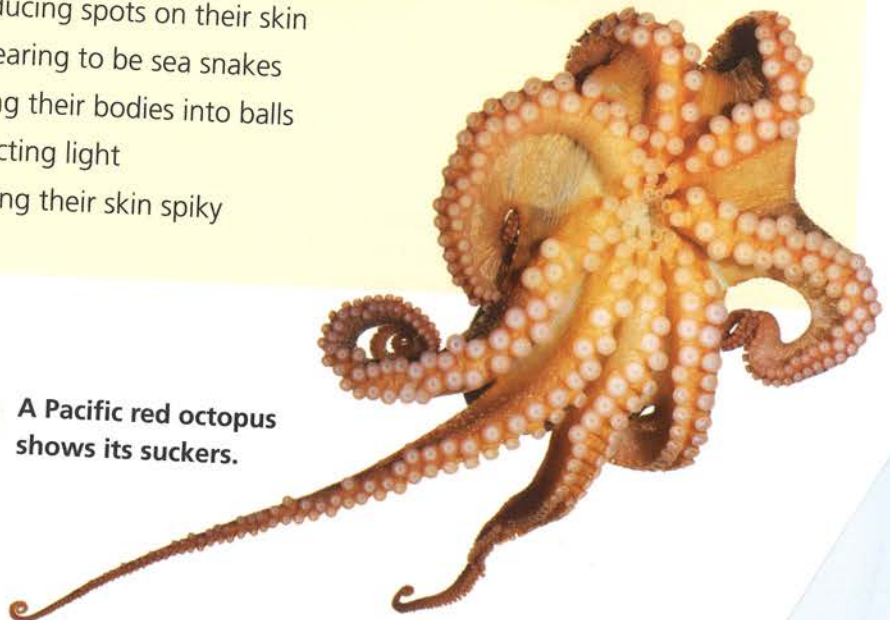
a. color

b. skin texture

c. shape

- _____ 1. by producing spots on their skin
- _____ 2. by appearing to be sea snakes
- _____ 3. by rolling their bodies into balls
- _____ 4. by reflecting light
- _____ 5. by making their skin spiky

> A Pacific red octopus shows its suckers.



Identifying Main Ideas in Paragraphs

A paragraph usually has one main idea and some details that support it. Paragraphs often include a topic sentence that describes the main idea. Usually—but not always—a topic sentence is at or near the start of the paragraph, or at the end. One way to find the main idea quickly is to read the sentences at the beginning and end of the paragraph. A paragraph's heading (if it has one) can also give a clue to its main idea.

MAIN IDEA

- A.** Read the paragraph below. Which sentence gives the main idea? Circle a, b, or c.

Is it a stick? Or is it an insect? It's a stick insect—an insect that looks like a stick. The stick insect is an example of an animal that uses color, texture, and shape to disguise itself. It lives—and can easily hide—among the leaves and twigs of plants. Most stick insects are either brown or green. The smallest types are just over a centimeter long. The largest is about 33 centimeters, making it one of the world's longest insects.



^ A Malayan giant stick insect

- The stick insect is an example of an animal that uses color, texture, and shape to disguise itself.
- It lives—and can easily hide—among the leaves and twigs of plants.
- The largest is about 33 centimeters, making it one of the world's longest insects.

MAIN IDEA

- B.** Look back at Reading B. Match each paragraph with its main idea (a–d).

- | | |
|------------------|--|
| 1. Paragraph A • | • a. An octopus can change its shape and skin texture. |
| 2. Paragraph B • | • b. Octopuses can change how they look very quickly. |
| 3. Paragraph C • | • c. An octopus can change its skin color. |
| 4. Paragraph D • | • d. Octopuses disguise themselves for their own protection. |

CRITICAL THINKING Comparing

Which animal do you think is smarter—the dolphin or the octopus? Why? Note your ideas and discuss with a partner.

VOCABULARY PRACTICE

COMPLETION A. Complete the paragraph with words from the box.

ability appearance hide patterns produce

Reef squid—like their relatives, octopuses—have an amazing
 1 _____: They can quickly change their physical
 2 _____ in order to 3 _____ from
 predators. They also use this skill to send messages; they can
 even 4 _____ two messages at the same time!
 For example, a male reef squid swimming near a female squid
 can create colorful, attractive 5 _____ on the side
 of its body closest to the female. On the other side, it shows
 black and white lines that tell other male squid to stay away.



▼ A bigfin reef squid

WORDS IN CONTEXT

B. Complete each sentence with the correct answer (a or b).

1. A **creature** refers to any living _____.
a. plant
b. animal
2. A circle has a _____ **shape**.
a. round
b. square
3. If you **survive** a dangerous situation, you _____.
a. live
b. don't live
4. The **muscles** in the human body control how we _____.
a. think
b. move
5. If you **develop** a skill or ability, it becomes _____.
a. better or stronger
b. worse or weaker

WORD FORMS

C. The verb **survive** can be made into a noun by adding the suffixes **-or** or **-al**. Complete the sentences with the correct words from the box.

survive survivor survival

1. The _____ of whales is connected to the health of the ocean.
2. These plants cannot _____ in very cold conditions.
3. The plane crash had only one _____.

- > A chameleon balances on a thin branch.

A CHAMELEON'S COLORS

BEFORE YOU WATCH

- PREVIEWING** A. Read the extracts from the video. Then complete the definitions of the words or phrases in **bold**. Circle the correct words.

"Chameleons can change color to **attract** other chameleons or to **warn** them to go away."

"To catch food, a chameleon hides in the trees until an insect walks by. Then it **shoots out** its tongue ..."

1. If you want to **attract** something, you want it to *come to you* / *go away*.
2. When you **warn** someone about something, you tell them that something *good* / *bad* may happen.
3. When something **shoots out**, it moves very *quickly* / *slowly*.

- QUIZ** B. Read the sentences below and guess if they are correct. Circle T (true) or F (false).

1. The main reason chameleons change color is to hide from predators.
2. A chameleon's tongue is very long.
3. Chameleons are in trouble because they are being hunted by other animals.

T	F
T	F
T	F

WHILE YOU WATCH

GIST A. Watch the video. Check your answers in Before You Watch B.

MULTIPLE CHOICE B. Watch the video again. Choose the correct answer for each question.

1. According to the video, where do many different types of chameleons live?
 - a. Malta
 - b. Madagascar
2. What is one reason given in the video for chameleons' color changes?
 - a. to show that they want some food
 - b. to show that they are scared
3. Why do chameleons rock back and forth?
 - a. to stay safe from predators
 - b. to get ready to attack other animals
4. The video uses a model of a bow and arrow to _____.
 - a. show how difficult it is for a predator to attack a chameleon
 - b. explain how a chameleon can stick out its tongue very fast

CRITICAL THINKING Reflecting

If you were a scientist studying animals, what animal would you study? What would you like to find out about this animal? Note some ideas and share your answers with a partner.

VOCABULARY REVIEW

Do you remember the meanings of these words? Check (✓) the ones you know. Look back at the unit and review any words you're not sure of.

Reading A

- | | | | | |
|---------------------------------------|----------------------------------|----------------------------------|---------------------------------------|-----------------------------------|
| <input type="checkbox"/> advantage | <input type="checkbox"/> alike | <input type="checkbox"/> assist* | <input type="checkbox"/> communicate* | <input type="checkbox"/> feelings |
| <input type="checkbox"/> intelligent* | <input type="checkbox"/> method* | <input type="checkbox"/> smart | <input type="checkbox"/> special | <input type="checkbox"/> system |

Reading B

- | | | | | |
|----------------------------------|-------------------------------------|-----------------------------------|----------------------------------|-----------------------------------|
| <input type="checkbox"/> ability | <input type="checkbox"/> appearance | <input type="checkbox"/> creature | <input type="checkbox"/> develop | <input type="checkbox"/> hide |
| <input type="checkbox"/> muscle | <input type="checkbox"/> pattern | <input type="checkbox"/> produce | <input type="checkbox"/> shape | <input type="checkbox"/> survive* |

* Academic Word List

TRAVEL AND ADVENTURE

✓ Hikers on the Charles
Kuonen Suspension Bridge
in Randa, Switzerland

WARM UP

Discuss these questions with a partner.

1. Which places in the world would you most like to visit? Why?
2. What is the most adventurous trip you have been on?

CYCLING THE AMERICAS

In 2005, Gregg Bleakney and his friend Brooks Allen began an amazing two-year cycling adventure.

Route 

Total distance: 30,500 kilometers

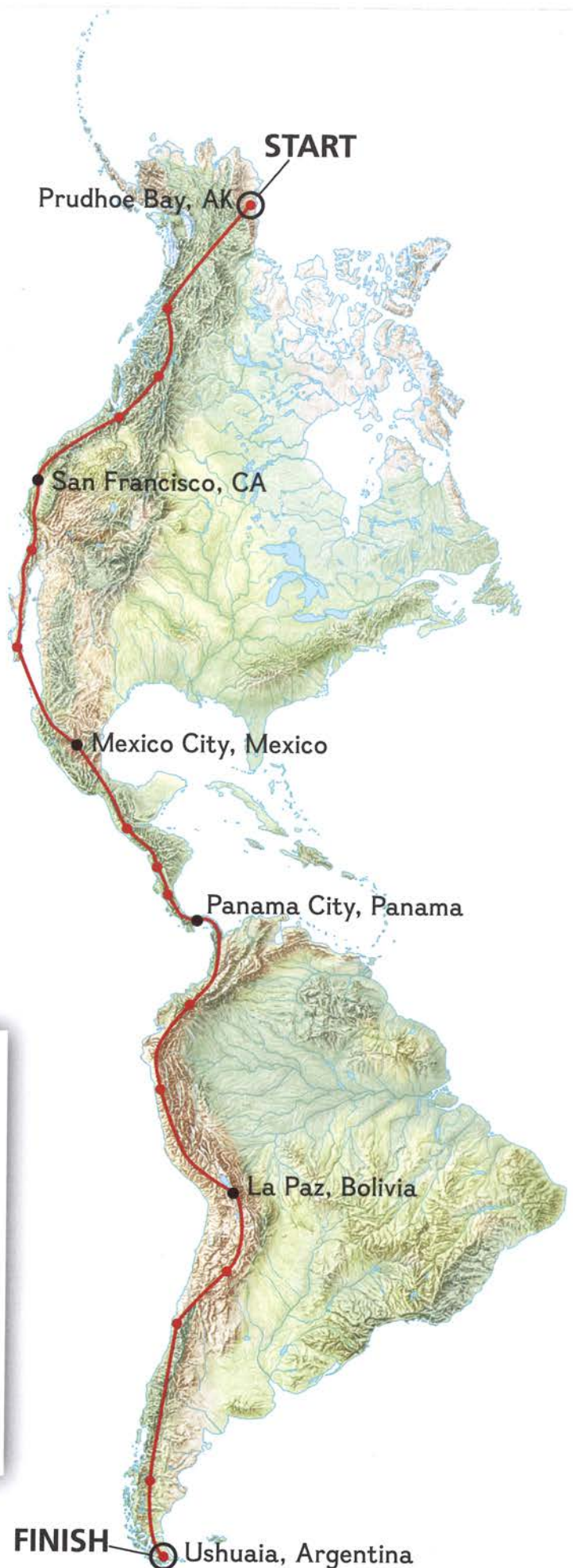
 mountains

BEFORE YOU READ

SCANNING A. Use the map and the information above to answer these questions.

1. Where did the two friends travel from and to? How did they travel?
2. How far did they travel?
How long did the trip take?

DISCUSSION B. Why do you think they wanted to make this trip?
Discuss with a partner.



THE TRIP OF A LIFETIME

- A Many people dream of going on a great travel adventure. Most of us keep dreaming; others make it happen.
- B Gregg Bleakney's dream was to travel the Americas from top to bottom. He got the idea after he finished a 1,600-kilometer bike ride. Gregg's friend Brooks Allen was also a cyclist. The two friends talked and decided on their **goal**: They would travel from Alaska to Argentina—by bike.
- C To pay for the **journey**, Gregg and Brooks worked and saved money for years. In 2005, after four years of planning, they set off. Once they were on the road, they often camped outdoors or stayed in hostels.¹ In many places along their **route**, local people opened their homes to the two friends and gave them food.

¹ A **hostel** is a cheap place to stay when traveling.

✓ In Guatemala, Brooks Allen and Gregg Bleakney cycled through Tikal National Park.



Lessons from the Road

- D During their trip, Gregg and Brooks cycled through deserts, rain forests, and mountains. They visited **modern** cities and explored **ancient** ruins,² such as Tikal in Guatemala. In many places, they met other cyclists from all over the world.
- E In May 2007—two years, 12 countries, and over 30,500 km later—Gregg eventually reached Ushuaia, Argentina, at the southern tip of South America. (Halfway through the trip, Brooks had to stop. He returned to the United States and Gregg continued without him.)
- F Gregg and Brooks kept a **record** of their adventures in an online blog. The trip taught both men a lot about traveling. Here is some of Gregg's **advice**.
- **Travel light.** The less baggage you have, the less you'll **worry** about.
 - **Be flexible.** Don't plan everything. You'll be more **relaxed** and happy, even when there are **challenges** along the way.
 - **Be polite.** As one traveler told Gregg, "Always remember that nobody wants to fight, cheat, or rob³ a nice guy."

² The **ruins** of something are the parts that remain after it is damaged or weakened.

³ If someone **robs** you, they take money or property from you.

✓ Many Antarctic cruises start from the port of Ushuaia in Argentina.



READING COMPREHENSION

A. Choose the best answer for each question.

GIST

1. What could be another title for the reading?

- a. Cycling from Alaska to Argentina
- b. Things to Do and See in America
- c. Argentina: The Land of Adventure

DETAIL

2. Which sentence about the trip is NOT true?

- a. To pay for the trip, Gregg and Brooks saved money and traveled cheaply on the road.
- b. During their trip, Gregg and Brooks met cyclists from all around the world.
- c. Only Brooks made the complete trip from Alaska to Argentina.

VOCABULARY

3. In paragraph F, what does *baggage* mean?

- a. things you take on a trip
- b. places you visit on a trip
- c. reasons for going on a trip

PARAPHRASE

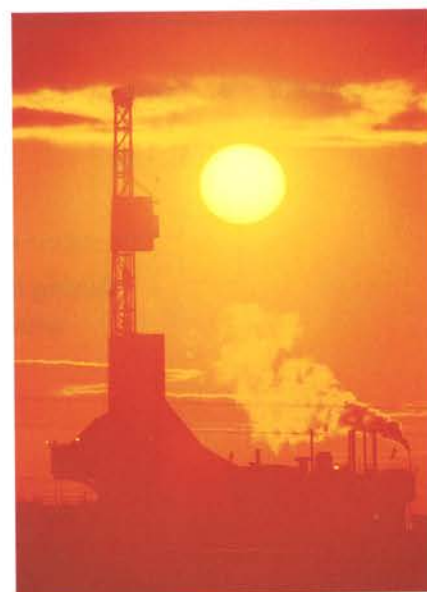
4. What does Gregg mean by *Be flexible* in paragraph F?

- a. Be careful when you travel.
- b. Be ready to change easily.
- c. Plan the details of your trip.

INFERENCE

5. Which statement would Gregg most likely agree with?

- a. When you travel, only stay in hotels or with people you know.
- b. Bring a lot of things on your trip so you don't have to buy anything.
- c. When abroad, learn how to say "thank you" in the local language.



▲ In Prudhoe Bay, Alaska, the sun does not set from mid-May through mid-July.

MAIN IDEA

B. Match each paragraph with its main idea.

Review this reading skill in Unit 1B

- | | |
|------------------|--|
| 1. Paragraph B • | • a. what the cyclists saw on their trip |
| 2. Paragraph C • | • b. what the cyclists learned from their trip |
| 3. Paragraph D • | • c. a dream of cycling through the Americas |
| 4. Paragraph E • | • d. how the cyclists paid for their trip |
| 5. Paragraph F • | • e. when and where the cycling trip ended |

Understanding Maps

Like other visuals, maps can help you better understand a text. Most maps have a **title**, a **scale** (to show distance), a **key** or **legend** (a guide of symbols or colors used), and a **source** (where the information comes from). A map may also include a **compass** (to show where north is).

LABELING A. Look at the map below. Label the parts of the map with these features (1–5).

1. key 2. source 3. scale 4. title 5. compass



COMPLETION B. Use information from the map above to complete these sentences. Circle the correct words.

- The ancient city of Teotihuacan in Mexico *was* / *was not* part of the Maya Empire.
- The distance from Teotihuacan to Tikal is *less* / *greater* than 400 kilometers.
- Tikal is located in *northern* / *southern* Guatemala. It is close to the border with *Honduras* / *Belize*.

CRITICAL THINKING Interpreting Visual Information

Look back at the map on page 22. Which parts of the journey do you think were the most challenging for the cyclists? Why? Discuss with a partner and note your ideas.

VOCABULARY PRACTICE

WORDS IN CONTEXT

A. Complete each sentence with the correct answer (a or b).

- If something is **ancient**, it is very _____.
a. expensive b. old
- _____ is an example of a **modern** invention.
a. The cell phone b. Paper
- A **record** of an event will help you _____ it.
a. change b. remember
- If something is a **challenge**, it is _____ to do.
a. difficult b. easy

COMPLETION

B. Complete the information using words from the box.

advice goals journey relax route worry

Every year, many people make mistakes when they go hiking.

Here's some ¹_____ that can help you stay safe.

Before you start your ²_____, leave a map showing the
³_____ that you are planning to take. If something goes
wrong (for example, if you get lost), you should "S.T.O.P." This means:

- **S**top: try to ⁴_____ and stay calm.
- **T**hink about your situation.
- **O**bserve: look around and notice where you are.
- **P**lan what to do next: set one or two simple
⁵_____ for yourself.

It's also important to stay on clearly marked trails. Don't

⁶_____—someone will eventually find you.

✓ **Hikers in the
Austrian Tyrol**



WORD USAGE

C. Some words such as **record** can be either a noun (pronounced "record") or a verb (pronounced "re·cord"). Complete the sentences with the correct words from the box. Then circle the stressed syllable in each word.

address object record

- We found a strange _____ among the ruins.
- Once I've found somewhere to live, I'll send you my new _____.
- You should _____ your travels in a travel diary.

< Land diving on
Pentecost Island,
Vanuatu

BEFORE YOU READ

- DISCUSSION** A. Look at the photo. Then answer the questions below with a partner.
1. What do you think is happening in the photo?
 2. What is the most dangerous sport or activity you have tried?
- PREDICTING** B. Look at the reading title and headings. What do you think these activities have in common? Check your ideas as you read.

ADVENTURE ISLANDS

A Vanuatu is a **nation** of small islands in the South Pacific. It is one of the smallest countries in the world. But for those interested in adventure and sport, there is a lot to do. Some of the best swimming, snorkeling, and sea kayaking can be found here. Vanuatu's islands also offer visitors two of the most exciting—and dangerous—activities in the world: volcano surfing and land diving.

Volcano Surfing

B On Tanna Island, Mount Yasur rises 300 meters into the sky. Yasur is one of Vanuatu's few **active** volcanoes. It erupts¹ **almost** every day, sometimes several times a day. For **centuries**, both locals and tourists have climbed this mountain to visit the top. Recently, people have also started climbing Yasur to surf the volcano. In some ways, volcano surfing is like surfing in the sea, but in other ways, it's very different. A volcano surfer's goal is to **escape** the erupting volcano—without being **hit** by flying rocks! It's fast, fun, and dangerous—the perfect extreme sport.²

Land Diving

C Most people are **familiar** with bungee jumping. But did you know that bungee jumping started on Pentecost Island in Vanuatu almost 15 centuries ago? The **original** activity—called land diving—is part of a religious ceremony.³ A man **ties** two tree vines⁴ around his ankles. He then climbs a wooden tower around 20 to 30 meters high, crosses his arms, and jumps headfirst. The goal is to touch the earth with the top of his head—without breaking the vines or hitting the ground hard. Every spring, local boys and men still perform this amazing test of **bravery**. Women are not allowed to dive, but they support the divers by dancing and singing at the bottom of the tower. Many tourists come to the island every year to watch this ancient tradition.



¹ When a volcano **erupts**, it throws out hot rock called lava.

² An **extreme sport** is a sport that is dangerous and exciting, such as skydiving or bungee jumping.

³ A **ceremony** is a formal event, such as a wedding.

⁴ A **vine** is a plant that grows up or over things.

READING COMPREHENSION

A. Choose the best answer for each question.

PURPOSE

1. What is the purpose of this reading?
 - a. to compare Vanuatu with other islands in the South Pacific
 - b. to explain what volcano surfing and land diving are
 - c. to talk about the world's best volcano surfer and land diver

MAIN IDEA

2. How are volcano surfing and land diving similar?
 - a. They are both ancient sports.
 - b. Anyone can do them.
 - c. They are both extreme activities.

REFERENCE

3. In paragraph A, what does *those* refer to?
 - a. people
 - b. countries
 - c. islands

DETAIL

4. Which sentence is true about Mount Yasur?
 - a. It is no longer active.
 - b. People have been climbing it for a long time.
 - c. It is on Pentecost Island.

DETAIL

5. Which sentence is true about land diving?
 - a. It was first called "bungee jumping."
 - b. It is less popular today than in the past.
 - c. It is a traditional activity in Vanuatu.



▲ Vanuatu is also a popular destination for scuba divers. Underwater creatures there include extremely colorful sea slugs like this one.

EVALUATING STATEMENTS

B. Are the following statements true or false according to the reading passage, or is the information not given? Circle T (true), F (false), or NG (not given).

- | | | | |
|--|---|---|----|
| 1. Vanuatu has more than one active volcano. | T | F | NG |
| 2. Volcano surfing came to Vanuatu from another country. | T | F | NG |
| 3. More people get hurt volcano surfing than land diving. | T | F | NG |
| 4. Both men and women can do land diving. | T | F | NG |
| 5. The land diving ceremony is a popular tourist attraction. | T | F | NG |

Scanning for Key Details

When you read, you often want to find specific details in the text. Before you read, you first need to decide what to look for (e.g., a person's name, a place, or a number). Once you know what to look for, scan the text quickly to find that information.

ANALYZING A. Read the questions. What kind of answer will you need to scan for? Circle a, b, or c. (Do not answer the questions yet.)

1. Where can you surf in cold water?

a. a place	b. a number	c. a date
------------	-------------	-----------
2. How high are the highest waves on the "silver dragon"?

a. an example	b. a number	c. a reason
---------------	-------------	-------------
3. Why is surfing possible in so many places?

a. a reason	b. a place	c. an example
-------------	------------	---------------
4. What other hobby is popular among surfers?

a. a place	b. a reason	c. an activity
------------	-------------	----------------

SCANNING B. Now scan the text below and write answers to the questions above.

1. _____
2. _____
3. _____
4. _____

When you think of surfing, you probably think of Hawaii, Australia, or Brazil. But surfers don't need warm weather, or even an ocean. For example, some surfers ride the waves in the icy cold waters of Antarctica. Other surfers head to China's Qiantang River to surf the "silver dragon." Twice a year, the waves on the Qiantang can reach a height of 10 meters.

Surfing is possible in all these places because a surfer only needs two things: a wave and a board. There is always a risk, so surfers need to be strong swimmers. They also need good balance and an ability to think and move quickly. This is why skateboarding is a common hobby among surfers.

CRITICAL THINKING Reflecting Imagine a tourist wants to try an extreme sport or activity in your country. Where would you suggest they go? What should they do? Note some ideas and share them with a partner.

VOCABULARY PRACTICE

COMPLETION A. Circle the correct words to complete the information below.

If you lead an ¹**almost** / **active** lifestyle and want to learn an extreme water sport, consider whitewater kayaking. Many people head to Chile every year to kayak along the many rivers and rapids¹ that the ²**bravery** / **nation** is known for. The United States also has many popular kayaking spots, such as the Great Falls of the Potomac River. The falls lie ³**almost** / **familiar** entirely within the state of Maryland.

Whitewater kayaking is very dangerous. So why do people do it? For some, it is a test of ⁴**centuries** / **bravery**. For others, it makes them feel alive.



▲ A whitewater kayaker on the Potomac River

¹ **Rapids** are a section of a river where the water moves very fast, often over rocks.

DEFINITIONS B. Complete the definitions using words from the box. One word is extra.

active century escape familiar hit original tie

1. If you _____ something, you touch it with a lot of force.
2. Something that is _____ is the very first of its kind.
3. A(n) _____ is a period of a hundred years.
4. If you are _____ with something, you know or understand it well.
5. If you _____ two things together, you join them using rope or string.
6. If you _____ from something, you run away from it.

COLLOCATIONS C. The nouns in the box are often used with the word **original**. Complete the sentences with the correct nouns from the box.

idea owner song

1. The land was returned to its original _____.
2. The students came up with a very original _____ for how to solve the problem.
3. We wrote and performed an original _____ for the music competition.

A view of the
Northern Lights over
Laponia, Sweden
(photographed by
Orsolya Haarberg)

EXPLORING LAPONIA

BEFORE YOU WATCH

PREVIEWING A. Read the information. The words in **bold** appear in the video. Circle the correct words to complete the definitions (1–3).

Laponia (in Sweden) is a large **wilderness** area of high mountains, ancient forests, and beautiful lakes and rivers. A UNESCO World Heritage Site, it covers over 9,400 square kilometers of **untouched** nature. Erlend and Orsolya Haarberg—a husband-and-wife team of nature photographers—have made several trips to this area. On each trip, they carry a lot of food, clothes, cameras, and camping **gear**. Orsolya describes taking photos here as “a real adventure.”

1. A **wilderness** is an area of natural land that *is / is not* used by people.
2. An **untouched** piece of land is *in its original state / cleaned by* people.
3. A photographer’s **gear** is the *goal of their trip / set of things they take with* them.

PREDICTING B. What kinds of challenges do you think the Haarbergs face on their trips to Laponia? Discuss with a partner and note some ideas.

WHILE YOU WATCH

- GIST** A. Watch the video. Were any of your predictions in Before You Watch B mentioned in the video? What other challenges are mentioned? Note them below.

- SHORT ANSWER** B. Watch the video again. Write a short answer for each question.

1. Is it easier to explore Lapponia in winter or in summer? Why?

2. What are some types of food the Haarbergs carry with them?

3. What happened to Orsolya on one trip?

CRITICAL THINKING Reflecting

Think about the activities or adventures you have learned about in this unit. Which ones would you want to try? Which ones would you not want to try? Note your answers and reasons, and share them with a partner.

VOCABULARY REVIEW

Do you remember the meanings of these words? Check (✓) the ones you know. Look back at the unit and review any words you're not sure of.

Reading A

- | | | | | |
|---------------------------------|----------------------------------|-------------------------------------|---------------------------------|----------------------------------|
| <input type="checkbox"/> advice | <input type="checkbox"/> ancient | <input type="checkbox"/> challenge* | <input type="checkbox"/> goal* | <input type="checkbox"/> journey |
| <input type="checkbox"/> modern | <input type="checkbox"/> record | <input type="checkbox"/> relaxed* | <input type="checkbox"/> route* | <input type="checkbox"/> worry |

Reading B

- | | | | | |
|-----------------------------------|---------------------------------|----------------------------------|-----------------------------------|---------------------------------|
| <input type="checkbox"/> active | <input type="checkbox"/> almost | <input type="checkbox"/> bravery | <input type="checkbox"/> century | <input type="checkbox"/> escape |
| <input type="checkbox"/> familiar | <input type="checkbox"/> hit | <input type="checkbox"/> nation | <input type="checkbox"/> original | <input type="checkbox"/> tie |

* Academic Word List

THE POWER OF MUSIC

Hip-hop group Migos performs at the 2018 Coachella Valley Music and Arts Festival in California.

WARM UP

Discuss these questions with a partner.

1. What is your favorite kind of music? Who is your favorite singer or band?
2. How important is music in your life? Give reasons and examples to support your answer.

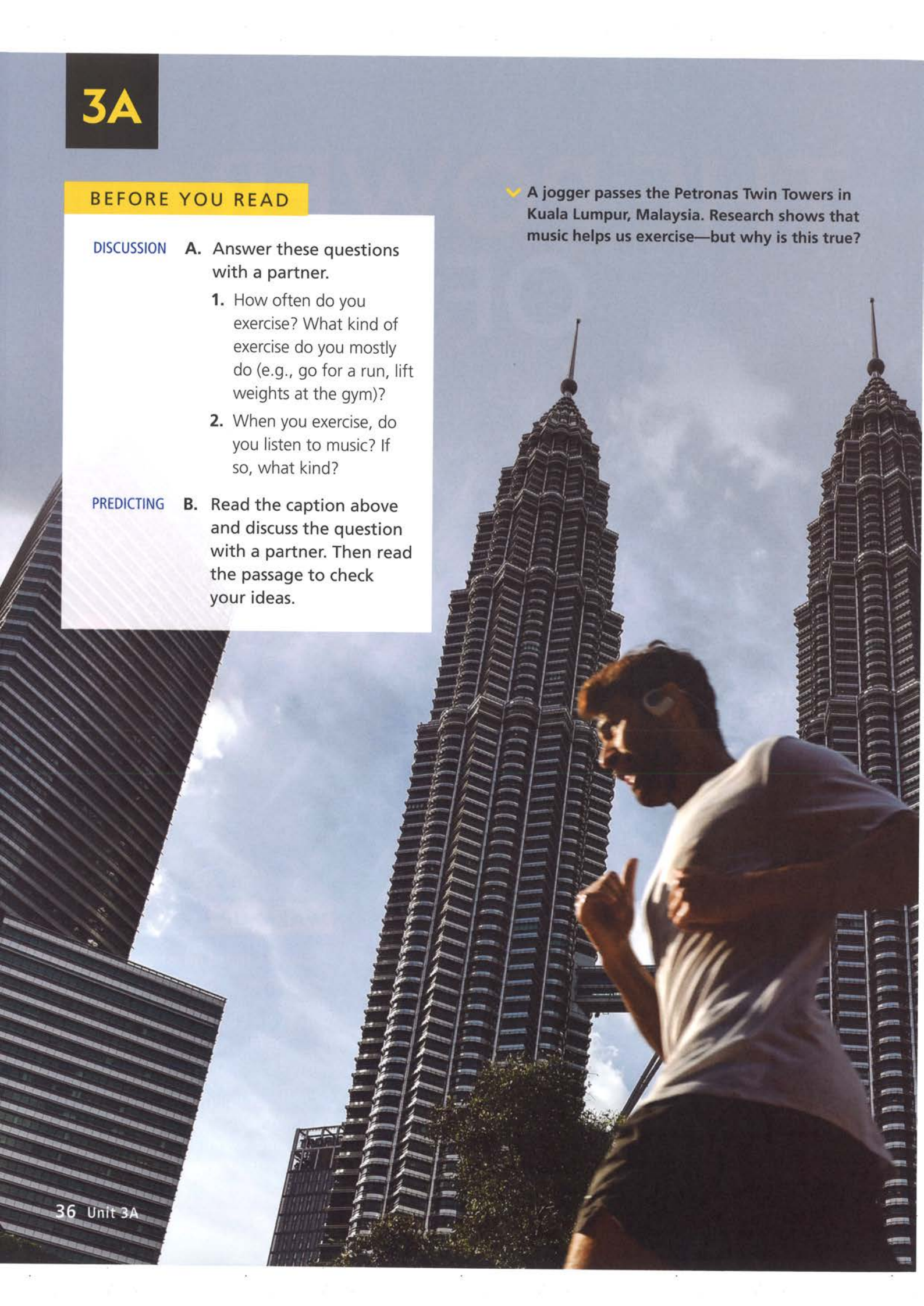
BEFORE YOU READ

DISCUSSION A. Answer these questions with a partner.

1. How often do you exercise? What kind of exercise do you mostly do (e.g., go for a run, lift weights at the gym)?
2. When you exercise, do you listen to music? If so, what kind?

PREDICTING B. Read the caption above and discuss the question with a partner. Then read the passage to check your ideas.

✓ A jogger passes the Petronas Twin Towers in Kuala Lumpur, Malaysia. Research shows that music helps us exercise—but why is this true?



MOVE TO THE MUSIC

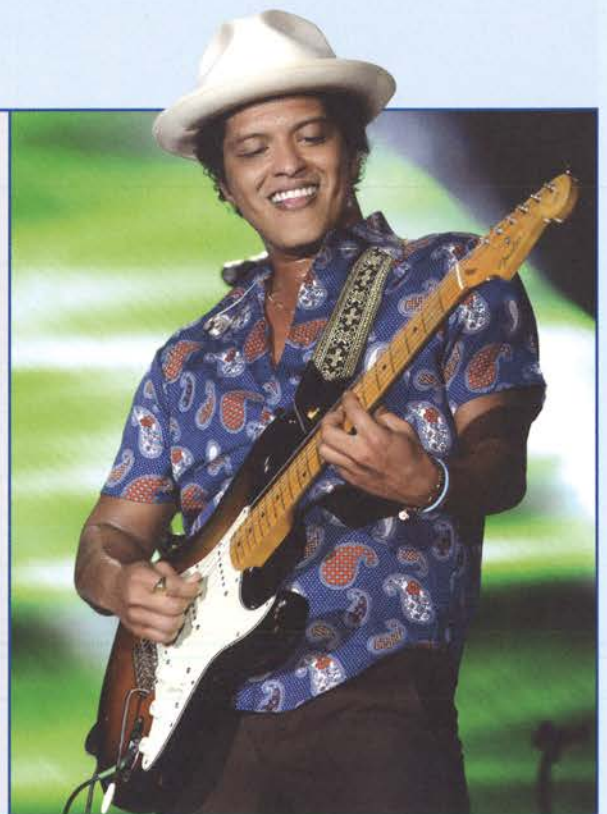
- A Music helps us exercise—but why does it have this effect? Experts say there are two main reasons. The first is simple: Music **distracts** us. When we listen to a song we like, our brain **pays attention** to the music. For example, after we exercise for 20 minutes, our body might be tired. But we may not feel this immediately because we are listening to music. So we exercise a little longer.
- B Music also motivates¹ us. When we hear dance music, for example, we naturally start to move to the **beat**. An upbeat² song also puts us in a good **mood**, so we feel happier. This gives us **energy** and helps us exercise longer. Music with a quick and **steady** beat is good for exercising. But the music shouldn't be *too* fast, says sports psychologist Dr. Costas Karageorghis. Generally, songs in the **range** of 120–140 beats per minute (BPM) are the best.

¹ If something **motivates** you, it makes you want to do something.

² An **upbeat** song is one that is lively and cheerful.

Beats per minute (BPM) is a term for measuring the speed of a piece of music. The higher the BPM, the faster the song. Here's a short playlist of popular workout music with the BPM for each song.

- "Lose Yourself" – Eminem (86 BPM)
- "Stronger (What Doesn't Kill You)" – Kelly Clarkson (116 BPM)
- "Idol" – BTS (126 BPM)
- "I Gotta Feeling" – The Black Eyed Peas (128 BPM)
- "On the Floor" – Jennifer Lopez featuring Pitbull (130 BPM)
- "Locked Out of Heaven" – Bruno Mars (144 BPM)
- "Mr. Brightside" – The Killers (148 BPM)



▲ Bruno Mars is a Grammy Award-winning singer, songwriter, and producer.

- C A new study by cognitive scientist³ Tom Fritz suggests this is only part of the explanation, however. In an experiment, Fritz put 61 people in small groups. They all then exercised twice. One time, each group worked out while listening to music for six minutes. Another time, they exercised for six minutes on special Jymmin machines. The name Jymmin is a combination of “jammin’” and “gym.” Using these machines, each group made music as they moved. At the end, 53 of the 61 people said the same thing: They felt less tired when they exercised on the Jymmin machines. When we exercise and *make* music—especially with other people—working out **seems** to be easier.
- D How does Fritz explain this? Maybe people did better on the Jymmin machines because they had more **control**, he says. People created the beat. They could make it go faster or slower. Also, the activity was **social**. Each group was making music together and having fun. Fritz believes that Jymmin exercise may have other advantages, too. He wants to find out if it can help with more serious conditions. For example, it may even be a good way to treat depression.⁴

³ A **cognitive scientist** is a person who studies the mind and how people think and learn.

⁴ **Depression** is a medical condition in which a person feels very sad and is often unable to live in a normal way.

✓ A group of people exercise using Jymmin machines.



READING COMPREHENSION

A. Choose the best answer for each question.

GIST

1. What is the reading mainly about?

- a. the effect of music on exercise
- b. good songs for a workout music playlist
- c. how Jymmin machines work

VOCABULARY

2. In paragraph A, what does the word *immediately* mean?

- a. completely
- b. sometimes
- c. right away

DETAIL

3. According to the passage, which of these songs is at the ideal speed for exercising?

- a. "Lose Yourself" – Eminem
- b. "I Gotta Feeling" – The Black Eyed Peas
- c. "Locked Out of Heaven" – Bruno Mars

MAIN IDEA

4. Paragraphs C and D focus on the advantages of ____ while exercising.

- a. listening to music
- b. watching music videos
- c. creating music

INFERENCE

5. Which of these can we definitely say about Jymmin machines?

- a. People exercised better using the machines because they had more control.
- b. People using the machines could make the music go faster or slower.
- c. The machines are useful in treating depression.

SUMMARIZING

B. Complete the summary below using words from the box. One word is extra.

control depression distracts make motivate range tired

One reason listening to music helps us exercise is that it ¹_____ us.

When we listen to a song we enjoy, our mind pays attention to the music, so we don't feel ²_____.

Another reason music helps us exercise is that it can ³_____ us to keep exercising.

A recent study shows that people exercise better when they use special machines that allow them to ⁴_____ music while exercising with other people.

They felt this gave them more ⁵_____. Also, it made exercising a fun, social activity. In the future, these machines could even be used to help people who suffer from ⁶_____.

Identifying Supporting Details

The main ideas of a text are usually supported by details. These give more information about the main idea, and can include examples, facts, or reasons.

MATCHING A. The sentences below (1–3) relate to Reading A. Match each sentence with the type of supporting detail it contains (a, b, or c).

- a. example b. fact c. reason

- ____ 1. Dr. Tom Fritz works at the Max Planck Institute for Human Cognitive and Brain Sciences.
- ____ 2. Jymmin exercise may help even serious conditions such as depression.
- ____ 3. Music helps us exercise because it distracts us.

**SUPPORTING
DETAILS**

B. Read this paragraph and underline the main idea. Then use supporting details in the paragraph to answer the questions (1–3).



Generally, songs with 120–140 beats per minute (BPM) are the best for exercising. This is because most people want to get their heart rate up to this level during a workout. Songs in this range include Lady Gaga’s “The Edge of Glory” (128 BPM) and “Push It” (130 BPM) by Salt-N-Pepa. Listening to songs like these can increase your endurance¹ by up to 15 percent. A slower song like Adele’s “Make You Feel My Love” (72 BPM) is more likely to make you want to relax, or even take a nap.

¹ **Endurance** is the ability to keep doing something difficult, unpleasant, or painful for a long time.

1. Why are songs in the 120–140 BPM range good for exercising?

2. Who sang the song “The Edge of Glory”?

3. What is an example of a song that is not suitable for exercising?

^ In 2015, Adele’s 25 broke the iTunes record for fastest-selling album.

CRITICAL THINKING Reflecting

When you exercise, do you prefer listening to songs in English or in your own language? Note your answer and reasons below. Include examples of songs. Then discuss with a partner.

VOCABULARY PRACTICE

COMPLETION A. Complete the paragraph with words from the box. One word is used twice.

beat energy range seems steady

Much of the research done on music and exercise focuses on what the ideal BPM ¹_____ is for running. But it also ²_____ from recent studies that having a predictable, ³_____ rhythm is important. Generally, music with sudden changes in the ⁴_____, like free-form jazz, is less suitable. Why? If the music speed changes while we run, we tend to adjust our movements to match the ⁵_____. Each time we change our steps to move faster or slower, we lose ⁶_____.

COMPLETION B. Complete the sentences using words or phrases from the box.

control distract pay attention mood social

1. Music can sometimes _____ you from your work.
2. Many people say that listening to the song "Happy" by Pharrell Williams puts them in a good _____.
3. If you want to have better _____ of your singing voice, you should do more vocal exercises.
4. Most schools organize _____ events like dances and concerts for the students.
5. Orchestra musicians must _____ to the conductor during a performance.



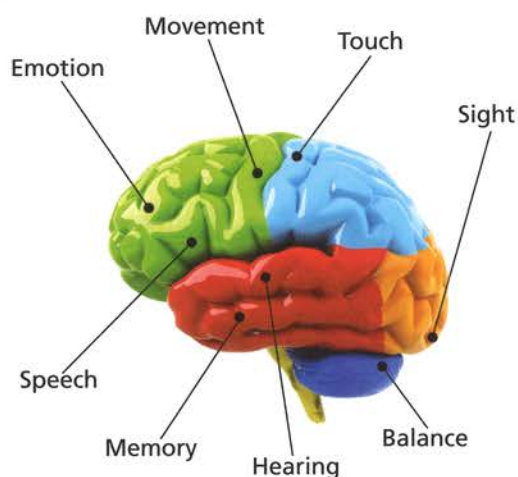
▲ Pharrell's "Happy" was the best-selling song of 2014 in the United States.

COLLOCATIONS C. The prepositions in the box are often used with the word **control**. Complete the definitions below with the correct prepositions.

in out of under

1. If you are _____ control of a company, you have the power to make important decisions about the way it is run.
2. If a situation is _____ control, it is being dealt with successfully and is unlikely to cause any problems.
3. If something is _____ control, it cannot be dealt with successfully.

For most activities, we use several functions, or abilities, controlled by different parts of our brain.



BEFORE YOU READ

DISCUSSION A. Discuss the following questions with a partner.

1. Look at the brain diagram and the caption above. Which function(s) do you use when you sing? Play an instrument? Listen to music?
2. In what ways do you think music and language are similar?

PREDICTING B. Look at the reading title. What do you think *boost* means?

- a. a change for the better
- b. a problem
- c. a system

Check your answer as you read the passage.



A MUSICAL BOOST

- A Is there a **connection** between music and language? According to recent studies, the answer is yes: Music boosts **certain** language abilities in the brain. Here are two examples.

Music and Hearing

- B A study from Northwestern University shows that playing a musical instrument can **improve** a person's hearing ability. As a part of the study, two groups of people listened to a person talking in a noisy room. The people in the first group were musicians, while those in the second group had no musical training. The musicians were able to hear the talking person more clearly.
- C Musicians hear better, says study leader Nina Kraus, because they learn to pay attention to certain sounds. Think about violinists in an orchestra. When the violinists play with the group, they hear their own instrument and many others, too. But the violinists must listen closely to what they are playing, and **ignore** the other sounds. In this way, musicians are able to **concentrate** on certain sounds, even in a room with lots of noise.

Music and Speech

- D Gottfried Schlaug, a doctor at Harvard Medical School, works with stroke¹ patients. Because of their illness, these people cannot say their names, addresses, or other information **normally**. However, they can still sing. Dr. Schlaug was surprised to find that singing words helped his patients to eventually speak. Why does this work? Schlaug isn't sure. Music seems to activate² different parts of the brain, including the **damaged** parts. This somehow helps patients use those parts of the brain again.

Understanding the Results

- E Music improves concentration, memory, listening **skills**, and our **overall** language abilities. It can even help sick people get better. Playing an instrument or singing, says Nina Kraus, can help us do better in school and keep our brains **sharp** as we get older. Music, therefore, is not only enjoyable; it's also good for us in many other ways.

¹ A **stroke** is an illness of the brain. It can make a person unable to move one side of their body.

² If you **activate** something, you make it start working.

READING COMPREHENSION

A. Choose the best answer for each question.

GIST 1. What could be another title for the "Music and Hearing" section?

- a. Trained to Listen
- b. How to Be a Musician
- c. Playing in an Orchestra

DETAIL 2. What two groups did Nina Kraus study?

- a. noisy people and quiet people
- b. musicians and nonmusicians
- c. violinists and other musicians

REFERENCE 3. What does *they* refer to in paragraph C, line 3?

- a. orchestra musicians
- b. instruments
- c. violinists

DETAIL 4. What is true about Nina Kraus and Gottfried Schlaug?

- a. They both work at Harvard Medical School.
- b. They both play an instrument in an orchestra.
- c. They are both interested in how music and the brain are connected.

DETAIL 5. How does Gottfried Schlaug help stroke patients speak?

- a. by playing music for them
- b. by getting them to sing words
- c. by teaching them to play instruments



^ Studies have suggested that playing classical music to babies may make them smarter.

EVALUATING STATEMENTS

B. Are the following statements true or false according to the reading passage, or is the information not given? Circle T (true), F (false), or NG (not given).

- | | | | |
|--|----------|----------|-----------|
| 1. In the Northwestern University study, the nonmusicians could hear better. | T | F | NG |
| 2. Nina Kraus can play the violin very well. | T | F | NG |
| 3. People who speak well can learn to play an instrument quickly. | T | F | NG |
| 4. Gottfried Schlaug isn't sure why music helps stroke patients. | T | F | NG |
| 5. Studies show that listening to music helps people sleep better. | T | F | NG |
| 6. Nina Kraus believes that singing lessons can help students get better grades in school. | T | F | NG |

Identifying Supporting Reasons (1)

Reasons are a type of supporting detail (see Unit 3A Reading Skill). A text may contain one or more reasons why something happens. Identifying *why* things happen helps you better understand the relationship between things in the text. The reason may appear before or after the action or effect. Words or phrases that signal reasons include *because (of)*, *since*, and *due to*. In the following examples, the reason is underlined.

Musicians hear better because they learn to pay attention to certain sounds.

Singing words may help stroke patients since this activates a different part of the brain.

Because of this need to concentrate, musicians hear many sounds more clearly.

NOTICING A. Read the passage below. Circle the words or phrases that signal reasons.

How has Western music reached almost every corner of the world? Researchers believe Western music is popular because of its ability to express emotions across cultures.

Researcher Tom Fritz played parts of 42 Western songs to members of the Mafa, an ethnic group in Cameroon. Since he wanted to include a variety of Western music types, Fritz played classical, rock, pop, and jazz. He asked the group members to point to pictures of people's faces to show the emotion the music expressed.

The Mafa were able to identify the emotions correctly. This was probably due to the fact that the rhythms and melodies of Western music are similar to those of basic human speech. So some part of the way we understand Western music is shared by everyone, regardless of our own cultures.



SUPPORTING REASONS B. Answer these questions with the supporting reasons from the passage.

1. Why do researchers believe Western music is popular?

2. Why did Tom Fritz play classical, rock, pop, and jazz music?

3. Why were the Mafa able to identify the emotions correctly?

CRITICAL THINKING *Relating to Personal Experience* Does listening to music help you study or concentrate? If so, what kinds of music help you? What other factors might help you concentrate better? Note your answers and share them with a partner.

VOCABULARY PRACTICE

WORDS IN CONTEXT

A. Complete each sentence with the correct answer (a or b).

- If you **ignore** something, you _____.
a. don't pay attention to b. focus on
- A **certain** sound refers to _____ type of sound.
a. only one b. any
- If you **concentrate**, you _____.
a. think very hard b. don't think at all
- Two examples of **skills** are _____.
a. food and drink b. cooking and sewing
- A person's **overall** abilities means their abilities _____.
a. related to a single skill b. as a whole

COMPLETION

B. Complete the paragraph with words from the box.

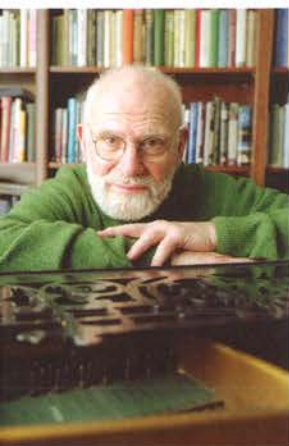
connection damaged improved normally sharp

In his book *Musicophilia*, brain scientist Dr. Oliver Sacks looked at the

¹ _____ between music and the brain. He wrote about how music

² _____ the lives of musicians, hospital patients, and ordinary people.

Dr. Sacks also shared the experiences of different people. He gave an example of a man whose brain was ³ _____ by a lightning strike, which—strangely—left him wishing to become a musician at age 42. Another interesting example was of a man whose memory ⁴ _____ lasted only seven seconds, except when he listened to music. When this happened, his mind became very ⁵ _____, with a near-perfect memory.



▲ Dr. Oliver Sacks
(1933–2015)

WORD FORMS

C. We can add **-ion** to some verbs to form nouns (e.g., **connect** + **-ion** = **connection**). Complete the sentences below using the verbs in the box. One verb is extra.

act connect discuss react

- Scientists still have a lot to learn about the _____ **ion** between language and music.
- The new Taylor Swift song has received mixed _____ **ions**.
- The issue of music education in schools is a major topic of _____ **ion** these days.

> Classical musicians perform at a restaurant in Moscow.

THE MOZART EFFECT

BEFORE YOU WATCH

PREVIEWING A. Read the information. The words and phrases in **bold** appear in the video. Match these words and phrases with their definitions (1–3).

Many people enjoy listening to classical music (e.g., the music of Mozart). There have been claims that listening to classical music makes you smarter and raises **IQ**. This theory is called the “Mozart Effect.” To test this theory, University of Virginia psychologist Dr. Jim Coan carried out an **experiment**. He gave people some word puzzles and asked them if they could **figure out** the answers, both before and after listening to classical music. What do you think the results showed? Can classical music make people smarter? Dr. Coan’s findings may surprise you.

1. _____: to understand or solve something
2. _____: a number that represents a person’s level of intelligence
3. _____: a scientific test done in order to learn something

QUIZ B. In the video, Dr. Coan uses word puzzles to test people’s IQ (e.g., “7 DOTW” stands for “7 days of the week”). Can you figure out what these puzzles mean? Discuss with a partner.

- 12 MOTY
- 7 WOTW
- 24 HIAD
- 18 HOAGC

WHILE YOU WATCH

GIST A. Watch the video. Write the answers to the puzzles below. Were your answers in Before You Watch B correct?

- 12 MOTY = _____
- 7 WOTW = _____
- 24 HIAD = _____
- 18 HOAGC = _____

MULTIPLE CHOICE B. Watch the video again. Choose the correct answer for each question.

1. Most of the people in the experiment ____ after listening to classical music.
 - a. did better
 - b. showed no change
2. What other kind of music (besides classical music) did the people in the video listen to?
 - a. hip-hop music
 - b. rock music
3. Which of these statements summarizes Dr. Coan's findings?
 - a. Classical music is more effective than other kinds of music at improving people's focus and problem-solving abilities.
 - b. Any kind of music can improve people's reasoning abilities, as long as they enjoy listening to it.

CRITICAL THINKING Evaluating Methods

Discuss these questions with a partner.

- Can you think of any weaknesses in Dr. Coan's methods? What are some other possible reasons for people's improved performance in his experiment?
- Can you think of a better way to test the Mozart Effect? Plan your own experiment.

VOCABULARY REVIEW

Do you remember the meanings of these words? Check (✓) the ones you know. Look back at the unit and review any words you're not sure of.

Reading A

- ☐ beat ☐ control ☐ distract ☐ energy* ☐ mood
- ☐ pay attention ☐ range* ☐ seem ☐ social ☐ steady

Reading B

- ☐ certain ☐ concentrate* ☐ connection ☐ damaged ☐ ignore*
- ☐ improve ☐ normally* ☐ overall* ☐ sharp ☐ skill

* Academic Word List

INTO SPACE

Astronaut David A. Wolf
takes a spacewalk outside the
International Space Station.

WARM UP

Discuss these questions
with a partner.

1. What movies or TV shows about space have you seen? Describe them.
2. Do you think there is life in outer space? Why or why not?

The Kepler Space **Telescope** was sent off into space > in 2009. Named after Johannes Kepler—a German **astronomer** from the 17th century—it discovered over 2,600 **planets** during its lifetime. As a result, scientists now believe that there are probably more planets than stars in our **galaxy**.

BEFORE YOU READ

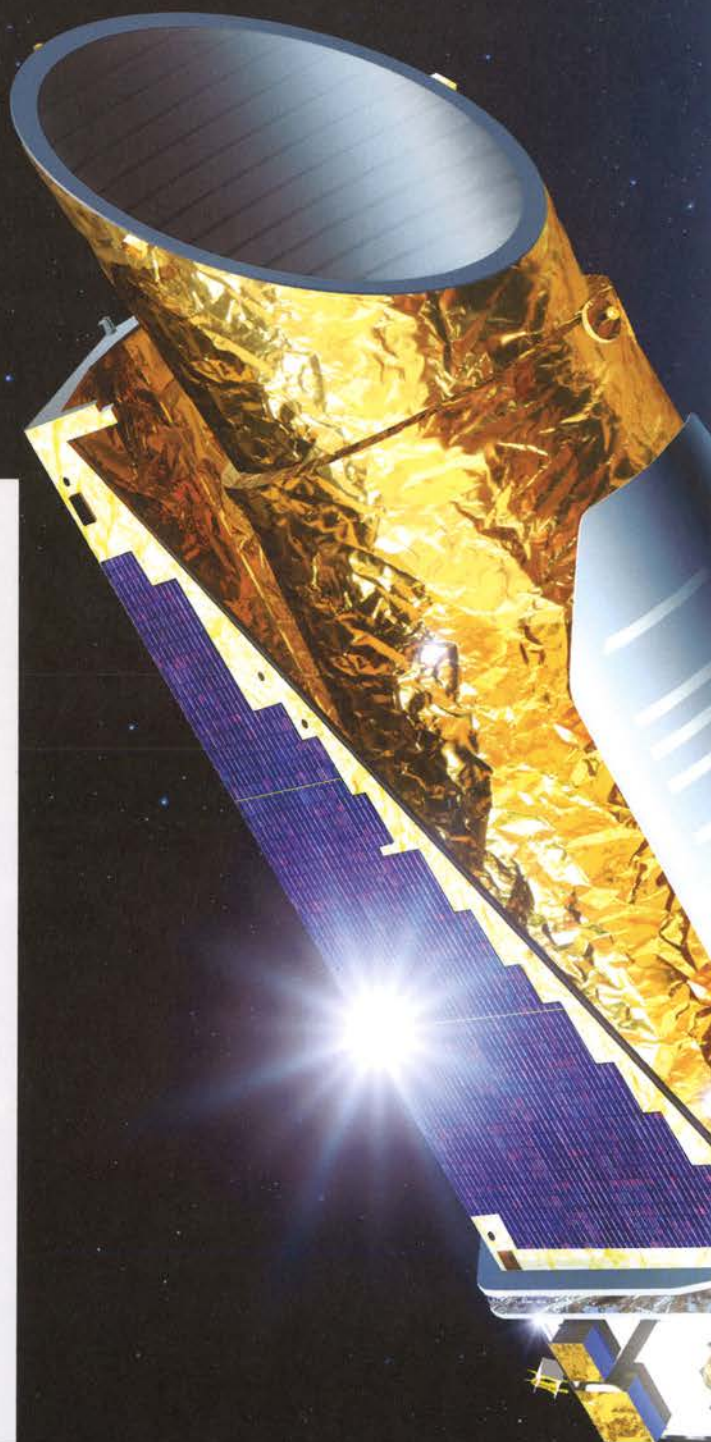
DEFINITIONS

- A. Read the caption above and match the words in **bold** with their definitions (1–4).
1. Mars, Jupiter, and Earth are all _____.
 2. A(n) _____ is a very large group of stars, gas, and dust.
 3. A(n) _____ makes distant objects appear closer.
 4. A(n) _____ studies stars and other objects in space.

SKIMMING

Review this reading skill in Unit 1A

- B. Skim the passage quickly. What do Shostak and Barnett think?
- a. We might soon communicate with beings from space.
 - b. We will probably never find intelligent life outside Earth.
 - c. We have probably already contacted beings from space.
- Check your answer as you read.



LIFE BEYOND EARTH?

A Is there intelligent life on other planets besides Earth? For years, scientists weren't sure. Today, this is changing. Seth Shostak and Alexandra Barnett are astronomers. They believe intelligent life **exists** elsewhere in the universe.¹ They also think we will soon **contact** these beings.²



B Why do these astronomers think intelligent life exists on other planets? The first reason is time. Scientists believe the universe is about 12 billion years old. According to Shostak and Barnett, this is too long a period for only one planet in the **whole** universe to develop intelligent life. The second reason is size—the universe is huge. **Tools** such as the Hubble Telescope have shown that “there are at least 100 billion ... galaxies,” says Shostak. And our galaxy—the Milky Way—has at least 100 billion stars. Some planets that **circle** these stars might be similar to Earth.

¹ The **universe** is all of space—all the stars, planets, and other objects.

² A person or a living creature (e.g., an animal) is a **being**.