

READING² EXPLORER

THIRD EDITION

TEACHER'S BOOK

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**Reading Explorer Teacher's Book 2
Third Edition**

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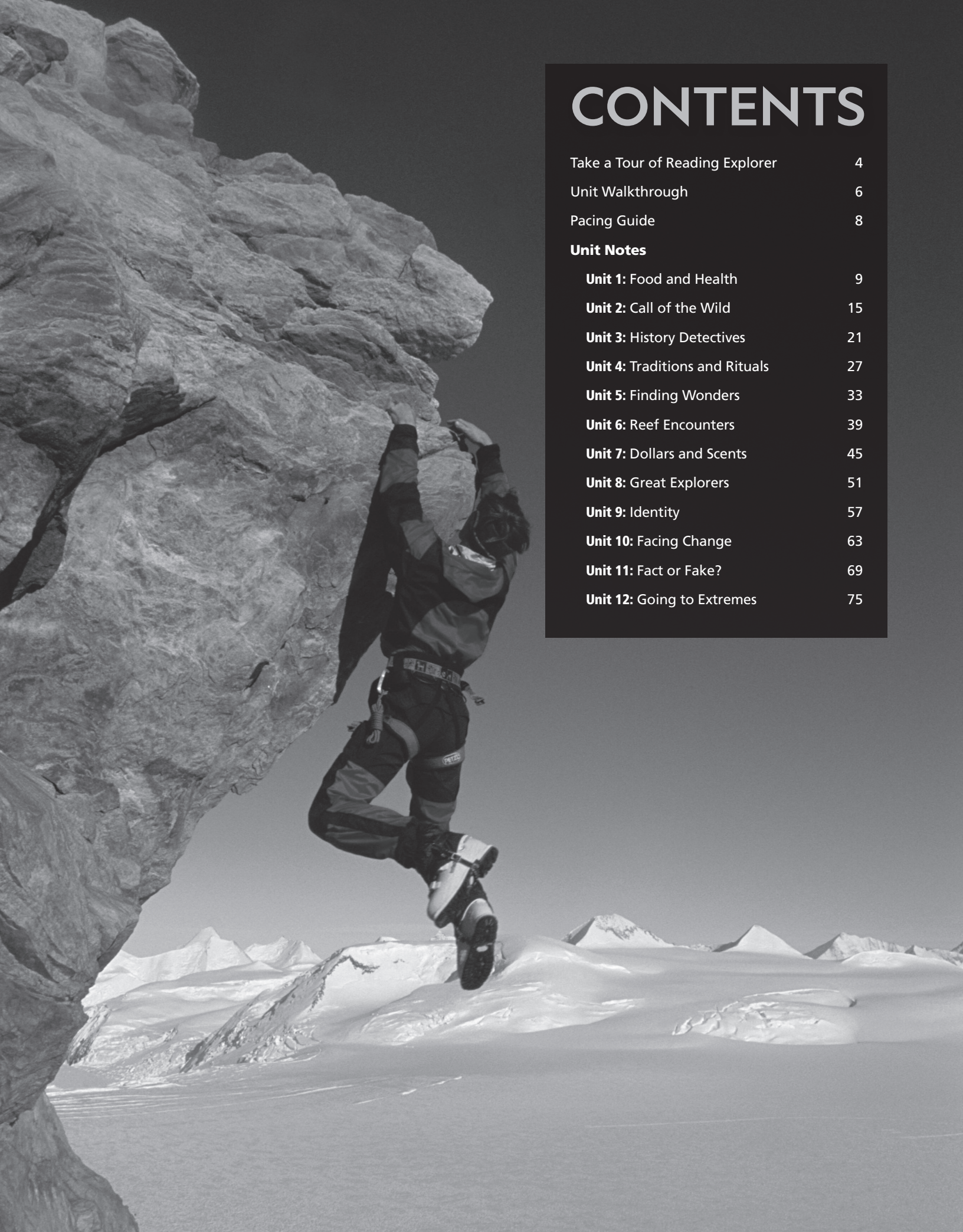
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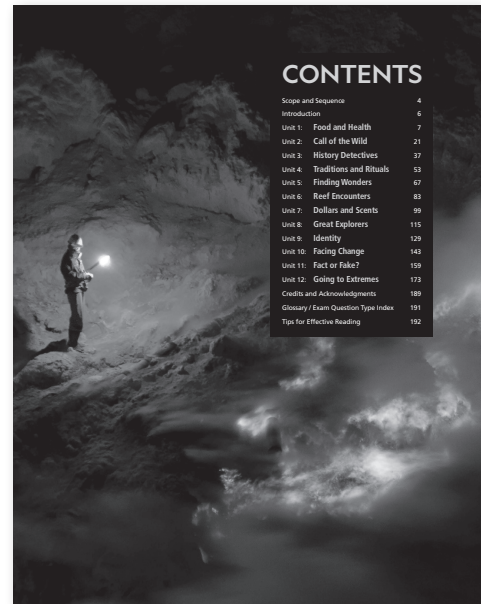
TAKE A TOUR OF READING EXPLORER

Thank you for choosing to use *Reading Explorer* 3rd Edition Level 2. Here are 7 steps to help you get familiar with the course:

1 First, look at the list of **Contents** on page 3 of the Student's Book. You'll see the book is organized into 12 units. The book can be used for a short course of 24–36 hours using just the core units or can be extended for longer courses, for example, by using the **Video** activities in class. **Split editions** are also available for shorter courses.

2 Look at the **Scope and Sequence** on pages 4–5 of the Student's Book. You'll see that each unit is based on a theme of general interest, for example, "Food and Health." Within each unit are two lessons, each based around a reading passage. Each lesson covers a range of reading skills and vocabulary building activities. An **introduction** on page 6 of the Student's Book highlights the new features of the Third Edition.

3 Skim through a **Unit** of the Student's Book and compare it against the Unit Walkthrough on the following pages of this Teacher's Book. The Teacher's Book also provides teaching suggestions and background notes for each unit.



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SCOPE AND SEQUENCE

UNIT	THEME	READING	VIDEO	ACADEMIC SKILLS		
				READING SKILL	VOCABULARY BUILDING	CRITICAL THINKING
1	Food and Health	A: Sweet Love B: Food for the Future	Space Food	A: Skimming for the Main Idea of Paragraphs B: Identifying the Purpose of Paragraphs	A: Phrasal verbs with <i>cut</i> B: Collocations for size adjectives	A: Applying Ideas B: Evaluating Items
2	Call of the Wild	A: Song of the Humpback B: The 1,000-Year Bird Song	The Lion's Roar	A: Understanding Pronoun Reference B: Scanning for Details	A: Prefix <i>inter-</i> B: Suffix <i>-tion</i>	A: Identifying Reasons B: Applying Concepts; Synthesizing Information
3	History Detectives	A: Was King Tut Murdered? B: Who Killed the Iceman?	Walking with Giants	A: Creating a Timeline of Events B: Distinguishing Facts from Speculation	A: Words acting as nouns and verbs (1) B: Collocations with <i>cruel</i>	A: Justifying Opinions B: Evaluating Evidence
4	Traditions and Rituals	A: Living Treasures B: The Changing Face of Kung Fu	Dragon Boat Festival	A: Dealing with Unfamiliar Vocabulary (1)—Using Context B: Differentiating Between Main Ideas and Supporting Details	A: Prefix <i>pro-</i> B: Prefix <i>en-</i>	A: Applying Ideas B: Relating Information; Applying Ideas
5	Finding Wonders	A: The Secrets in the Sand B: The Stories in the Rocks	Digging into the Past	A: Interpreting Infographics B: Dealing with Unfamiliar Vocabulary (2)—Affixes	A: Words acting as nouns and verbs (2) B: Collocations with <i>access</i>	A: Analyzing Claims B: Ranking Items
6	Reef Encounters	A: Cities Beneath the Sea B: The Truth about Great Whites	Ocean Megabuilders	A: Understanding Cause-and-Effect Relationships B: Recognizing Contrastive Relationships	A: Collocations with <i>negative</i> B: Prefix <i>in-</i>	A: Evaluating Ideas B: Analyzing Reasons; Evaluating Sources
7	Dollars and Scents	A: The Flower Trade B: The Power of Perfume	Flowers from Ecuador	A: Summarizing Using a Venn Diagram B: Recognizing and Understanding Synonyms	A: Suffix <i>-able</i> B: Collocations with <i>distinctive</i>	B: Applying Ideas; Evaluating Pros and Cons
8	Great Explorers	A: An Incredible Journey B: The Travels of Ibn Battuta	The Legend of Marco Polo	A: Taking Notes on a Reading (1) B: Taking Notes on a Reading (2)—Using a Concept Map	A: Word forms of <i>admire</i> and <i>observe</i> B: Prefix <i>mis-</i>	A: Inferring Information B: Applying Ideas; Evaluating Arguments
9	Identity	A: The Teenage Brain B: Seeing Double	The Global Village	A: Understanding Claims B: Making Inferences	A: Phrasal verbs with <i>go</i> B: Collocations with <i>severe</i>	A: Reflecting B: Justifying Opinions; Reflecting
10	Facing Change	A: The Big Thaw B: Life on the Edge	The Sled Dogs of Greenland	A: Identifying Supporting Information B: Identifying Arguments For and Against an Issue	A: Collocations with <i>shift</i> B: Phrasal verbs with <i>up</i>	A: Evaluating Claims B: Analyzing Arguments; Inferring Information
11	Fact or Fake?	A: The Knowledge Illusion B: The Limits of Lying	Smile Trial	A: Dealing with Unfamiliar Vocabulary (3)—Using a Dictionary B: Understanding a Research Summary	A: Collocations with <i>average</i> B: Word forms of <i>honest</i>	B: Evaluating a Claim; Applying Ideas
12	Going to Extremes	A: The Dream of Flight B: Dark Descent	Sea Caves	A: Understanding Definitions in a Text B: Taking Notes on a Reading (3)—Creating a Visual Summary	A: Synonyms for <i>fantastic</i> B: Collocations with <i>out of</i>	A: Ranking Activities B: Synthesizing Information

1A

It's not surprising that a cupcake contains a lot of sugar. But what about other foods?

SWEET LOVE

A Many scientists believe our love of sugar may actually be an addiction. When we eat or drink sugary foods, the sugar enters our blood and affects the parts of our brain that make us feel good. Then the good feeling goes away, leaving us wanting more. All tasty foods do this, but sugar has a particularly strong effect. In this way, it is in fact an addictive drug, one that doctors recommend we all cut down on.

B "It seems like every time I study an illness and trace a path to the first cause, I find my way back to sugar," says scientist Richard Johnson. One-third of adults worldwide have high blood pressure,¹ and up to 347 million have diabetes.² Why? "Sugar, we believe, is one of the culprits, if not the major culprit," says Johnson.

C Our bodies are designed to survive on very little sugar. Early humans often had very little food, so our bodies learned to be very efficient in storing sugar as fat. In this way, we had energy stored for when there was no food. But today, most people have more than enough. So the very thing that once saved us may now be killing us.

D So what is the solution? It's obvious that we need to eat less sugar. The trouble is, in today's world, it's extremely difficult to avoid. From breakfast cereals to after-dinner desserts, our foods are increasingly filled with it. Some manufacturers even use sugar to replace taste in foods that are advertised as low in fat. So while the foods appear to be healthier, large amounts of sugar are often added.

E But some people are fighting back against sugar and trying to create a healthier environment. Many schools are replacing sugary desserts with healthier options, like fruit. Other schools are trying to encourage exercise by building facilities like walking tracks so students and others in the community can exercise. The battle has not yet been lost.

1 If you have high blood pressure, your heart needs to work harder to pump blood around your body.
2 Diabetes is a medical condition in which someone has too much sugar in his or her blood.

BEFORE YOU READ

QUIZ A. How much sugar do you think is in these foods? Match the items below. Check your answers at the bottom of page 10.

1. 100 g of low-fat fruit yogurt	• a. 3 grams
2. 2 small chocolate cookies	• b. 7 grams
3. 100 g of tomato ketchup	• c. 11 grams
4. 1 cupcake with frosting	• d. 15 grams
5. 2 slices of wheat bread	• e. 25 grams

SCANNING B. Why do you think people love sugar so much? Discuss with a partner. Then scan the first paragraph of the reading to check your ideas.

8 Unit 1A

Unit 1A 9

4 Turn to one of the **Reading Passages** (e.g., Student's Book 2 page 9). The passages are adapted from authentic National Geographic sources, which are listed in the Credits at the back of the Student's Book. Each passage is also available as an audio recording in the **Classroom Audio CD/DVD Package** and on the **Classroom Presentation Tool**, providing a useful model for pronunciation. Useful, high-frequency words, aligned with the CEFR, are highlighted in each reading passage.


5 Check out the **Video clips** on the **Classroom Audio CD/DVD Package**. The clips can be used with the **Video** section at the end of each Student's Book unit, and also with the video comprehension activities in the **Online Workbook**.

6 The following **support components** are available for each level of the series:

- **Online Workbook** featuring the 12 video clips from the Student's Book and a variety of interactive, self-grading activities.
- **Classroom Presentation Tool** with answer keys for the Student's Book activities and extra practice questions for target vocabulary.
- **Student's eBook** as a digital version of the Student's Book.
- An **Assessment CD-ROM** containing ExamView® question banks is available for teachers who want to create customized tests or give students additional language practice.

7 A **Website** is also available at ELTNGL.com/readingexplorerseries. It contains audio recordings of the 24 reading passages, 12 video clips from each unit, video scripts of each video, a list of key vocabulary for that particular level, class worksheets, graphic organizers, ExamView® question banks, and the Teacher's Book.

INSTRUCTIONS ▲
Watch the video. Complete the summary.



communicate take care of behavior smaller extinct large

As most people are aware, the lion is a _____ cat. Lions can weigh several hundred pounds and grow to be over 10 feet long. But lions have many other interesting qualities.

For one thing, a lion's roar is very loud. Lions roar for different reasons; for example, to _____ with other lions and to keep other lions away from their territory. Another aspect of lion _____ is that they live in groups called prides. Prides usually consist of one male and several females. Prides work together to find food and _____ their offspring.

In the past, there were several lion species, but today, most are _____. Only two types remain, the African lion and the Asiatic lion. Sadly, today's lion population is getting _____ due to a combination of illness, hunting, and human impact on their habitats.

Show Answers Submit

UNIT WALKTHROUGH

5 FINDING WONDERS

WARM UP

Discuss these questions with a partner.

1. Why do you think scientists are interested in finding objects underground? What kinds of objects might be useful?
2. Think about the area you live in. What do you think it was like before humans lived there?

Scientists hunt for discoveries in the rocks of Seaboard, Norway.

Warm Up discussion questions raise learners' interest in the unit theme and activate prior knowledge.

5A THE SECRETS IN THE SAND

BEFORE YOU READ

DEFINITIONS

A. Read the paragraph below. Match each word in **bold** with its definition.

The "Jurassic Coast" in south England has been described as a walk through time. Over millions of years, it has been a desert, a warm sea, and a thick forest. The changes can be seen in rock layers in cliffs along the **beach**. The coastline here is especially famous for its fossils of **extinct** animals—remains of **creatures** that died out long ago. Many are now kept in **museums**. Some have just a few bones, while others show a complete **skeleton**.

1. _____ (adj) no longer living; died out
2. _____ (n) animals (not human beings)
3. _____ (n) a sandy area along the edge of the sea
4. _____ (n) the set of bones inside an animal's body
5. _____ (n) buildings with many cultural or scientific objects

SKIMMING / PREDICTING

B. Read the first sentence of each paragraph of Reading A. Why do you think Mary Anning is remembered today? Discuss with a partner and check your ideas as you read.

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The cliffs and beach of Lulworth Cove form part of England's Jurassic Coast.

THE SECRETS IN THE SAND

A. In 1823, a young woman noticed a strange fossil on a beach near Lyme Regis, England. She dug out the bones and had them carried to her home. She carefully arranged the skeleton on a table. Then she saw something **extraordinary**. The creature's neck was a meter long—more than half the length of its body. It was **unlike** any animal living on Earth.

B. Even at a young age, Mary Anning had a talent for spotting "curios"—unusual or curious, fossils. Her father died in 1810, leaving her family in **debt**, so Mary began selling her fossils to collectors. A year later, aged just 12, she made her first major discovery—a crocodile-like skull with a **long** skeleton. It turned out to be a sea creature that lived long ago. Named **Ichthyosaurus**, or "fish-lizard," it was the first extinct animal known to science.

C. Fossil hunting brought in **money**, but it was a dangerous occupation. One day, a rock fall killed her dog and almost buried Mary. Despite the dangers, she **continued** to look for new finds. The long-necked fossil she

uncovered in 1823 was another long-dead sea reptile.¹ Known as a **plesiosaur**, it would inspire legends—including that of the Loch Ness Monster. Five years later, she found a fossil with wing bones and a long tail. It was one of the first examples of a **pterosaur**—a flying creature that disappeared millions of years ago.

Mary was not only a skilled fossil hunter; she also carefully examined and recorded her finds. However, she received little credit from other scientists. Only one of her scientific writings was published in her lifetime, in 1839. She was also not allowed to join London's Geological Society, as only men could become members.

Mary Anning died in 1847, but her contributions have not been forgotten. Her finds are now displayed in museums in London and Paris. The beach near her home is a UNESCO World Heritage Site, known as the Jurassic Coast. Her life continues to inspire visitors hoping to find their own fossil wonders. According to Britain's Natural History Museum, Mary Anning was "the greatest fossil hunter the world has ever known." She was also a scientist who changed the way we think about life on Earth.

¹ An animal's **skull** is the part of the skeleton covering its brain.
² **Reptiles** are cold-blooded animals such as snakes, lizards, and crocodiles.

Mary Anning with her dog, Tray. Her life inspired the famous tongue twister: "She sells sea shells on the seashore."
Unit 5A 69

Before You Read tasks introduce key terms that learners will encounter in the reading passage, and develop previewing skills such as skimming and making predictions.

Each **Reading Passage** is adapted from an authentic National Geographic source. **Target vocabulary** is carefully selected in line with CEFR leveling.

GIANTS OF THE SKIES

Scientists have been fascinated with pterosaurs ever since their discovery by Mary Anning and other early fossil hunters. These winged reptiles achieved powered flight tens of millions of years before birds or bats. Now scientists are beginning to understand how they did this.

DESIGNED FOR FLIGHT

Over millions of years, pterosaurs, bats, and birds adapted the same five arm bones (color-coded here) into three different wing designs.

PTEROSAURS: RISE AND FALL

Pterosaurs ruled the skies for over 160 million years. The earliest were small with long tails; later versions—like *Quetzalcoatlus*—stood as tall as giraffes. Pterosaur fossils have been discovered around the world, mostly in China, Brazil, the United States, Germany, and England.

70 Unit 5A

Infographics, maps, and charts support the reading passages and develop learners' visual literacy.

Reading Comprehension activities include various types of multiple choice questions (e.g., main idea, detail, reference).

This section also features **exam-style question types** commonly encountered in standardized tests such as IELTS and TOEFL®. An index of question types is at the back of the Student's Book.

READING COMPREHENSION

A. Choose the best answer for each question.

GTG

1. What would be the best alternative title for the passage?

- a. Long-Necked Creatures from the Past
- b. The World's Greatest Fossil Hunter
- c. The Discovery of the First Pterosaur

MAIN IDEA

2. Why did Mary Anning start selling fossils?

- a. to earn money to support her family
- b. to raise public interest in her articles
- c. to gain money to start a museum

DETAIL

3. Which of the following is true about Mary Anning?

- a. She published several scientific articles in her lifetime.
- b. She was nearly killed by a rock fall near the beach.
- c. She was a member of the London Geological Society.

DETAIL

4. What is true about the pterosaur find?

- a. It looked similar to the Loch Ness Monster.
- b. It was the first discovery of an extinct animal.
- c. It showed that some extinct creatures had wings.

PURPOSE

5. Why does the author mention a UNESCO World Heritage Site?

- a. to persuade the reader that the Jurassic Coast is in need of protection
- b. to give an example of how important Mary Anning's discoveries are to the world
- c. to show how southern England has the most important fossil finds in the world

CREATING A TIMELINE

B. Add the events (1–5) to complete a timeline of Mary Anning's life.

1. discovers an early pterosaur
2. finds a long-necked fossil
3. makes her first important discovery
4. only scientific writing published
5. starts selling fossils to earn money

72 Unit 5A

PACING GUIDE

One unit of *Reading Explorer* typically takes between 2.5–3 hours to complete. All 12 units require approximately 30–36 hours.

By setting aside portions of each unit as homework, or by using extension activities and ancillaries, the length of a *Reading Explorer* course can be adapted to suit a wide range of course durations. Here are some examples:

Recommended Course

- Total course length = **36 hours** (1 unit = 3 hours)
- 12-week course = 3 hours of instruction per week
- 24-week course = 1.5 hours of instruction per week
- This option assumes that the teacher covers all Student's Book content in class. Supplementary activities are given as homework.

Short Course

- Total course length = **24 hours** (1 unit = 2 hours)
- 12-week course = 2 hours of instruction per week
- 24-week course = 1 hour of instruction per week
- This option assumes that the teacher does not use the Student's Book video activities in class. Other sections of the Student's Book (e.g., Vocabulary Practice) are given as homework.

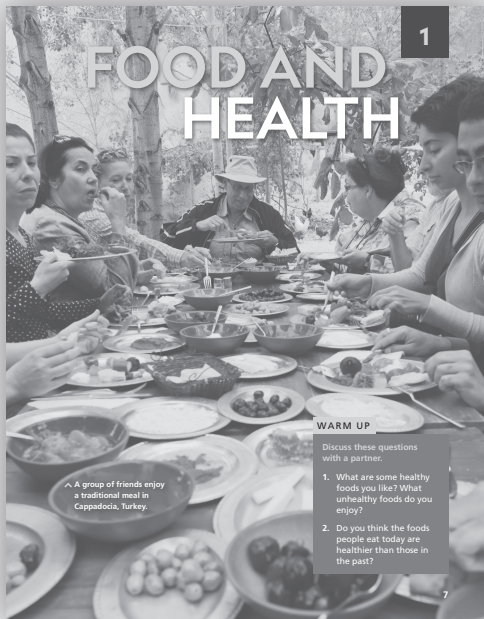
Longer Course

- Total course length = **48 hours** (1 unit = 4 hours)
- 12-week course = 4 hours of instruction per week
- 24-week course = 2 hours of instruction per week
- This option assumes that the teacher covers all Student's Book content in class. Lessons are often extended using supplementary worksheets from the *Reading Explorer* website.

Extended Course

- Total course length = **60 hours** (1 unit = 5 hours)
- 12-week course = 5 hours of instruction per week
- 24-week course = 2.5 hours of instruction per week
- This option assumes that the teacher covers all Student's Book content in class. Supplementary worksheets are used in each lesson. ExamView® quizzes are used regularly to monitor students' progress.

FOOD AND HEALTH



UNIT INTRODUCTION

This unit focuses on how what we eat affects how we feel, and what we can do to ensure there will be enough food in the future for all humans. In “Sweet Love,” students read about the negative effects sugar has on our health. In “Food for the Future,” students read about different species of food crops, and how we can preserve the crops’ seeds before they disappear.

Visit the *Reading Explorer* website to download supplementary worksheets for this unit.

Key Words for Internet Research: *sugar addiction, high blood pressure, diabetes, healthy food, potato famine, Nikolay Vavilov, Svalbard Global Seed Vault, Diane Ott Whealy, Heritage Farm*

WARM UP

Answer Key

Possible answer(s):

1. I like healthy foods such as nuts, fruits, and vegetables. I really like unhealthy foods like cake and chocolate, too!
2. I think people ate healthier in the past because less sugar was used. It might have been too expensive for people to buy processed foods in the past, but now processed foods are often cheaper than organic foods.

TEACHING NOTES

Cappadocia is located in central Turkey, and traditional food from the region combines influences from Central Asia, the Middle East, and the Mediterranean. The food is typically fresh and healthy, and the ingredients are full of flavor.

- Ask students to look at the photo. Ask what they think the connection is between food and health. Explain the words *traditional* and *meal*.
- Have students discuss the questions in the Warm Up box in pairs, and follow up with a class discussion.

Challenge: Have students work in small groups to brainstorm two lists of foods: healthy and unhealthy. Then ask students which of their lists is longer and which was easier to create.

LESSON OVERVIEW

Target Vocabulary: *addiction, advertise, battle, cut down on, drug, efficient, facilities, obvious, recommend, store*

Reading Passage Summary: Sugar, or sucrose, is produced naturally in all plants during a chemical reaction called photosynthesis. Most sugar we eat comes from sugarcane—it is extracted directly from the plant with no preservatives or additives, then turned into the sugar we keep in our pantry. The problem is that it is very difficult to eat sugar in moderation. Many people consume more sugar than they realize because it's added to so many products—drinks, condiments, bread, to name a few. Excessive sugar can lead to increased risks of heart disease, high blood pressure, and diabetes, so it is important to read labels and limit sugar consumption.

Answer Key

Before You Read

A. 1. c; 2. b; 3. d; 4. e; 5. a

B. Possible answer(s): Sugar tastes great and people have gotten used to its taste. The first paragraph of the reading text states that it is because sugar is an addictive drug.

Reading Comprehension

A. 1. a; 2. c; 3. c; 4. b (Para D); 5. c (Para C)

B. 1. High blood pressure (Para B); 2. To replace taste (Para D); 3. Healthier options; fruit (Para E)

Reading Skill

A. 1. a; 2. a; 3. b

B. 1. avoid sugar because it's in so many foods; 2. are fighting back against sugar with healthier options.

Critical Thinking

- ▶ Possible answer(s): juice, water, pizza, hamburgers, pasta, rice, vegetables, fruit, eggs, fries, steak, chicken, bread, ice cream
- ▶ Possible answer(s): I should probably cut down on juice and ice cream. I learned that some foods like bread can actually have a lot of sugar, too.

Vocabulary Practice

A. 1. drug; 2. recommended; 3. addiction

B. 1. buy; 2. wasting time or energy; 3. angry at; 4. classrooms; 5. easy; 6. keep it; 7. less

C. 1. off; 2. up; 3. in

TEACHING NOTES

Before You Read

A. Quiz: Explain that all items have been made with sugar. Have students do activity A and then check their answers in pairs. Ask which sugar amounts surprised them. Note that one teaspoon of sugar is about 4.2 grams.

B. Scanning: Tell students that scanning is useful when they have specific information they want to find out. Have students brainstorm in pairs before scanning the first paragraph. Remind them that they only need to find out why people love sugar.

Reading Comprehension

A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 1: The passage mentions illnesses caused by sugar and ways to avoid sugar, but the overall focus is that we eat too much of it. The underlying message is that sugar is an addiction that we need to control if we want to stay healthy.
- Question 3: The passage says that our bodies learned to store sugar as energy for when there was no food. The phrase *the very thing* is used for emphasis, and to express surprise that today, this adaptation is what is causing health problems.
- Question 5: The passage says that early humans often had very little food, and that humans don't

need much sugar to survive. So early humans did not eat more sugar than we do today.

B. Scanning: Remind students that, when scanning, they are searching for specific information. Check answers to activity B as a class. Ask students to identify the paragraph in which they found the correct information.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Skimming for the Main Idea of Paragraphs**. Tell students that, when skimming, they are looking over the picture, headings, and the first and last sentences of each paragraph to get the gist or general idea.

A. Determining Main Ideas: Before students skim, review the main components of a paragraph with them: the topic sentence and supporting sentences. Explain that the main idea of a paragraph is in the topic sentence, which is usually the first or last sentence. Have students do activity A individually. Then check answers as a class.

- In paragraph B, the first sentence is a quote about the connection between sugar and illness. A quote is usually a form of support for a topic sentence, so this might confuse students at first. The main point is repeated again in the last sentence of the paragraph.

B. Determining Main Ideas: Have students do activity B individually. Then check answers as a class.

Critical Thinking

Have students make a list of what they ate yesterday for breakfast, lunch, and dinner. Make sure they also include snacks, and any fruit and vegetables they ate. There are apps that calculate the amount of sugar in food. If possible, prepare a list of apps beforehand.

Vocabulary Practice

A. Completion: This paragraph is about the history of sugar, and how our addiction started from sugarcane. Have students do activity A individually. Then have students check answers in pairs. The word *addiction* is often used to describe any compulsive behavior around a thing or activity, such as a *food addiction* or a *gambling addiction*. In general, the word is used to refer to serious problems, but it is also used in a more casual way to talk about something you like a lot. People may say that a person is addicted to a TV show that they love to watch, for example.

B. Definitions: Have students do activity B individually. Then check answers as a class.

- Question 6: The verb *store* is used in the reading passage to explain how our bodies hold onto (stock) sugar, as opposed to the noun *store*, which describes a place that stocks and sells things.
- Question 7: The phrase *cut down on* is used with a noun, such as *cut down on sugar*, or a noun phrase, such as *cut down on drinking soda*. The phrase is often used to talk about limiting something in your diet, but it can also be used to talk about limiting anything that you do in excess, i.e., *cut down on texting*.

C. Word Parts: Have students do activity C individually. Then ask students to write a new sentence with each phrasal verb.

Challenge: Have students make a list of their top three favorite sweet foods. Then divide the class into groups based on what their favorite sugary food is. Tell groups to brainstorm some ways in which they can cut down on that sugary item.

LESSON OVERVIEW

Target Vocabulary: *continent, crop, flavor, historic, produce, quality, scale, seed, suggest, variety*

Reading Passage Summary: Plants adapt to specific conditions over time, leading to the rise of different varieties that thrive in different climates. As global conditions continue to change, we need to make sure certain plants don't become extinct. In addition, land is being used in different ways today, which is drastically changing the farming landscape. Climate change, natural disasters, disease, and war are also real threats to our existing food crops. Farmers have created "seed banks" to protect their food supply against hungry animals and extreme weather. Seed banks are crucial because they provide protection—a sort of insurance policy—for us and these plants.

Answer Key

Before You Read

A. 1. b; 2. a; 3. c

B. Possible answer(s): People are worried that certain plant species will disappear. Maybe they want to protect the seeds of vegetables so there will always be food.

Reading Comprehension

A. 1. b; 2. a; 3. a (Para D); 4. b (Para E); 5. b

B. 1. b; 2. c; 3. a; 4. d; 5. e

Reading Skill

A. 1. a; 2. b; 3. b; 4. b; 5. b

B. Possible answer(s): **1.** to describe a situation or problem; **2.** to report data as figures or statistics; **3.** to provide background information; **4.** to describe a situation or problem; **5.** to offer or describe a solution / to present a conclusion

Vocabulary Practice

A. 1. varieties; 2. continents; 3. scale; 4. historic; 5. crop

B. 1. j; 2. g; 3. h; 4. f; 5. b; 6. e; 7. c; 8. d; 9. i; 10. a

C. 1. wide; 2. strong; 3. high

TEACHING NOTES

Before You Read



A. Matching: Have students look at the photo and read the caption. Get them to guess the meaning of each word by using the context. They may be familiar with the word *species* in relation to animals. Explain that the term can be used for a related group of any living thing, including plants. Students learned the verb *store* in Reading 1A for the action of saving something for later use. The definition for *preserve* may seem similar to students. Explain that the word *preserve* means to keep something alive or maintain it in its existing state. You can *store* a non-living thing but not a living thing. The verb *preserve* has another meaning specifically about food, which refers to the process of adding something to food to keep it from going bad.

B. Predicting: Ask students to look at the photo of Cary Fowler holding seeds in a special tube. Read aloud the caption and say that he's a conservationist, which means he wants to protect certain species. Have students discuss in pairs why he might want to protect these seeds. Ask students to think about how the Earth is changing, and how that might affect our food supply in the future. Students then practice *skimming* to get the gist of the entire passage and to check their ideas. Have them discuss with their partners again to see if their predictions have changed at all, but don't give them the answers until they read the reading passage again in the next section.

Reading Comprehension



A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage. Tell them to also check their predictions for Before You Read, activity B.

- Question 1: The passage first talks about the danger of, and reasons why, some food species are disappearing (option “a”); it is mainly about the need to preserve these disappearing species (option “b”).
- Question 4: In paragraph E, the passage says that people at Heritage Farm store and plant the seeds. Because she says this, we can infer that she thinks it is important to both store and plant the seeds.
- Question 5: The infographic compares seeds in 1903 with seeds 80 years later. It shows that there were many fewer seeds in 1983, which means that many different crop varieties were lost between those years.

B. Matching: Have students do activity B individually. Then have them compare their answers in pairs.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Identifying the Purpose of Paragraphs**. Explain that each paragraph in a text usually has a purpose or function. Have students read the list of purposes below the paragraph. Answer any questions that students may have about meaning.

A. Identifying Purpose: Have students do activity A. Then check answers as a class. Elicit examples from the text that helped students decide on each paragraph’s purpose. Write the correct answers on the board so students can see the purpose of each paragraph, and therefore the presentation of ideas in the text. The author first gives historical background, then describes the problem, then reports data as supporting evidence, then offers a solution, then offers an additional example of the solution.

B. Identifying Purpose: Have students do activity B. Then check answers as a class. Elicit examples from the text that helped students decide on each paragraph’s purpose.

Challenge: Have each student do research about a crop that should be saved. Then put students in groups of four. Ask them to present to their group about the crop they have chosen. Have the group vote on which crop they want to save. Then have each group present information about that crop to the class. After each group presents, have the class vote on which crop to save.

Vocabulary Practice

A. Completion: This paragraph is about seed banks, the Svalbard Global Seed Vault being the largest. This seed bank was mentioned in Reading 1B. Have students do activity A individually. Then have students check their answers in pairs.

- Question 3: The word *scale* is preceded by a hyphen because it is paired with *large* and used as an adjective to modify *global crisis*. The noun *scale* is often used with an adjective of size, especially *large* and *small*, to specify to what size or extent something is.

B. Definitions: Have students do activity B individually. Check answers as a class. Have students write sentences for each word. As a verb, *crop* means to cut in on something, such as a photo or image, but here *crop* is used as a noun.

C. Collocations: Have students do activity C individually. The adjective *high* is often followed by a hyphen when it is used to form another adjective, as in *high-quality* or *high-paid*.

Video Summary: The video provides information about the type of food NASA provides its astronauts. There are food scientists at the NASA Space Food Systems Laboratory who work to design special meals that can be eaten easily in space.

Key Vocabulary: *balanced diet, duration, zero gravity*

Answer Key

Before You Watch

- A. 1.** many; **2.** long it lasts; **3.** do not fall
- B.** Possible answer(s): Space food needs to be easy to hold. It can't have too many parts to it, like a sandwich; otherwise, the different parts will all float in different directions! The food also needs to be nutritious so that they can still have a balanced diet on the limited variety of food they can carry to the space station.

While You Watch

- B. 1.** It's lighter. It doesn't need to be stored in a fridge. **2.** Very rarely. **3.** An Italian astronaut said he missed his favorite food.

TEACHING NOTES

Before You Watch

A. Previewing: Ask students to look at the photo and read the caption and the paragraph. They should think about the meaning of the words in bold using context clues from the text. Have them do activity A and then check answers in pairs. The adjective *balanced* means "equal."

B. Predicting: The photo shows food floating due to zero gravity. Have students imagine why it would be difficult to eat food in space. In pairs, have students brainstorm what things would be important when creating space food. Don't check answers yet, as students will revisit this in the next section.

While You Watch

A. Gist: Play the video and have students check their predictions.

B. Short Answer: Have students read the questions (1–3). Then play the video again and have students do activity B. Check answers as a class.

Critical Thinking

Have students work in pairs and make a list of what would be good or bad space food. Have them describe each food as they think about how to rank it. Is it easy to hold? Is it healthy? Does it taste good? If time allows, have pairs present their rankings and reasons to the class.

Vocabulary Review

Have students work alone to check their understanding of the unit's target vocabulary. If time allows, have students write an example sentence with each word. Ask for volunteers to read their completed sentences aloud to the class.

Additional vocabulary practice questions are available for download on the *Reading Explorer* website.

CALL OF THE WILD



UNIT INTRODUCTION

This unit focuses on how animals use sound to communicate, and whether those sounds have changed over time. In “Song of the Humpback Whale,” students read about a marine biologist’s research into how and why these gentle giants communicate. In “The 1,000-Year Bird Song,” students read about swamp sparrows and how their song has remained largely the same for hundreds of years.

Visit the *Reading Explorer* website to download supplementary worksheets for this unit.

Key Words for Internet Research: *animal traditions, conformist bias, humpback whale song, mimicry, singing whales, swamp sparrow, whale migration*

WARM UP

Answer Key

Possible answer(s):

1. The wolf is howling as a way to communicate. This wolf could be howling to show its location, to warn other wolves about danger, or to say that prey is nearby.
2. Animals communicate with sounds, body language, and movements.

TEACHING NOTES

Tundra wolves, also called Arctic wolves, live in the Arctic regions of North America. They can be found in Alaska, Canada, and Greenland. Wolves

live together in packs, and howl to communicate across long distances about things such as location, present dangers, and where prey can be found nearby.

- Read aloud the Unit Title as students look at the photo. Point out that “Call of the Wild” is an expression that describes the desire to go out into the wilderness, far away from other people. It is also the title of a famous book by Jack London.
- Read aloud the caption and explain the words *wolf*, *howl*, *conservation*.
- Have students discuss the questions in the Warm Up box in pairs, and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *apparently, aware, complex, curious, experience, interact, record, season, single, unknown*

Reading Passage Summary: Humpback whales can grow up to 14–19 meters long and weigh up to 36 tons. They swim in a group called a *pod*. Humpback whales are extraordinary creatures, well known for their magical songs. They travel great distances as they migrate from northern waters in summer to warmer southern waters in winter, and they are often found near coastlines feeding on plankton and small fish. Marine biologists, such as Jim Darling, have spent their careers researching and recording the humpback whales’ song and looking for clues to explain why they sing as they do. The humpback whale is an endangered species.

Answer Key

Before You Read

- A. 1. often; 2. small fish; 3. making sounds
- B. Students should scan the article to check answers to activity A.

Reading Comprehension

- A. 1. b; 2. a (Para D); 3. a; 4. c (Para E); 5. b
- B. 1. c; 2. a; 3. b; 4. d

Reading Skill

- A. 1. a; 2. a; 3. b
- B. 1. the whale’s voice; 2. Douglas Chadwick; 3. the humpback; 4. the humpback (a different whale from 3)

Critical Thinking

- ▶ In paragraph D, the author says that the reasons are unknown. However, one theory is that males want to let other males know they are in the area.
- ▶ Possible answer(s): Whales might communicate to be social, to point out food or danger, or to ask for help.

Vocabulary Practice

- A. 1. single; 2. aware; 3. Apparently; 4. experience; 5. record
- B. 1. complex; 2. season; 3. unknown; 4. interact; 5. curious
- C. 1. view; 2. national; 3. action

TEACHING NOTES

Before You Read



A. Quiz: Have students look at the photo, read the short description in activity A, and guess the correct word to complete each statement. Note that students will skim the passage in activity B to find the correct answers.

B. Scanning: Remind students that scanning means looking over a text quickly to find specific information. Check answers to activity A as a class. Ask students to identify the paragraph in which they found the correct information.

- Questions 1 and 2 are answered in paragraph A.
- Question 3 is answered in paragraph D. (Although the text mentions the whale’s song in earlier paragraphs, communication isn’t mentioned until paragraph D.)

Reading Comprehension



A. Multiple Choice: Have students read the entire passage silently and then answer the questions. If necessary, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 1: Point out that although the text mentions Darling and his work as a marine biologist, the main focus of the reading is on his research into how and why humpbacks sing.

- Question 4: Explain that *hit tunes* are popular songs of the moment. A hit tune might not stay popular for very long.

Challenge: Point out the photo and the caption of the whale calf, and write the following questions on the board: *What does calf mean? Do you know any other baby animals called calves?*

B. Identifying Purpose: Remind students that they learned about identifying purpose in the reading skill section from Unit 1B. Review this skill again. Have students work individually to match the purpose to each paragraph. Then have them compare their answers in pairs.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Understanding Pronoun Reference**. Explain that the reference is usually to something earlier in the same sentence or in a previous sentence. Tell students they should think about the context, too.

A. Reference: Remind students that a pronoun is a word that takes the place of a noun. Elicit a quick list of pronouns to write on the board: *he, she, we, I, they, it, one, this, that, those, these, him, her, them*, etc.

- Question 1: While *schools of small fish* is the last noun phrase to appear in the previous sentence, the pronoun *one* is instead referring back to *humpbacks*, which is the subject of the previous sentence. Students should understand from context that the whale, not the school of fish, is what sings.

B. Reference: Have students do activity B, and then check answers as a class.

- Questions 3 and 4: Make sure students understand that the whale is a different one. Ask students to read paragraphs C and G aloud and say *the humpback whale* instead of the pronoun *it*. Point out how much longer the two sentences become.

Challenge: Have students circle all the pronouns in paragraphs C and G and identify the paragraph reference for each.

Critical Thinking

The passage is divided into two parts: “Recording Gentle Giants” and “Why Do They Sing?” Encourage students to summarize the main idea of each section to see that the answer to the first question can be found in the second section. For the second question, have students brainstorm reasons why people communicate and consider whether humpback whales might have similar reasons.

Vocabulary Practice

A. Completion: Have students do activity A and then check answers in pairs. The word *apparently* means “as far as we know” and is used to introduce a theory that you have been told or know but are not completely certain is true.

B. Definitions: This paragraph is about blue whales and how they are being studied. Have students do activity B. Check answers as a class. Students will probably be familiar with the word *season* in relation to spring, summer, autumn/fall, and winter. Explain that *season* can also be used to describe any period of time during a year when a particular event occurs.

C. Word Parts: Have students do activity C and then check answers in pairs. Point out that there is no space between the prefix *inter-* and the base word. If time allows, have students make a new sentence with each word.

LESSON OVERVIEW

Target Vocabulary: *accurate, aspect, combination, create, cultural, evolve, exchange, human, impact, standard*

Reading Passage Summary: A swamp sparrow is an insect-eating bird with a conical bill, found throughout North America’s wetlands. This bird sings day and night, and the male generally sings to defend his nest. But how do these birds learn their intricate songs? Research has shown that, like humans, baby swamp sparrows learn to sing by copying adult swamp sparrows. Robert Lachlan is a biologist who wanted to know how long these birds have been singing the same songs, so he created a study to measure their longevity. His research shows that these same songs may have existed for the past 1,000 years.

Answer Key

Before You Read

- A.** The great horned owl and the lyrebird communicate in interesting ways. The owl uses a great variety of different calls to communicate very specific things. The lyrebird can copy other birds’ sounds and even mimic man-made sounds like car alarms!
- B.** The bird in the passage is the swamp sparrow. Its call is very special because it has been passed down between generations for possibly 1,000 years.

Reading Comprehension

- A. 1.** c; **2.** a; **3.** a (Para E); **4.** b (Para E); **5.** c
- B. 1.** T (Para B); **2.** T (Para C); **3.** F (Para D); **4.** NG; **5.** T (Para G)

Reading Skill

- A. 1.** place: North America’s wetlands (Para A); **2.** name: Robert Lachlan (Para B), Andrew Farnsworth (Para G); **3.** date: 2008–2009 (Para D); **4.** number: 615 (Para D); **5.** reason: to break each song up into syllables (Para D)

- B. 1.** F (cities, roads, plantations); **2.** E (allows the birds to create traditions that last for centuries, the song-types in the marshes of North America today may well have been there 1,000 years ago); **3.** G (scientists may be able to identify how other animals are able to preserve their cultural traditions); **4.** B (like humans, baby swamp sparrows learn to communicate by copying adults.)

Critical Thinking

Possible answer(s): A celebrity might change his or her hairstyle, and suddenly everyone wants the same style. A new smartphone is released, and everyone wants to have it. A new word to mean “very good” becomes popular, and soon it is part of everyone’s vocabulary.

Vocabulary Practice

- A. 1.** humans; **2.** aspect; **3.** standard; **4.** exchange; **5.** evolved
- B. 1.** b; **2.** a; **3.** e; **4.** c; **5.** d
- C. 1.** combine; creation; evolution
2. a. combination; **b.** evolution; **c.** create; **d.** evolves

TEACHING NOTES

Before You Read 

A. Previewing: Elicit a class discussion about what bird calls sound like. Have students consider what things birds might want to communicate. Draw a comparison between humans mimicking sounds and birds mimicking sounds. Then focus the discussion on the great horned owl and the lyrebird.

B. Skimming: Remind students that skimming means reading quickly to find specific information. Point out the title of the passage and explain that the name of the bird is in paragraph A, and details about the research are in paragraph E. Check answers as a class.

Reading Comprehension

A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 1: Point out that although the passage refers to baby sparrows, the main focus is not on one bird's lifespan. The focus is on the fact that the birds' song has not evolved much over the past 1,000 years.
- Question 2: Point out that "elders" refers to "adult swamp sparrows." The words *swamp sparrows* are understood and are omitted here to avoid repetition.
- Question 3: Highlight the numbers "615" in paragraph D and "2 percent" in paragraph E. Show on the board that $2\% \text{ of } 615 = 12.3$, which is closest to answer A.
- Question 5: Remind students that *conformist bias* means that people follow common behavior. Slang words become popular because they are used so often.

B. Evaluating Statements: Have students read the statements and choose the correct answer. Remind them that NG means that the information isn't given in the passage so there is no way to know if it is true or false.

- Question 3: The research was carried out across the northeastern U.S.
- Question 4: The researchers divided each recorded song into syllables using computer software. There is no information given about how many syllables are in each sparrow song in nature.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Scanning for Details**. Remind students that they practiced this skill in Lesson 1A and 2A. Explain that scanning means to look quickly to find specific information. Often this information is data in the form of a name, place, date, number, or reason.

A. Scanning: Have students skim the reading passage silently to do activity A. Check answers as a class.

B. Scanning: Tell students to first answer the questions based on what they remember from the reading. Then have them check their answers by scanning for the specific information. Check answers as a class.

Critical Thinking

Remind students that *conformist bias* refers to the way humans or animals follow common behavior. Have students share experiences where they have changed their behavior to match new styles or trends. Provide ideas such as: hairstyles, clothing, vocabulary, technology, music, etc.

Vocabulary Practice

A. Completion: This paragraph is about the vocalization of parrots. Have students do activity A. Then have the students check their answers with a partner. Point out that *exchange* can be a noun, and a *vocal exchange* means "communication."

B. Definitions: Have students do activity B. Check answers as a class.

C. Word Forms: Have students do activity C individually and then compare answers in pairs.

Video Summary: Think of an animal with the loudest sound, and *lion* might come to mind. Lions have extremely loud roars, which can be heard up to eight kilometers away. Like many other animals, lions use their sound to communicate and a roar can mean a variety of things from “Stay away” to “I’m hungry.” Lions live in groups called *prides* with a dominant male as the leader and female lions who hunt and care for the cubs. Since they are such social animals, they need to communicate to survive.

Key Vocabulary: *thunder, dominant, territory*

Answer Key

Before You Watch

A. 1. a; 2. c; 3. b

B. 1. tiger; 2. a pride; 3. female; 4. Africa, Asia

While You Watch

B. 1. when they are one year old; 2. females;
3. 10,000; 4. Asiatic

Critical Thinking

- ▶ Possible answer(s): Humpback whales don’t always sing the same song. A lyrebird can mimic man-made noises. A swamp sparrow learns its song from adults. A parrot can change its call to match a new tune. A lion’s roar is about as loud as a clap of thunder.
- ▶ Possible answer(s): I would like to study how crickets communicate. I often hear them chirping outside in the summer, and I think they might rub their back legs together to make that noise. I wonder if they do that to communicate with one another.

TEACHING NOTES

Before You Watch

A. Previewing: Ask students to read the information and think about the meaning of the words in bold. Have them do activity A and then check their answers in pairs.

B. Quiz: Have students work in pairs to answer the questions. Tell them not to worry if they don’t know the answers; they will revisit this section after watching the video.

While You Watch

A. Gist: Have students check their answers to the quiz in Before You Watch.

B. Completion: Have students read the sentences before watching the video. If necessary, elicit or explain the meanings of *Asiatic* and *endangered*. After students watch the video, have them check their answers in pairs.

Critical Thinking

- ▶ Have students take notes on what they remember about each animal. Then have them thumb through the unit and find one or two more facts to add to their list. In pairs, have them compare their ideas.
- ▶ In small groups, have students brainstorm ten interesting animals. Then ask each student to choose one animal and write down three questions they have about how it communicates. What would they like to know? Why would it be interesting to find out the answers? Have students share their questions in pairs.

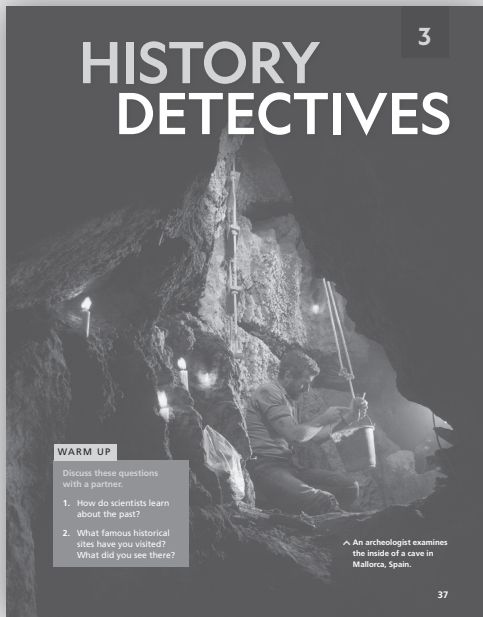
Vocabulary Review

Have students work alone to check their understanding of the unit’s target vocabulary. If time allows, have students write an example sentence with each word. Ask for volunteers to read their completed sentences aloud to the class.

Additional vocabulary practice questions are available for download on the *Reading Explorer* website.

HISTORY DETECTIVES

3



UNIT INTRODUCTION

This unit focuses on how technology can help us learn about the past, and how mummies can give us clues about the way people lived thousands of years ago. In “Was King Tut Murdered?” students read about King Tutankhamen and learn about the possible cause of his death 3,200 years ago in ancient Egypt. In “Who Killed the Iceman?” students read about Ötzi—a man who died over 5,300 years ago and was preserved in ice—and learn about how new technology was used to investigate the mystery of his death.

Visit the *Reading Explorer* website to download supplementary worksheets for this unit.

Key Words for Internet Research: *King Tut, ancient Egypt, Howard Carter, mummy, DNA testing, Valley of the Kings, the Iceman, carbon dating, Ötzi*

WARM UP

Answer Key

Possible answer(s):

1. Scientists learn about the past from written records and physical remains such as the ruins of buildings, equipment, or personal possessions that have survived.
2. I've visited Machu Picchu in Peru and saw the ancient city. I've also visited Pompeii in Italy and saw old buildings, roads, and even paintings on the walls!

TEACHING NOTES

Archeology is the study of ancient and recent humans by analyzing their remains and material goods. Archeologists are interested in understanding more about the past in order to explain changes in human societies through time.

- Read aloud the caption and explain the words *archeologist* and *cave*. *Archeo-* means “ancient” and *-logy* means “scientific study.” The suffix *-ist* means a person who does something. Have pairs brainstorm what types of things an archeologist might examine, and what this archeologist might be looking for in the cave.
- Have students discuss the questions in the Warm Up box in pairs, and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *analyze, attached, cause, conduct, effective, infection, injury, murder, offer, take control of*

Reading Passage Summary: King Tutankhamen (Tut) was a pharaoh in ancient Egypt from 1333 to 1323 BC. He was given the throne at a very young age—some records show that he must have been about eight or nine years old at the time. He came to power after his father had changed the religion from many gods to just one god, and so King Tut inherited a land full of religious turmoil. Tutankhamen died young, when he was just 19 years old, and was buried in a small tomb in the Valley of the Kings. No one knows exactly how he died, but there is evidence to suggest it was due to poor health. In 1922, English archeologist Howard Carter discovered his tomb, and the mummy and its contents are now housed in the Egyptian Museum in Cairo.

Answer Key

Before You Read

A. 1. d; **2.** b; **3.** c; **4.** a

B. Theories include murder, an injury from war or a hunting accident, and an infection from a leg fracture.

Reading Comprehension

A. 1. c (Para E); **2.** c (Para D); **3.** c; **4.** b (Para B);
5. a (Para E)

B. 1. King Tut's tomb; **2.** the mummy; **3.** the hole in the skull; **4.** King Tut; **5.** King Tut's parents;
6. Hawass and his team

Reading Skill

A. a. Para E; **b.** Para A; **c.** Para A; **d.** Para B;
e. page 41 (in the caption); **f.** Para A;
g. Para D; **h.** Para C
B. f, b, c, e, d, h, g, a

Critical Thinking

Possible answer(s): I don't think it is important that we find out how King Tut died because it happened thousands of years ago. I suppose some people are interested in the mystery, but I think archeologists should use their time now to make new discoveries instead.

Vocabulary Practice

A. 1. offer; **2.** infection; **3.** analyze; **4.** effective;
5. murder; **6.** attached

B. 1. injury; **2.** conducted; **3.** took control of;
4. cause

C. 1. Possible answer(s): The offer of \$500 was too low. I could not offer any help.

2. Possible answer(s): The murder took place over 300 years ago. She wanted to murder her husband for revenge.

TEACHING NOTES

Before You Read

A. Definitions: Have students do activity A. A *mummy* is a dead body that has been preserved using chemicals or by accidental exposure to extreme cold and low humidity. A *coffin* is the box in which a dead body is buried or cremated, while a *tomb* is a larger structure or building that contains the coffin.

B. Skimming: Remind students that, when skimming, they are looking over the picture, headings, and the first and last sentences of each paragraph to get the gist or general idea. Ask students to skim the reading passage individually and look for information about how King Tut died. After one minute, have students close their books and share what they remember in pairs.

Reading Comprehension

A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 1: Paragraph D explains that scientists now know that Tut was not murdered because the damage to his chest was made by Howard Carter, and the hole in his skull was made after he died.
- Question 3: The passage says that the theory of murder was “ruled out.” We know that the damage to Tut’s chest and the hole in his head prove that he was not murdered, so *ruled out* must mean “rejected.”

B. Reference: Remind students that they learned about referencing in the reading skill section from Unit 2A. If necessary, have students turn back to that section of the Student Book and review this skill again. Have students do activity B individually and then check answers in pairs.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Creating a Timeline of Events**. A timeline is used to organize events in chronological order, making it easy to understand when each event happened. Sequence words, such as *first*, *then*, *next*, *after that*, *while*, and *before*, and specific dates help the reader follow the order of events.

A. Scanning: Have students do activity A individually and then check answers in pairs. For event “e,” the story about King Tut’s tomb being robbed is in one of the picture captions, so there is no paragraph letter. The text says the tombs were robbed in *ancient times*. Students should recognize that the tomb robbing happened before Howard Carter’s dig began.

B. Understanding Sequence: Have students do activity B individually. Point out that not all the events appear in order in the passage, so students have to think about the correct order. Also note that some events have specific dates, while others do not. Point out the break in the timeline, which indicates that there is a long period of no activity between events. Check answers as a class.

Critical Thinking

Draw a T-chart on the board with the headings “Important” and “Not Important,” and have pairs brainstorm reasons for each side. Divide the class evenly so each side is equally represented, and have students do a mock debate about whether it is or is not important to find out how King Tut died.

Vocabulary Practice

A. Completion: This paragraph is about a group of mummies unearthed in South Korea, and the interesting things researchers found out about them. Have students do activity A individually and then check answers in pairs. *Infection* has a negative connotation and is usually used to describe a disease or virus entering your body. Note that your computer can also be *infected* by a virus.

B. Definitions: Have students do activity B individually. Check answers as a class. If you *offer* something to someone, you give it to them. The Romans did the opposite; they took control and gained power.

C. Word Forms: Have students do activity C individually. Read the example sentences and ask students which one uses *cause* as a noun and which uses *cause* as a verb.

Challenge: Ask students to write a paragraph to imagine more about the life of the person who became the mummy with the love poem. Ask: *Who was the man? What kind of relationship did he have with his wife? Why did he want to murder the emperor? What happened to him?*

LESSON OVERVIEW

Target Vocabulary: *attack, beneath, chase, cruelly, enable, flee, frozen, indicate, leader, likely*

Reading Passage Summary: Ötzi the Iceman lived over 5,300 years ago, making him older than the Pyramids in ancient Egypt. He was murdered as he was crossing the Italian Alps and his body was preserved naturally in the ice. Hikers discovered him in 1991, and, over time, scientists have pieced together the puzzle of his life. He carried with him a copper ax, a dagger, and other tools and weapons.

Today, Ötzi and his artifacts are stored in a special vault in the South Tyrol Museum of Archeology in Italy. Researchers believe there are many descendants of Ötzi living in Austria and Italy today.

Answer Key

Before You Read

A. 1. He was not young, and he was probably an important and wealthy man. **2.** He was killed in the Ötztal Alps over 5,300 years ago. He was killed by an injury from a stone arrow that hit him from behind.

Reading Comprehension

A. 1. c (Para G); **2.** a (Para B); **3.** b (Para E); **4.** c (Para F); **5.** a

B. e, a, b, d, c

Reading Skill

A. 1. Para A; **2.** Para A; **3.** Para B; **4.** Para F; **5.** Para F; **6.** Para F; **7.** Para G; **8.** Para G; **9.** Para G; **10.** Para G

B. 1. F; **2.** F; **3.** S (*believe*); **4.** F; **5.** F; **6.** S (*probably*); **7.** S (*Perhaps*); **8.** F; **9.** S (*More likely*); **10.** S (*He may have thought*)

Critical Thinking

► **3.** He carried a copper ax, which was valuable. He may have been a local leader. **6.** He had injuries on this hand and head. There was blood of four other people on his clothes. **7.** Because his injuries had started to heal, the fight probably happened some time before his death. **9.** He had eaten a big meal, so he

must have been resting. **10.** He wouldn't have stopped to eat unless he thought he was safe.

► Possible answer(s): Each claim is supported with details and evidence, so I think these are very possible explanations.

Vocabulary Practice

- A. 1.** likely; **2.** indicate; **3.** frozen; **4.** enable
- B. 1.** attacked; **2.** leader; **3.** beneath; **4.** chased; **5.** fled; **6.** cruel
- C. 1.** act; **2.** death; **3.** trick; **4.** comment

TEACHING NOTES

Before You Read 

A. Discussion: Have students do activity A in pairs.

- Question 1: Students may infer that he was wealthy from the list of possessions found with him. Or they may guess he was a hunter or a warrior/soldier because he was carrying so many weapons.
- Question 2: The answers can be found in the caption(s) and information in the reading passage. The second question will require students to theorize based on his condition. They may guess that the dark object under his skin is a weapon that injured him, or that the deep cuts suggest that his death was not natural.

B. Scanning: Remind students that they learned about scanning in the reading skill section from Unit 2B. If necessary, have students turn back to that section of the Student Book and review this skill again. Have students do activity A individually. Encourage them to use the headings in the passage to guide their search for the information.

Reading Comprehension 

A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 1: Over time, new discoveries led scientists to change their understanding of how Ötzi died. Early on, they believed he might have been killed in a religious ceremony or chased and killed during a fight. However, in 2018, further analysis showed that he had eaten a large meal just before he died, leading scientists to believe he was most likely attacked while he was resting.
- Question 5: Many new theories have emerged as scientists analyze different aspects of Ötzi's remains. Some of these theories have been proven false, while opening the door to new ones. *Opening the door* means "giving access to" or "allowing the possibility of new ideas."

B. Creating a Timeline: Remind students that they learned about creating a timeline in the reading skill section from Unit 3A. If necessary, have students turn back to that section of the Student Book and review this skill again. Have students do activity B. Remind them to look for dates in the reading passage to help them sequence the events and complete the timeline.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Distinguishing Facts from Speculation**. Explain that scientific writing is often filled with facts and speculation. Archeologists use the facts they uncover during their examinations to deduce a theory, or speculate, about the human or human activity they are researching.

A. Scanning: Have students do activity A individually. Explain to students that they will use the information that they underline to answer the questions in activity B. Tell them to number the information they underline to correspond with the item number in the list, as reference for when they do activity B.

B. Distinguishing Facts from Speculation: Note that most students have experience with *true/false* questions where *F* stands for false. Here, *F* stands for a proven fact. Have students do activity B individually. Then check answers as a class.

Critical Thinking

Go over the words and phrases from the paragraph in activity A that indicate speculation. Have pairs find supporting evidence to go with each speculation. If time allows, go over pieces of evidence as a class.

Vocabulary Practice

A. Definitions: This paragraph covers some theories on how the Iceman's body may have been preserved. Have students do activity A and then check answers in pairs. Have them write new sample sentences for each vocabulary word. Ask each pair to share one sentence. The word *enable* is a verb (as opposed to *able*, which is an adjective).

B. Completion: Have students do activity B. Check answers as a class. Note that the word *beneath* means "under" and *cruel* means "intentionally causing pain or suffering." The past of *flee* is *fled*.

C. Collocations: Have students do activity C and then check answers in pairs.

Challenge: Write the following question on the board for students to answer: *If you had been hiking in the Alps and found the Iceman, what would you have done?*



Video Summary: Rapa Nui, or Easter Island, is an island in the south Pacific Ocean between Chile and New Zealand. The Rapa Nui were an ancient people who carved great stone statues between the 10th and 16th centuries. The video provides five different theories about how the Rapa Nui might have moved these stone statues from where they were built to their resting place a mile away.

Key Vocabulary: *aliens, approach, carve*

Answer Key

Before You Watch

A. 1. c; 2. b; 3. a

B. Possible answer(s): The Rapa Nui could have used tree trunks and ropes to drag the statues.

While You Watch

A. 1. d; 2. c; 3. b; 4. a; 5. e

B. 1. b; 2. a; 3. b

Critical Thinking

Possible answer(s): The 2011 theory is supported by the fact that the bottoms of the statues were not flat. The approach was also tested by a team and was successful. However, in my opinion there is not enough evidence to fully prove the theory.

While You Watch

A. Gist: Have students read the theories (a–e). Then play the video and have students do activity A. Check answers as a class.

B. Detail: Have students read the questions (1–3). Then play the video again and have students choose the correct answers.

Critical Thinking

In pairs, have students make notes on what they remember about the 2011 theory from the video. Have them discuss what makes the theory likely, or not. Have pairs share their ideas with the class.

Vocabulary Review

Have students work alone to check their understanding of the unit's target vocabulary. If time allows, have students write an example sentence with each word. Ask for volunteers to read their completed sentences aloud to the class.

Additional vocabulary practice questions are available for download on the *Reading Explorer* website.

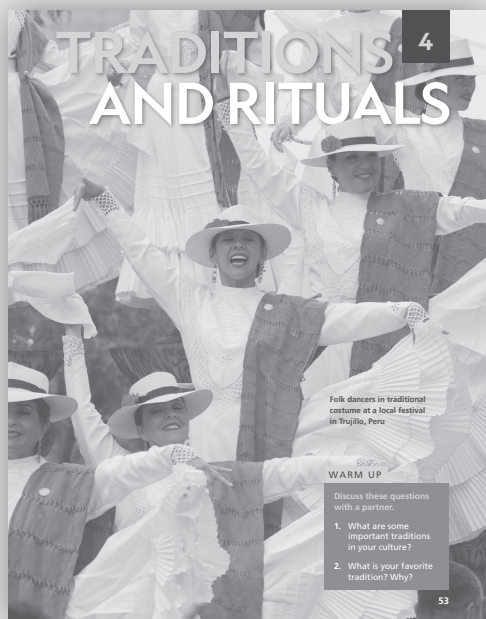
TEACHING NOTES

Before You Watch

A. Previewing: Have students read the short passage on Rapa Nui individually. Ask them to think about the meaning of the words in bold. Have them do activity A and then check their answers in pairs.

B. Discussion: Have pairs brainstorm how the Rapa Nui could have moved the statues. Talk about different tools that ancient people would have had. Discuss other wonders of the world, such as the Great Pyramids and Stonehenge, and ask if students have ideas about how stones to build those structures might have been moved.

TRADITIONS AND RITUALS



UNIT INTRODUCTION

This unit focuses on the importance of preserving world heritage, and how traditions and rituals help shape world culture. In “Living Treasures,” students read about how UNESCO—which has traditionally identified buildings as world heritage sites—has begun to identify traditions and rituals as having great cultural value. In “The Changing Face of Kung Fu,” students read about a kung fu master in China who works hard to preserve the ancient art of fighting as it becomes more closely associated with entertainment on the big screen.

Visit the *Reading Explorer* website to download supplementary worksheets for this unit.

Key Words for Internet Research: *UNESCO, intangible cultural heritage, Tlemcen wedding ritual, Al Sadu, Dengfeng, Henan Province, kung fu, martial art schools, Master Hu Zhengsheng*

WARM UP

Answer Key

Possible answer(s):

1. Thanksgiving, Independence Day, St. Patrick’s Day
2. My favorite tradition is Thanksgiving because my extended family comes over and we all eat together.

TEACHING NOTES

These dancers are participating in a festival in Trujillo, Peru, called Trujillo Marinera Festival. Every

year, people from this area participate in a dance contest called the *marinera*, which is a typical dance of this region. The dance is now part of the cultural heritage of Peru.

- Have students look at the photo and read the caption. Explain the definition of *tradition* and *ritual* in the Unit Title: *Tradition* is a custom or belief that has existed for a long time, and *ritual* is a fixed set of actions, often relating to religion.
- Have students discuss the questions in the Warm Up box in pairs, and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *approve, ceremony, craft, diverse, identity, promote, site, symbol, wedding, wrap*

Reading Passage Summary: UNESCO is part of the United Nations, and its main goal is to promote peace and security through education, science, and culture. Its headquarters are in Paris, France. In 1972, UNESCO created the World Heritage Convention, which combined the ideas of preserving cultural sites and buildings around the world with conserving nature. Over time, UNESCO has expanded the list to include “intangible heritage”—cultural traditions, rituals, and foods. The hope is that by bringing attention to these diverse aspects of culture, they will survive in an increasingly global world.

► Possible answer(s): Handwoven baskets from my country should be included on UNESCO’s list because my people have been making them for generations. We use local materials to make the baskets, and it takes years to learn the skill.

Vocabulary Practice

- A. 1. ceremony; 2. wrap; 3. symbols; 4. approves; 5. wedding
- B. 1. site; 2. diverse; crafts; 3. identity; 4. promote
- C. 1. make a start on it; 2. rise to a higher level; 3. have success with it

Answer Key

Before You Read

- A. 1. Possible answer(s): Great Barrier Reef in Australia, Angkor Wat in Cambodia, Rapa Nui National Park on Easter Island, Great Wall of China, Statue of Liberty in the United States; 2. Possible answer(s): These places are rich in culture or history. They are natural environments that must be protected.

B. b

Reading Comprehension

- A. 1. c; 2. c; 3. b (Para B); 4. b (Para E); 5. b (Para F)
- B. 1. c; 2. a; 3. d; 4. b; 5. a; 6. d; 7. c

Reading Skill

- A. cuisine (Para D); martial art (Para C); ritual (Para E); roots (Para G); veil (Para E)
- B. 1. e; 2. d; 3. a; 4. b; 5. c

Critical Thinking

- Possible answer(s): **Cuisine:** rice and beans; **Performing Arts:** dance contest; **Crafts:** handwoven baskets; **Cultural Events:** mask ceremony

TEACHING NOTES

Before You Read 

A. Discussion: Have students work in pairs to brainstorm places they think might be on the UNESCO World Heritage Sites list. Give them five minutes and then have the class compare their ideas. If possible, prepare a copy of the list from UNESCO’s website beforehand so that you can confirm whether their ideas are correct.

B. Skimming: Remind students that they learned about skimming in the reading skill section from Unit 1A. If necessary, have students turn back to that section of the Student Book and review this skill again. Have students read the possible answers (a–c) and point out that each choice mentions UNESCO.

Reading Comprehension 

A. Multiple Choice: Have each student read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 2: In paragraph B, the text says that *intangible culture* does not include buildings like

palaces and temples. A historic bridge is a type of building, so it cannot be added to the list.

B. Scanning: Have students read the list of categories (a–d) before looking at the intangible cultural items (1–7). They may need to refer back to the reading passage. Have students work in pairs to match each item to a category. Check answers as a class.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Dealing with Unfamiliar Vocabulary (1)—Using Context**. Level 2 *Reading Explorer* teaches students three different ways of dealing with unfamiliar vocabulary. This unit focuses on using context to guess the meaning of unfamiliar words. Using context refers to looking at the words around the unfamiliar term. In some cases, a new word is defined in the text.

A. Scanning: Have students do activity A individually. Tell them that some words occur more than once in the passage. Have students check answers in pairs.

B. Matching: Read aloud the words and phrases (1–5). For example, around the word *cuisines* the text refers to French and Mexican food, so students can infer that the word is related to cooking. Tell students to go back and read the sentences around each word from activity A. Have students do activity B individually, and then check answers as a class.

Critical Thinking

- ▶ Have students refer to the reading passage for examples of intangible culture heritage to get them thinking about possible ideas. Have students from the same country work in pairs to brainstorm ideas for each category.
- ▶ Ask students to rank their items from 1–4 in order of importance to their country’s culture. Ask guiding questions such as, “How would you feel if basket weaving disappeared? How would it affect the tradition and culture in your country?”

Vocabulary Practice

A. Completion: The paragraph is about the Wodaabe, a group of nomadic African people who have an important ceremony called the *geerewol*. Have students do activity A individually. Then have students check answers in pairs. Make sure students understand that *approve* means “accept” or “like” in this context.

B. Completion: Have students do activity B individually. Check answers as a class. Have students write new sentences using each of the vocabulary words from the lesson.

C. Word Parts: Have students do activity C individually and then compare answers in pairs.

- Question 3: Tell students that if you make progress on something, you are moving closer toward a goal but you may not have reached it yet.

Challenge: Ask students to write a short introduction of a piece of intangible cultural heritage from their country. They may work individually or in groups. They can use their ideas from the Critical Thinking question in the reading skill section. If time allows, have groups present to the class.

LESSON OVERVIEW

Target Vocabulary: *accept, basis, convince, ensure, inspire, publicity, remind, respect, series, violence*

Reading Passage Summary: Kung fu is a Chinese martial art (a fighting sport or skill), with roots that can be traced as far back as the fifth century. Its movements are based on the fighting styles of different animals, and it was developed to serve primarily as defense in military combat. Some styles emphasize quick hand and arm movements, while others focus on powerful kicks and leaps.

This reading is about a traditional kung fu teacher named Hu Zhengsheng who is working hard to preserve traditional kung fu.

Answer Key

Before You Read

A. 1. monk; 2. Acrobatics; 3. temple; 4. master
 B. 1. b; 2. a; 3. c

Reading Comprehension

A. 1. b (Para C); 2. a (Para B); 3. c; 4. a; 5. c
 B. 1. F; 2. NG; 3. NG; 4. F; 5. NG; 6. T

Reading Skill

A. Paragraph A: a. S, b. M; Paragraph B: a. M, b. S; Paragraph C: a. S, b. M; Paragraph D: a. S, b. M; Paragraph F: a. S, b. M

Critical Thinking

- ▶ Possible answer(s): In the past, children used to wear traditional clothing for their 15th birthday party.
- ▶ Possible answer(s): Children today wear the latest fashion from a department store. I don't think this change is for the better because young people don't experience the cultural aspect of dressing in a traditional way.

Vocabulary Practice

- A. 1. inspired; 2. basis; 3. series; 4. convinced; 5. ensured
 B. 1. don't forget; 2. "Yes, please."; 3. hurt or kill; 4. attract; 5. high
 C. 1. rich; 2. able; 3. large

TEACHING NOTES

Before You Read



A. Definitions: Have students look at the photo and then read the caption to try to understand the words in bold from context. The word *monk* can be used to describe male members of various religions, not just those studying kung fu. Monks typically live together in a community and choose a life of discipline in order to commit themselves to their religious beliefs. A *temple* is a place of worship, and it is used in many religions, both modern and ancient.

B. Identifying Purpose: Have students read the purposes (a–c) before skimming the first three paragraphs of the reading passage. Have students do activity B and then check answers as a class. Remind students that they learned about identifying purpose in the reading skill section from Unit 1B. If necessary, have students turn back to that section of the Student Book and review this skill again.

Reading Comprehension



A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class and ask students to give evidence for their answers using paragraph letters from the reading passage.

- Question 2: Paragraph B mentions that students study kung fu to 1) become movie stars, 2) learn skills that will ensure good jobs, and 3) learn self-control and hard work. Although people might study kung fu to think more clearly, it is not mentioned in the text.

B. Evaluating Statements: Have students read the statements (1–6) and choose the correct answer. Remind them that NG (not given) means that the information isn't given in the reading passage, so there is no way to know if it is true or false. Remind students that this is a common question type on exams.

- Question 1: Paragraph A states that kung fu was first developed in the 5th century. This is less than 2,000 years ago, so the statement is false.
- Question 4: Master Hu learned kung fu the way his teacher taught him (by learning respect through hardship).

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Differentiating Between Main Ideas and Supporting Details**. Explain that the main idea in a paragraph is the most important idea, and the supporting details give extra information about it.

A. Identifying Main Ideas and Details: Review with students the basic structure of a paragraph. The topic sentence gives the main idea, and the details help support this idea. Point out that supporting details can be facts, examples, quotations, and so forth, but are usually not opinions. Have students do activity A, and then check answers as a class. If necessary, go back to the reading passage to point out which sentence is the topic sentence and why.

Critical Thinking

Have students discuss the questions in pairs. Refer them back to the categories in Reading 4A, Reading Comprehension to help them come up with ideas. Encourage students to give examples of good and bad points about these changes and offer their opinions. Then have them share ideas with the class.

Vocabulary Practice

A. Completion: This paragraph expands on how kung fu was developed by observing the movement of animals. Have students read the words in the box and then have them do activity A individually. Have students check answers in pairs. The word *series* describes a number of related events that often happen one after the other. An author may write a *series* where all the books have the same main character. A sports tournament that includes multiple games or matches can also be called a *series*.

B. Definitions: Have students do activity B. Check answers as a class. If time allows, have them write new sample sentences for each vocabulary word. Ask each pair to share one sentence.

C. Word Parts: Have students complete activity C individually and then compare answers in pairs. *Enable* means to make possible, and *enlarge* means to make bigger. *Enrich* does not mean to make someone rich; it means to make something better. Ask students to think of other verbs with *en-* (e.g., *enlighten*, *enrage*).



Video Summary: The video gives facts and information about the Dragon Boat Festival in China. Details include the length of the boats, how they move through the water, and other traditions associated with the festival such as different contests and food. The festival is now part of the UNESCO World Intangible Cultural Heritage List, which students read about in “Living Treasures” (Reading 4A).

Key Vocabulary: *paddle, custom, intense*

Answer Key

Before You Watch

A. 1. move; **2.** regularly; **3.** very

While You Watch

A. a, b, e

B. 1. F (the longest dragon boats can be 35 meters); **2.** T; **3.** NG; **4.** NG; **5.** T

Critical Thinking

Possible answer(s): **Festival name:** Machu Picchu Day; **Purpose:** the discovery of the ancient city; **When:** July 24; **Activities:** dress up in traditional clothing and eat traditional food; **Reason:** to recognize the ancient people who lived in our country

TEACHING NOTES

Before You Watch

A. Previewing: Have students read the paragraph and use context clues to guess the meanings of the words in bold. Have students do activity A individually. Then check answers as a class. A *custom* is a tradition—something you do to mark the significance of something in a specific culture or society. If time allows, ask students if they have ever seen or participated in a Dragon Boat Festival.

While You Watch

A. Gist: Have students read the topics (a–f). Then play the video and have students do activity A. Check answers as a class. Have students do activity A and check their answers in pairs.

B. True or False: Have students read the sentences (1–5). Then play the video again and have students do activity B. Check answers as a class. Have students correct the false statements.

Critical Thinking

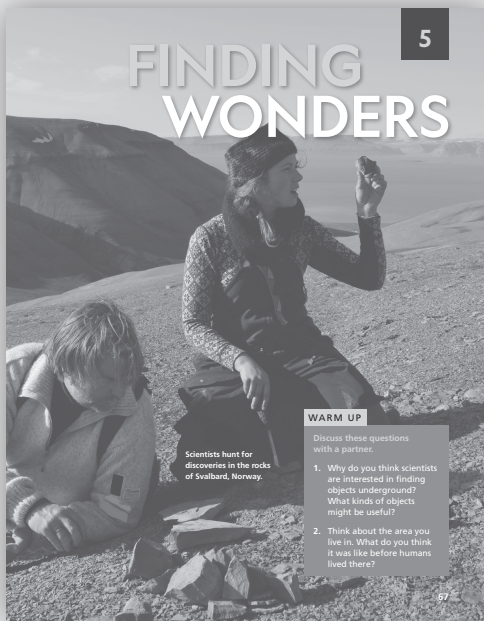
Have students work in pairs and brainstorm three people and/or events in their country’s history. Then have them narrow down that list to one that they think is the most significant and/or important. After students complete the activity, have them share with the class. If time allows, encourage pairs to make a poster to promote the important person or event of choice.

Vocabulary Review

Have students work alone to check their understanding of the unit’s target vocabulary. If time allows, have students write an example sentence with each word. Ask for volunteers to read their completed sentences aloud to the class.

Additional vocabulary practice questions are available for download on the *Reading Explorer* website.

FINDING WONDERS



UNIT INTRODUCTION

This unit focuses on two scientists who have made it their life's work to discover fossils—both in the sand and in the rocks. In “The Secrets in the Sand,” students read about Mary Anning, known as the “the greatest fossil hunter the world has ever known.” Her findings on the beach in England changed the way people thought about animals that lived in the past. In “The Stories in the Rocks,” students read about Jørn Hurum, a paleontologist who has discovered many fossils in the hills and rocks in Svalbard, Norway.

Visit the *Reading Explorer* website to download supplementary worksheets for this unit.

Key Words for Internet Research: *Lyme Regis, Mary Anning, fossils, National History Museum, Jørn Hurum, paleontology, Svalbard, Predator X*

WARM UP

Answer Key

Possible answer(s):

1. Objects that are buried underground are interesting because they may have been there for hundreds or even thousands of years. These objects can tell us a lot about the past.
2. The land might have been covered in forests. It may even have been submerged underwater.

TEACHING NOTES

The Svalbard Islands are located in the Arctic Circle—halfway between Norway and the North Pole—where the sun shines 24 hours a day from

mid-May to late August. In contrast, the winter months from October to February are completely dark. About 3,000 people live here, along with polar bears, Arctic foxes, and reindeer.

- Have students look at the photo and read the caption. Ask students what the word *wonders* in the Unit Title is referring to.
- Read aloud the caption and explain the words *scientists* and *discoveries*.
- Have students discuss the questions in the Warm Up box in pairs, and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *arrange, continue, contribution, credit, debt, display, extraordinary, major, notice, talent*

Reading Passage Summary: Mary Anning (1799–1847) was a paleontologist—a scientist who studies fossils. Her findings on the Jurassic Coast in southern England were significant, and they led to the development of new ideas about the history of the Earth. When Anning was just 12 years old, she discovered a 5.2-meter-long fossil of an unknown creature. It was later named *Ichthyosaur* and discovered to be the first extinct animal known to science. She also discovered other fossils of extinct creatures before she died in 1847. Her finds are now displayed in museums in London and Paris. Today, the Jurassic Coast is a UNESCO World Heritage Site.

Answer Key

Before You Read

- A. 1. extinct; 2. creatures; 3. beach; 4. skeleton; 5. museums
- B. Possible answer(s): Mary Anning is remembered today because her findings taught people more about extinct animals and what life on Earth was like millions of years ago.

Reading Comprehension

- A. 1. b; 2. a (Para B); 3. b (Para C); 4. c (Para C); 5. b
- B. 1810: 5; 1811: 3; 1823: 2; 1828: 1; 1839: 4

Reading Skill

- A. a, d; B. 1. a, b, c, e; 2. c

Critical Thinking

Possible answer(s): She discovered the first extinct animal known to science (Para B); She discovered one of the first examples of a flying creature that disappeared millions of years ago (Para C); Her finds are displayed in museums in London and Paris (Para E).

Vocabulary Practice

- A. 1. extraordinary; 2. credit; 3. noticed; 4. continue; 5. displayed; 6. major
- B. 1. needs to pay back; 2. help with it; 3. is able; 4. particular position
- C. Possible answer(s): The rescue of the small boy was difficult. / They were able to rescue the baby bird as it fell from the tree.; Put the valuables in a hidden spot. / She’s easy to spot because of her red hair.; It was a miraculous find. / I can’t find my shoes!

TEACHING NOTES

Before You Read 

A. Definitions: Have students read the paragraph and use context clues to help find the meanings of the words in bold. The word *fossil* refers to the remains of a very old animal, so students can infer that *extinct* means the animal is no longer living.

B. Skimming/Predicting: Remind students that when skimming, they are looking over the picture, headings, and the first and last sentences of each paragraph to get the gist or general idea. Have students jot down brief notes about the first sentence in each paragraph; for example: *noticed a strange fossil, had a talent for spotting fossils, fossil hunting was dangerous, Mary examined and recorded her finds, her contributions have not been forgotten.*

Reading Comprehension 

A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Draw attention to the fact that *pterosaur* is pronounced with a silent *p*. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 4: In paragraph C, the passage states that the pterosaur fossil was one of the first examples of a flying creature that disappeared millions of years ago.

- Question 5: The reading passage mentions that Mary Anning’s contributions have not been forgotten, and that her finds are now displayed in museums in London and Paris.

B. Creating a timeline: Have students read the events (1–5). Remind students that they learned about creating a timeline in the reading skill section from Unit 3A. If necessary, have students turn back to that section of the Student Book and review this skill again. Have them skim the reading passage to find each event and do activity B in pairs. Point out that the reading passage is not in sequential order—paragraph A begins in 1823, and paragraph B talks about events that happened in 1810.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Interpreting Infographics**. Have students point out an example of each kind of information mentioned in the text (image, diagram, timeline, text caption, label).

A. Analyzing: Have students do activity A and then check answers in pairs.

B. Analyzing: Have students do activity B and then check answers as a class. Explain how and where to find the information, if necessary.

- Question 1: Note that option “d” may be part of the wing’s function, but it is not explicitly stated that it helped the Quetzalcoatlus fly.

Critical Thinking

Have students work in pairs to read through the question and the reading passage again to look for evidence to support the claim. Have them ask and answer questions about what they read to help them decide if the information supports the claim or not. Ask students to share some of their ideas with the class.

Vocabulary Practice

A. Completion: This paragraph is about Quetzalcoatlus, the same pterosaur that is pictured in the infographic “Giants of the Skies.” The image shows a model of Quetzalcoatlus being prepared in a museum. Have students do activity A individually, and then check answers in pairs. The adjective *extraordinary* is made of two words: *extra* and *ordinary*.

B. Definitions: Have students do activity B individually. Check answers as a class. The word *debt* means money owed; if you are *in debt*, you owe someone money.

C. Word Forms: Have students do activity C individually and then check answers in pairs. Tell students that *record* (n) and *record* (v) are pronounced differently. The noun is stressed on the first syllable, while the verb is stressed on the second.

LESSON OVERVIEW

Target Vocabulary: *access, collection, entire, eventually, individual, preparation, productive, remote, remove, soften*

Reading Passage Summary: Jørn Hurum is a paleontologist who looks for fossils all over the world. Paleontologists want to figure out the relationship between extinct plants and animals and their living relatives today. More than 99 percent of all species that have ever lived on Earth are now extinct, and paleontologists focus on uncovering these fossils to understand more about the world we live in. Most fossils are several thousand to several million—or even billions—of years old! There are several places on Earth with a rich abundance of fossils, including Svalbard in Norway and the Jurassic Coast in England. The passage is about how Jørn Hurum became interested in paleontology when he was just a child. He describes the challenges and the most exciting aspects of this unique career.

Answer Key

Before You Read

- A. 1. expedition; 2. predators; 3. paleontologists
- B. Possible answer(s): Jørn Hurum and Mary Anning both look(ed) for fossils. They both made new discoveries. They both work(ed) near the sea.

Reading Comprehension

- A. 1. a; 2. a (Para B); 3. c (Para C); 4. c (Para D); 5. c (Para F)
- B. 1. by hand (Para E); 2. in his bedroom (Para A); 3. the “dig season” (Para C); 4. food, jackhammers, water (Para D)

Reading Skill

- A. 1. prehistoric, Possible answer(s): before recent history; 2. collection, Possible answer(s): process of collecting; 3. scientists, Possible answer(s): people who study science; 4. soften, Possible answer(s): cause to be soft

- B. 1. unlike, Possible answer(s): Unlike Hurum, Anning lived in England.; 2. unusual, Possible answer(s): It’s unusual to have warm weather in the winter; 3. hunter, Possible answer(s): The wolf is an expert hunter.; 4. visitors, Possible answer(s): There are many visitors to the Jurassic Coast.

Vocabulary Practice

- A. 1. entire; 2. eventually; 3. productive; 4. collection; 5. individual; 6. access
- B. 1. preparation; 2. remote; 3. remove; 4. softens
- C. 1. provide; 2. gain; 3. denied

TEACHING NOTES

Before You Read 

A. Definitions: Have students do activity A. The word *paleontology* comes from the Greek words “paleo” (ancient), “onto” (being), and “logy” (study).

B. Skimming: Remind students that they learned about skimming in the reading skill section from Unit 1A. If necessary, have students turn back to that section of the Student Book and review this skill again. Have students refer back to “The Secrets in the Sand” to find similarities between Hurum and Anning. If time allows, draw a Venn diagram on the board to show similarities and differences between the two.

Reading Comprehension 

A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 1: Although options “b” and “c” are mentioned in the reading passage, the main focus of the article is on Jørn Hurum the paleontologist.

- Question 4: The word *explodasaurus* is a word that Hurum has made up using the word *explode*. *Explode* means to break into many pieces with great force.
- Question 5: A “scratch-off lottery ticket” is a lottery ticket that contains a hidden number covered in foil that you have to scratch off. If you are lucky, you “hit the jackpot,” meaning you win the best prize offered, usually a large amount of money. In the quote, Hurum is referring to the feeling when he has made a discovery, and not to his job as a whole.

B. Scanning: Remind students that they learned about scanning in the reading skill section from Unit 2A. If necessary, have students turn back to that section of the Student Book and review this skill again. Have students read the questions (1–4) and then scan the reading passage to find the answers. Remind them that the answers do not have to be complete sentences.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Dealing with Unfamiliar Vocabulary (2)—Affixes**. Write *unfriendly* on the board and underline the prefix *un-* and the suffix *-ly* as an example.

A. Definitions: Have students do activity A individually and then check their answers in pairs. If time allows, go over the definitions for 1–4 as a class.

B. Scanning: Have students do activity B individually. Tell them to scan “The Secrets in the Sand” to find words with the affixes (1–4) and then create a sentence using each word. If time allows, have students share their sentences with the class.

Vocabulary Practice

A. Completion: This paragraph gives more details on the plesiosaur and its discovery. Read aloud the words in the word box and check that students know the definition of each word. *Eventually* means “over time; gradually.” This suggests that plesiosaurs did not die out quickly. Have students do activity A individually and then check answers in pairs.

B. Completion: Have students do activity B. Then check answers as a class. *Remote* regions are located far from populated areas where there are not many people.

C. Collocations: Have students do activity C individually, then check answers in pairs. *Provide access* means “to give access,” *gain access* means “to obtain access,” and *deny access* means “to not give access” in this context.

- Question 3: Point out that access is usually followed by the preposition *to* (access *to* something).



Video Summary: The video is about Aubrey Roberts, a young paleontologist. She explains why she chose this career and talks about the positive and negative aspects of the job.

Key Vocabulary: *backbreaking, marine, passion*

Answer Key

Before You Watch

A. 1. in the sea; **2.** like; **3.** a lot of

B. Paleontologist; bones; dig out; dinosaurs

While You Watch

B. 1. b; **2.** a; **3.** a; **4.** b

Critical Thinking

- ▶ Possible answer(s): a map of Svalbard, a medical kit, a jackhammer, a small radio, a magnifying glass; I think a map of Svalbard would be the most important thing because without it, we won't know where to find the best fossils.

TEACHING NOTES

Before You Watch

A. Definitions: Have students do activity A individually. Point out that *mare* is the Latin word for *sea*, so *marine* means “related to the sea.” If something is *backbreaking*, it is very difficult work.

B. Previewing: Have students read the information and try to complete the details. Do not check answers yet, as students will watch the video and check their predictions.

While You Watch

A. Gist: Play the video and get students to check their predictions. Note that students will find all the answers for this activity in the video's on-screen text. Have volunteers say whether their ideas were correct or if they had made different predictions.

B. Multiple Choice: Have students read the questions (1–4). Then play the video again and have students do activity B individually. Check answers as a class.

- Question 3: Something that *makes your heart leap* refers to something that makes you feel thrilled or excited.

Critical Thinking

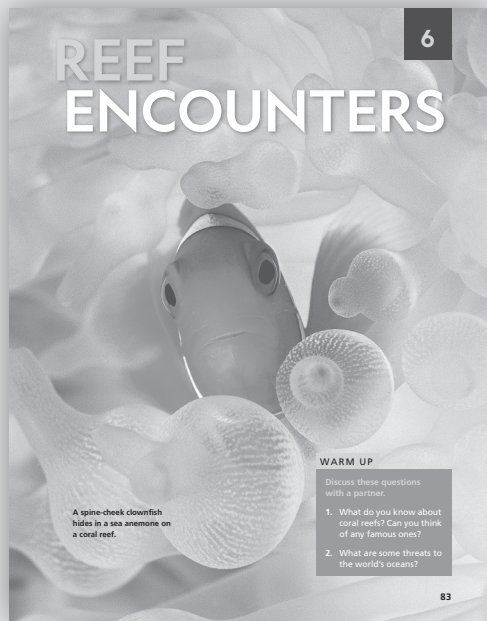
Students should imagine they are going on an expedition and think about what they would need before reading the list. Then have them read the list and choose the items they think will be most useful. Put students in pairs and ask them to try to explain to their partner why they think their choices are important and/or the most useful. Note that the word *jackhammer* was defined in the footnotes for Reading B. Make sure students also understand the meaning of *magnifying glass*.

Vocabulary Review

Have students work alone to check their understanding of the unit's target vocabulary. If time allows, have students write an example sentence with each word. Ask for volunteers to read their completed sentences aloud to the class.

Additional vocabulary practice questions are available for download on the *Reading Explorer* website.

REEF ENCOUNTERS



UNIT INTRODUCTION

This unit focuses on creatures that live in the sea, and how our way of thinking about them can improve our—and their—lives. In “Cities Beneath the Sea,” students read about the destruction of coral reefs and consider what can be done to protect them. In “The Truth About Great Whites,” students learn that great white sharks are not as dangerous as they appear to be.

Visit the *Reading Explorer* website to download supplementary worksheets for this unit.

Key Words for Internet Research: *coral reefs, coral reef conservation, coral polyps, cyanide fishing, great white shark, ocean ecosystems, shark attack, shark tourism*

WARM UP

Answer Key

Possible answer(s):

1. Coral reefs are endangered. About 25 percent of the ocean’s animals live in coral reefs. They can be very colorful. Some famous reefs include the Great Barrier Reef in Australia.
2. Damage has been caused by numerous kinds of pollution, by overfishing, and by physically hurting coral reefs and the ocean floor. In addition, global warming is having a negative effect on marine habitats.

TEACHING NOTES

Coral reefs are one of the most diverse ecosystems on the planet. Although they only cover a tiny fraction of Earth’s surface, they are home to approximately one-quarter of all ocean creatures.

- Read aloud the Unit Title as students look at the photo. Explain that *reef* is short for coral reef, and that, in this instance, an *encounter* is an unexpected experience. The fish in the photo is hiding in a sea anemone. In small groups, have them name different animals that live in a coral reef. Ask how they think all these animals live together in one ecosystem.
- Have students discuss the questions in the Warm Up box in pairs, and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *brilliant, chemical, conservation, construct, negative, occupy, pollution, release, remarkable, shallow*

Reading Passage Summary: Coral reefs are home to an abundance of marine life. The Great Barrier Reef in Australia is the world’s largest reef and is one of the seven natural wonders of the world. Many conservation efforts are put in place to protect it because it is a large tourist attraction and draws many visitors every year. In 1981, the Great Barrier Reef was added to UNESCO’s World Heritage List.

Answer Key

Before You Read

- A. 1. T; 2. F** (Coral polyps are a type of animal.); **3. F** (A coral reef usually gets larger over time.); **4. T**
- B.** how coral reefs are formed; coral reef wildlife; problems affecting reefs

Reading Comprehension

- A. 1. c; 2. a** (Para B); **3. b** (Para E); **4. a; 5. c**
- B. 1. not counted; 2. full of color; 3. build again**

Reading Skill

- A.** Not all reefs begin naturally. For example, an ocean current may encounter a man-made object, like a sunken ship. As a result, the water around the ship may become rich with tiny animals called plankton. A lot of small fish gather there to feed on the plankton. Consequently, larger animals are attracted to the ship. Because the ship has many little openings, many creatures also have a place to hide. In time, the ship becomes covered in polyps. As a result, soon, it no longer looks like a ship at all.
- B. 1. Effects:** Water becomes rich in plankton. **2. Effects:** Larger animals are attracted to the ship. **3. Causes:** The ship has many little openings. **4. Causes:** The ship becomes covered in polyps. **Effects:** It no longer looks like a ship.

Critical Thinking

Possible answer(s):

- ▶ I think there should be a ban on all fishing near coral reefs so that there isn’t overfishing and the populations can rise. But then the fish population might get too big, and the local people won’t be able to sell fish.
- ▶ I think tourists shouldn’t be allowed to dive near reefs. But tourism brings in a lot of money and people should have the opportunity to see all the sea creatures in their natural habitat.
- ▶ People should be banned from selling coral products because they shouldn’t remove coral from the reefs. But the local people make money by selling coral.
- ▶ People should start a campaign to raise awareness by printing leaflets and handing them out locally. That will cost a lot of money. Plus, there are plenty of campaigns that already exist, and the reefs still aren’t protected.

Vocabulary Practice

- A. 1. negative; 2. shallow; 3. remarkable; 4. conservation**
- B. 1. don’t keep; 2. build; 3. stay; 4. dirty; 5. bright; 6. science lab**
- C. 1. meaning; 2. response; 3. effect; 4. thoughts**

TEACHING NOTES

Before You Read 

- A. True or False:** Have students do activity A individually and then check answers as a class. Elicit the correct answers for each false item.
- B. Predicting:** Have students look quickly at the passage and check (✓) the information they think will be in the passage. Have students check answers in pairs. Then students go back and read the passage carefully and check their answers.

Reading Comprehension

A. Multiple Choice: Have each student read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 1: The headings in the passage are “A Variety of Life,” “Threats to Coral Reefs,” and “Reasons for Hope.” Although options “a” and “b” are both mentioned in the passage, the main idea is that reefs are beautiful and should be saved.
- Question 2: Reefs are usually found in shallow ocean waters.

B. Understanding Affixes: Remind students that they learned about affixes in the reading skill section from Unit 5B. If necessary, have students turn back to that section of the Student Book and review this skill again. Write the bold words on the board and underline *un*, *ful*, and *re*, and remind students that affixes carry meaning. Have students do activity B individually. If time allows, have students share their definitions in pairs.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Understanding Cause-and-Effect Relationships**. Explain that a *cause* happens first chronologically (before an *effect*), although the cause can appear at the beginning or end of the sentence.

A. Identifying Causes and Effects: Have students complete activity A individually and then check answers in pairs.

B. Understanding Causes and Effects: Have students do activity B. Then check answers as a class. For each sentence, elicit the connecting word that shows the cause-and-effect relationship.

Critical Thinking

Have students work in pairs to make a list of pros and cons for each suggestion, considering the points of view of the locals, the conservationists, and the tourists. Ask questions such as, “How would a tourist feel about that?” and “How would that change the local economy?” If time allows, have pairs share their ideas with the class.

Vocabulary Practice

A. Definitions: This paragraph is about corals that live in cold water, and how fishing has a negative impact on them. Have students do activity A individually, then check answers in pairs.

B. Words in Context: Have students do activity B individually and then check answers as a class. The adjective *brilliant* describes a bright light and has a positive connotation.

C. Collocations: Have students do activity C individually. Then check answers as a class. The adjective *negative* can be used to describe a fact, situation, or experience that is unpleasant, depressing, or harmful. Other common partnerships or collocations are a *negative impression* and a *negative reaction*.

LESSON OVERVIEW

Target Vocabulary: *bite, confusion, flow, force, frightening, gather, horror, inaccurate, tempting, victim*

Reading Passage Summary: Great white sharks are the largest predatory fish in the world, growing to an average of 4.5 meters long. Their tails are powerful enough to thrust them forward at speeds of up to 24 kilometers per hour. Great whites live and hunt in all seven major oceans, usually in cool waters along the coast. However, they are greatly misunderstood creatures and have been given the undeserved description of “man-eaters.”

Answer Key

Before You Read

- A. 1.** F (Only one-third of shark attacks are said to be from great white sharks.);
2. F (Great whites rarely kill their victims.);
3. T; **4.** T

Reading Comprehension

- A. 1.** c; **2.** a (Para A); **3.** c; **4.** a; **5.** c
B. 1. c; **2.** d; **3.** a

Reading Skill

- A. 1.** despite; **2.** though; **3.** However;
4. Even though
B. 1. Even though great white sharks are dangerous, they rarely kill humans. **2.** Great white sharks are often seen off the coast of Australia. However, surfing is popular there.

Critical Thinking

- ▶ Possible answer(s): Great white sharks don't see well and they think humans are seals or sea lions. Great white sharks might just be curious and are using their mouths to investigate.
- ▶ Possible answer(s): I think the author thinks that the most likely explanation is that great whites are curious and are using their mouths to investigate. The author thinks this because the reading passage ends with this idea.

Vocabulary Practice

- A. 1.** victims; **2.** confusion; **3.** horror;
4. inaccurate; **5.** bite
B. 1. flow; **2.** frightening; **3.** tempting; **4.** force;
5. gather
C. 1. complete; **2.** correct; **3.** expensive

TEACHING NOTES

Before You Read

A. Quiz: Have students do activity A individually. Students will check answers in activity B, so do not check answers yet.

B. Skimming: Have students quickly skim the article to check their answers. People often mistakenly think great white sharks hunt and kill humans. The reading passage shares scientific theories that argue against this idea.

Reading Comprehension

A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 3: The reading passage says that great white sharks shoot up and bite seals with great force. The writer uses the word *however* to signal an opposite idea, and then goes on to say that when great whites attack humans, they are slower and bite with less force. The purpose is to give possible reasons about why great white sharks don't kill humans.
- Question 4: *They* refers to great whites and *them* refers to humans.

- Question 5: Direct students to paragraph C and ask them to find the words that indicate option “a” is speculation: *It is thought ...* and option “b” in paragraph D: *They believe*

B. Understanding Maps and Infographics:

Remind students that they learned about maps and infographics in the reading skill section from Unit 5A. If necessary, have students turn back to that section of the Student Book and review this skill again. Ask students to look at the map and the key on the left. Note that a large portion of the world’s oceans is colored blue to show the range the great white sharks travel, but the shades of purple and pink show where they are usually found.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Recognizing Contrastive Relationships**. Point out that the word *contrastive* describes something that is different or opposite. The connectors *but* and *however* are used before an independent clause. *Although* is used at the beginning of a sentence.

A. Recognizing Contrast: Have students do activity A and check their answers in pairs.

B. Understanding Contrast: Remind students that they can check the meanings of *even though* and *however* in the **Recognizing Contrastive Relationships** paragraph. Have them do activity B individually and then check answers as a class.

Challenge: Ask students to write four sentences about great white sharks using the connecting words listed after the paragraph on **Recognizing Contrastive Relationships** and the information they’ve learned about great white sharks in the reading passage.

Critical Thinking

Have students work in pairs to find words and phrases in paragraphs C and D that signal speculation (*One of the most common explanations is, it is thought, believe, according to this idea*). Have them brainstorm two to three explanations for why the author thinks a particular theory is more likely. If time allows, have pairs share their ideas with the class.

Vocabulary Practice

A. Completion: This paragraph is about the movie *Jaws*, and its impact on popular culture. Have students do activity A individually and then check answers in pairs. A *victim* is a person who is harmed, injured, or killed as a result of an accident or crime. The prefix *in-* in *inaccurate* means “not” or “the opposite of,” so *inaccurate* means “not true.”

B. Words in Context: Have students do activity B individually. Check answers as a class. The adjective *tempting* means something is attractive or desirable.

C. Word Parts: Remind students that the word *inaccurate* in activity A has the prefix *in-*, which means “not.” Ask how the prefix *in-* affects these words: *incomplete, incorrect, and inexpensive*. Some other words with the prefix *in-* are: *inconvenient, inadequate, incapable, inhuman*. Have students do activity C individually. Then check answers as a class. If time allows, have students create sentences using words that have the prefix *in-*.



Video Summary: The video provides facts and details about coral and coral reefs. It covers four main points: 1) corals are animals; 2) corals are megabuilders; 3) coral reefs are diverse ecosystems; and 4) coral provides a window to the past.

Key Vocabulary: *colony, habitat, stretch, warn*

Answer Key

Before You Watch

A. 1. b; **2.** d; **3.** a; **4.** c

B. 1. warm; **2.** polyps; **3.** limestone

While You Watch

B. 1. basketball; **2.** largest; **3.** 20,000; **4.** 25;
5. climate; **6.** 500; **7.** the end of the 21st century

Critical Thinking

Possible answer(s):

how coral reefs are formed: The video was a better source for this because I could see a clear visual example in the video footage.

the threats facing coral reefs: The reading passage was better because it contained more details like illegal fishing and water pollution.

While You Watch

A. Gist: Play the video and have students check their answers in Before You Watch B.

B. Completion: Have students read the notes on coral reef facts. Then play the video again and have students complete the information.

Critical Thinking

Consider having students create a T-chart with the headings *Video* and *Reading 6A*, and have them write notes on what they have learned about coral reefs under the appropriate heading. Have them compare the two sources of information and decide which provides the most details.

Challenge: Have students search online to learn more about how people can help protect coral reefs around the world. Have them work in pairs to find out more about a specific coral reef that is endangered, and get them to brainstorm ideas on how that coral reef may be protected. Ask each pair to present their findings to the class.

Vocabulary Review

Have students work alone to check their understanding of the unit's target vocabulary. If time allows, have students write an example sentence with each word. Ask for volunteers to read their completed sentences aloud to the class.

Additional vocabulary practice questions are available for download on the *Reading Explorer* website.

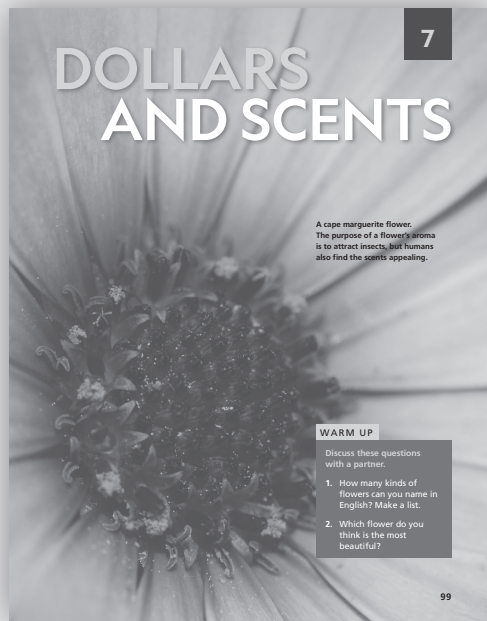
TEACHING NOTES

Before You Watch

A. Previewing: Have students do activity A. Then have them use a dictionary to check their answers. A *colony* can be made up of animals or people.

B. Quiz: Have students work in pairs to answer the questions (1–3). Tell them not to worry if they don't know the answers; they will revisit this section after watching the video, so do not check answers yet.

DOLLARS AND SCENTS



UNIT INTRODUCTION

This unit focuses on two industries that appeal to our sense of smell, the cut flower trade and the perfume industry. In “The Flower Trade,” students read about how the international flower trade is changing and becoming increasingly global. In “The Power of Perfume,” students read about the importance of marketing in the perfume industry.

Visit the *Reading Explorer* website to download supplementary worksheets for this unit.

Key Words for Internet Research: *international flower industry, Aalsmeer, Ecuador's flower industry, perfume industry*

WARM UP

Answer Key

Possible answer(s):

1. rose, daisy, lily, tulip, sunflower, iris, pansy, orchid, daffodil, morning glory, lilac, jasmine, hydrangea
2. I think roses are the most beautiful flower. I also think they have the most beautiful scent.

TEACHING NOTES

A flower's scent helps it attract insects and other animals that carry pollen and help fertilize the plant. However, humans are also attracted to the aromas that flowers produce.

- Read aloud the Unit Title as students look at the photo. Point out that in the expression *dollars and cents*, *cents* means “pennies.” There are 100 cents in a dollar. The title “Dollars and Scents” is a play on this expression. *Scent* is a homophone of “cent,” and it means “smell.” *Scent* is a positive word, so it refers to something that smells good. *Aroma* and *scent* are synonyms.
- Read aloud the caption and explain the words *purpose*, *attract*, *appealing*.
- Have students discuss the questions in the Warm Up box in pairs, and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *assume, claim, considerable, dominate, export, handle, industry, invest, predictable, prevent*

Reading Passage Summary: The flower trade is a multibillion-dollar global industry. Flowers are grown in one country and sold in others all around the globe. Because flowers need to stay fresh, there is a complex transportation plan in place to get them from the field to a flower shop, sometimes in less than 24 hours. Ecuador is one of the industry's largest producer of flowers. Unfortunately, the globalization of the flower industry has had a negative impact on local growers in the United States.

Answer Key

Before You Read

A. 1. d; 2. b; 3. a; 4. c

B. the Netherlands, Ecuador, Colombia, the United States

Reading Comprehension

A. 1. c; 2. c (Para B); 3. b; 4. a, 5. a

B. 1. high-tech cooling systems; 2. vase life; 3. 20 million; 4. independent rose grower

Reading Skill

A. **the Netherlands:** b, d; **Both:** a;

Ecuador: c, e, f

B. **hybrid tea:** large, single flower on stem; can grow to more than 2 meters tall;

Both: sell in large numbers; common garden plant; **floribunda:** groups of flowers on stem, short, less than 1 meter tall

Vocabulary Practice

A. 1. industry; 2. considerable; 3. prevents; 4. exported; 5. handle

B. 1. a; 2. a; 3. b; 4. b; 5. a

C. 1. valuable; 2. enjoyable; 3. likeable/likable; 4. noticeable

TEACHING NOTES

Before You Read



A. Definitions: Have students do activity A individually. Then check answers as a class. Explain that *cut flowers* are flowers that have been removed from the plant. Note that the noun *fragrance* is a synonym for *scent*, which appears in the Unit Title. If time allows, have students work with a partner to write new sentences for each of the four words.

B. Scanning: Remind students that they learned about scanning in the reading skill section from Unit 2B. If necessary, have students turn back to that section of the Student Book and review this skill again. Have students jot down brief notes about country names and climate that they can find in the reading passage. They can start by looking quickly at the passage title, pictures, and first and last sentences of each paragraph. Check ideas as a class.

Reading Comprehension



A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 2: Option “a” states that the Aalsmeer auction house processes over half of the world’s cut flowers but paragraph B says “about 50 percent” so that is less than half.
- Question 4: A freight train is a long, heavy train that moves at high speed and would cause considerable damage if it hit something. This expression is used to mean that a disaster is coming.

B. Scanning: Remind students that they learned about scanning in the reading skill section from Unit 2B. If necessary, have students turn back to that section of the Student Book and review this

skill again. Have students find key words in the questions (1–4) and then look for those words in the passage.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph **Summarizing Using a Venn Diagram**. Remind students how Venn diagrams work. Each circle is for things that only fit under that heading, but the overlapping area is for characteristics that both groups share.

A. Summarizing: Draw the Venn diagram from the book on the board. Have students read the information (a–f) and then do activity A individually. Check answers as a class by asking volunteers to add the new information to the diagram on the board. Elicit any other information, not in the reading passage, that students know about the Netherlands and Ecuador to add to the diagram on the board.

B. Summarizing: Activity B requires students to create another Venn diagram based on information from a paragraph about two types of rose plants. Encourage students to also refer to the photos of the two plants on pages 104 and 105 of the Student Book. Remind them to add headings to each circle of the Venn diagram before they start to make notes. Have students do activity B individually. Then check answers as a class. For each piece of information, elicit the line in the paragraph where they found it.

Vocabulary Practice

A. Completion: This paragraph details the complex process of shipping flowers internationally. Have students do activity A individually. Check answers as a class.

- Question 4: Most countries *export* items they produce and *import* those that they don't produce themselves. Ask students about exports and imports from their home countries.
- Question 5: The verb *handle*, as used in the reading passage, means "to deal with," "manage," or "trade in something." It can also mean to touch something or move it with your hands.

B. Words in Context: Have students do activity B individually. Check answers as a class. A person or a thing can *dominate* something else; for example: *a team can dominate a game, or a product can dominate the market*. A person can *invest* time, effort, or money in something.

C. Word Link: Have students do activity C individually. Check answers as a class. Although *enjoy* and *like* are synonyms, *enjoyable* describes something that gives pleasure, and *likeable* refers to something that is easy to like.

LESSON OVERVIEW

Target Vocabulary: *attitude, authority, budget, celebrity, derive, distinctively, emphasis, guard, obtain, profits*

Reading Passage Summary: Marketing and selling a bottle of perfume is more than just finding a way to sell a pleasant scent. Perfume companies spend a lot of money identifying a message that will make people buy their product. The name and bottle design are very important elements of marketing, too—the perfume needs to stand out as something special to set it apart from all the other fragrances. When there are so many different perfumes to choose from, perfume companies often use a celebrity name and a unique design to compete in the world market.

Answer Key

Before You Read

A. 1. b; 2. a; 3. c

B. Possible answer(s): They show celebrities in their advertisements to make people want to buy the perfume. They design bottles that have attractive colors and evoke certain moods.

Reading Comprehension

A. 1. a; 2. c (Para C); 3. a; 4. b (Para E); 5. a (Para G)

B. 1. emotions; 2. memories; 3. smartly; 4. bottles; 5. celebrities

Reading Skill

A. aroma, scent

B. negative

C. 1. display; 2. popular; 3. cost

Critical Thinking

Possible answer(s): **Target customer:** female, aged 20–30; **Name of perfume or cologne:** Success; **Bottle shape / color:** slim light-blue bottle; **Celebrity:** Keira Knightley; **Other marketing ideas:** ads show female professional at the office and relaxing at home with friends, to focus on the fact that she is successful at work and at home.

Vocabulary Practice

A. 1. obtain; 2. distinctive; 3. budget; 4. profits; 5. derived

B. 1. a; 2. b; 3. b; 4. a; 5. a

C. 1. smell; 2. pattern; 3. feature

TEACHING NOTES

Before You Read



A. Definitions: If something *stands out*, it is easily seen or noticed. Companies want their products to stand out so people will buy them. Have students do activity A individually and then check answers in pairs.

B. Discussion: Ask what students think about the photo on the bottom left. Why would Chanel use this woman in their ad? Have students work in pairs to come up with some ideas on the methods used by perfume companies. Ask them to support their opinions with reasons and examples.

Reading Comprehension



A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 3: *Run through* is a phrasal verb that has several meanings. In this context, it means “to use up” or “finish.” *Run through* can also mean “to practice” or “rehearse” (i.e., a play or a script).
- Question 4: Paragraph E talks about how important presentation is in selling perfume. The author compares perfume bottles to famous works of art. We can infer that the bottles are well guarded because it gives the impression they are very important and highly valuable. This impression makes people want to buy them.

B. Summarizing: Have students read the summary and use context clues to help them complete it. Check answers in pairs. The answers can be found in the reading passage. To dress *smartly* is to dress in style or the latest fashion.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Recognizing and Understanding Synonyms**. Explain that synonyms don't always have exactly the same meaning, but usually a very similar meaning. For example, a *smell* can be pleasant or unpleasant, but a *fragrance* is only a pleasant smell.

A. Recognizing Synonyms: Have students do activity A individually. Have them list synonyms of *smell* with a positive meaning (*scent, aroma*); they may have already done so in the Unit Opener. Encourage them to go back to paragraph B in the reading passage and see how the words are used in a sentence.

B. Understanding Synonyms: Have students do activity B individually. Check answers as a class. Point out that in activity A they talked about synonyms of *smell* with a positive meaning. Here, the words have a negative meaning. Discuss different contexts you could use these words in; for example, trash, rotten fish, and so forth.

C. Recognizing Synonyms: Have students do activity C individually and then check answers in pairs. The word *present* can be a noun or a verb, and the context determines the part of speech. Here, *present* is a verb. Point out the different stress pattern between the verb (preSENT) and the noun (PREsent).

Critical Thinking

Check that students understand what *target customer* means. Have students consider what aspects would be important when trying to sell a new perfume. Have them look back at the passage for ideas and then brainstorm in small groups what ways would be most effective to market the product. Point out that fragrance for women is called *perfume* and fragrance for men is called *cologne*.

Vocabulary Practice

A. Completion: This paragraph is about ambergris, a material commonly used in perfumes. Have students do activity A individually and then check answers in pairs. The verb *derive* means to obtain something from a specific source. A *distinctive* aroma is a smell that is very easy to identify.

B. Words in Context: Have students do activity B individually. Check answers as a class. The word *guard* can be a verb or a noun. Here, it's used as a verb to mean "to protect." *Emphasis* means extra focus or stress on something.

C. Collocations: The adjective *distinctive* is often used to describe something you see, smell, or hear (a distinctive taste, a distinctive sound, etc.). Refer students back to *distinctive aroma* in activity A.



Video Summary: The video shows three people who work in the flower industry in Ecuador being interviewed about: 1) how many flowers are exported to the United States; 2) job creation in the industry; and 3) the positive change the flower industry has brought to Ecuador.

Key Vocabulary: *employment, operate, wages*

Answer Key

Before You Watch

A. 1. a; 2. c; 3. b

- B. 1.** Possible answer(s): The climate is almost perfect for growing flowers. (Para D)
2. The roses have large heads and long, straight stems.

While You Watch

A. 1. c; 2. b; 3. a

B. 1. 100; 2. 25; 3. 60,000; 4. 50

Critical Thinking

Possible answer(s): Buying from a small company helps support local businesses, but it would be more expensive than buying from an international company. Buying from a medium-size company based overseas means that you may not be able to see the flowers in person before buying them. However, they are cheap, and the company operates by fair trade rules. Buying from a large company may be cheaper than buying from a local one, but the flower quality is not as good.

TEACHING NOTES

Before You Watch

A. Previewing: Ask students to read the information and think about the meaning of the words in bold. Point out the parts of speech for each word. Have them do activity A and then check their answers in pairs.

B. Discussion: Have students form pairs and close their books. Ask them to list all the facts they can about the flower industry in Ecuador. Have students discuss the questions (1–2) in pairs. If time allows, have pairs share their ideas with the class.

While You Watch

A. Gist: Have students read the descriptions (a–c). Then play the video and have students do activity A. Check answers as a class.

B. Completion: Play the video again and have students do activity B. Check answers as a class.

Critical Thinking

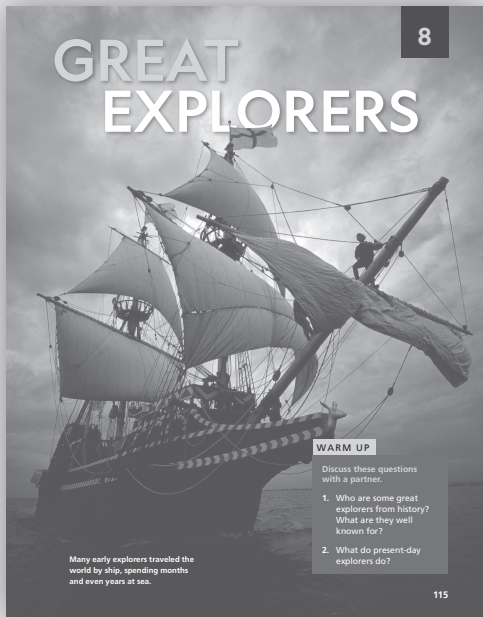
Have students form small groups to brainstorm the positive and negative effects of the international flower trade. If they need more ideas, refer students back to Reading A, paragraphs D and E, for some examples of the negative impacts on small local flower companies. Then have them read the information in the box and decide which roses they would buy. Remind them to think about why they made their choices. If time allows, have pairs share their choices and reasons with the class.

Vocabulary Review

Have students work alone to check their understanding of the unit's target vocabulary. If time allows, have students write an example sentence with each word. Ask for volunteers to read their completed sentences aloud to the class.

Additional vocabulary practice questions are available for download on the *Reading Explorer* website.

GREAT EXPLORERS



UNIT INTRODUCTION

This unit focuses on how two great explorers from the past recorded their adventures for people to read. In “An Incredible Journey,” students read about Marco Polo and his 9,000-kilometer journey from Italy to Asia to visit Kublai Khan. In “The Travels of Ibn Battuta,” students read about Ibn Battuta’s journey through 44 countries over three decades.

Visit the *Reading Explorer* website to download supplementary worksheets for this unit.

Key Words for Internet Research: *explorers, Marco Polo, Kublai Khan, Silk Road, Ibn Battuta, Mecca, Sultan of Morocco*

WARM UP

Answer Key

Possible answer(s):

1. Marco Polo (traveling from Italy to China, visiting Kublai Khan); Christopher Columbus (sailing to the Americas); Ferdinand Magellan (expedition to the East Indies and journeyed around the Earth); Zheng He (establishing Chinese trade).
2. They might explore the ocean floor, remote jungles where few humans live (such as parts of the Amazon rain forest and Indonesian jungles), and even outer space.

TEACHING NOTES

Humans have always been interested in exploration, even as far back as the 14th century B.C.

- Read aloud the Unit Title as students look at the photo. Make sure they understand the meaning of *explorer*. The adjective *great* can mean “above average,” “wonderful,” or “very big.” Which meaning do students think best fits here? Have students work in pairs and discuss what they see and how the picture makes them feel.
- Have students discuss the questions in the Warm Up box in pairs, and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *admire, consider, informal, journal, objective, observation, perceive, permission, undertake, voyage*

Reading Passage Summary: Marco Polo was born in Venice, Italy, in 1254 into a family of wealth and prestige. As a merchant, he traveled across Asia at the height of the Mongol Empire, along what later became known as the Silk Road. He finally reached China and stayed with the powerful Mongol ruler Kublai Khan for 17 years, before returning home to Venice. He was captured in battle upon his return and jailed, where he wrote his famous book *The Travels of Marco Polo*, which became the greatest contribution to geographical knowledge of China at that time.

Critical Thinking

Possible answer(s): I think Marco Polo gained more from the visit to Kublai Khan because he learned so much about technology and different ways of doing things.

Vocabulary Practice

- A. 1. objective; 2. perceive; 3. observations; 4. permission; 5. informal
- B. 1. voyage; 2. journal; 3. undertake; 4. admire; 5. considered
- C. 1. admirable; 2. observe; 3. observations; 4. admirer

Answer Key

Before You Read

- A. 1. Marco Polo started and finished his trip in Venice. They took three and a half years to travel to China and stayed there for 17 years. They took roughly another three and a half years to journey to Venice, so they traveled for 24 years. 2. Singapore, Suzhou, Beijing, Hangzhou; 3. He visited the Middle East, Pakistan, India, and many parts of China. Students' knowledge of the places will vary.
- B. Possible answer(s): The Polos might have been trying to earn money or valuable materials to sell. The passage tells us that Marco Polo traveled to China to meet and work for the powerful Mongol leader Kublai Khan.

Reading Comprehension

- A. 1. b; 2. b (Para A); 3. c (Para D); 4. c (Para D); 5. a
- B. f, e, d, b, c, a

Reading Skill

- A. 1. teenager; 2. 9,000; 3. 17; 4. Kublai Khan; 5. Europeans; 6. Beijing; 7. messaging; 8. paper; 9. book

TEACHING NOTES

Before You Read 

A. Reading Maps: Have students look over the map and read the captions and then do activity A individually. Check answers as a class. Ask students to share any information they know about the places where Marco Polo traveled. Note that the historical names of places are in parentheses on the map.

B. Predicting: Ask students to discuss in pairs reasons why Polo would have wanted to travel for such a long time. Then ask them to share their ideas with the class. The reading passage explains that Polo spent his time in China on missions for the Mongol leader Kublai Khan. It can be inferred that he also traveled to explore, to learn new things, and to have new experiences.

Reading Comprehension 

A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 1: The focus of the reading passage is about the importance of his travels and what he discovered there. Marco Polo described China's advancements such as asbestos cloth, coal, paper money, and a fast and simple messaging system.
- Question 4: This new technology showed Marco Polo that the East was making great advances in technology. Because this technology was "new" to Marco Polo, one can infer that the West had never used these methods and was, indeed, far behind the East in these areas of technology.

B. Sequencing: Remind students that they learned about sequencing in the reading skill section from Unit 3A. If necessary, have students turn back to that section of the Student Book and review this skill again. Explain again that time clauses are used to show us the order of events. Ask students to find the information in the reading passage and decide the correct sequence using time clauses, such as *while*, *already*, *finally*, *after*. Have students do activity B, and then check answers as a class. For each sentence, elicit the word that shows the time relationship. Make sure students understand that Niccolò and Maffeo had already visited Kublai Khan years before Marco Polo. This event happened first, even though the information doesn't appear until paragraph B.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Taking Notes on a Reading (1)**. Level 2 *Reading Explorer* teaches students three different ways of taking notes while they read. This unit focuses on note-taking strategies such as using abbreviations. Explain that taking good notes helps readers stay focused and organize the information as they read. Go over the structure of note-taking and the use

of abbreviations. Point out that students can come up with their own abbreviations—whatever makes sense to them.

A. Taking Notes: Have students do activity A and then check answers in pairs.

Critical Thinking

In small groups, have students discuss what Marco Polo gained from his visit to China, and what Kublai Khan gained from Marco Polo's visit to China. Have them share ideas with the class. Explain that although Marco Polo's travel journal about his adventures in China is one of the most famous travel stories in history, there does not seem to be any Mongol text from that time period that mentions Marco Polo and the influence he had in China. Polo's book influenced many future European explorers, including Christopher Columbus. It seems that his experiences had a far-reaching effect in the West.

Vocabulary Practice

A. Definitions: Have students do activity A individually and then check answers as a class. The verb *perceive* as used in the activity means "to become aware of something, usually using the senses of sight, smell, or touch." The noun form of *perceive* is "perception."

B. Completion: This paragraph is about Marco Polo's journey home to Venice and the perils he encountered on the way. Have students do activity B individually and then check answers as a class. When someone *undertakes a task* or *project*, he or she commits to it and promises to do it.

C. Word Forms: Have students read the word forms in the box. Point out the endings are the same for *observe* and *admire*, depending on the part of speech. An *admirable* quality is one you like in someone else.

LESSON OVERVIEW

Target Vocabulary: *abandon, belongings, consent, finance, intention, misfortune, prior, regard, translate, wisdom*

Reading Passage Summary: Ibn Battuta is considered by many to be one of history's great travelers. He was born in 1304 in Morocco and traveled widely throughout Asia and Africa in the 14th century. Ibn Battuta was driven by curiosity and a thirst for knowledge, starting his journey in Mecca and traveling through India and China before being summoned back home by the Sultan of Morocco to share his knowledge and wisdom with the world. Ibn Battuta wrote a book about his adventures, which has been enjoyed by people around the world.

Answer Key

Before You Read

A. Guesses will vary. Actual answers are:
1. Ibn Battuta; **2.** He traveled through 44 modern countries; **3.** 29–30 years

Reading Comprehension

A. 1. b; **2.** a (Para D); **3.** a; **4.** c (Para E);
5. c (Para B)

B. 1. Paris; **2.** a square, hotel, café;
3. several years; **4.** a sudden storm

Reading Skill

A. 1. Mecca; **2.** some parts of the world;
3. 29–30; **4.** 44; **5.** India; **6.** Delhi; **7.** ships;
8. belongings

Critical Thinking

Possible answer(s): Mahatma Gandhi (1869–1948); Christopher Columbus (1451–1506); Confucius (551–479 BC)

Vocabulary Practice

A. 1. regarded; **2.** intention; **3.** misfortunes;
4. prior
B. 1. translated; **2.** financed; **3.** consented;
4. wisdom; **5.** abandoned; **6.** belongings
C. 1. spelled; **2.** placed; **3.** behaved; **4.** heard

TEACHING NOTES

Before You Read



A. Reading Maps: Have students look over the map and read the questions (1–3). For Question 1, encourage students to go back to the map of Marco Polo's travels to compare their routes. Remind them that they are only making guesses based on the information in the map.

B. Scanning: Remind students that scanning is a useful reading skill when they need to find specific information. Have students do activity B individually. Then check answers as a class. Elicit any background information that students know about the explorer Ibn Battuta.

Reading Comprehension



A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 1: An *adventurer* is a person who travels in search of great experiences, which describes Ibn Battuta.
- Question 5: In paragraph B, the author writes *little celebrated* which means that people in some places in the world don't know who he was. The word *yet* is used to contrast that with the fact that he is celebrated and well-known in the Arab world.

B. Scanning: Have students read the questions (1–4) for important details and then scan the reading passage for the answers. Have students do activity B individually and then check answers in pairs.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Taking Notes on a Reading (2)—Using a Concept Map**. Remind students that they have already learned about this concept. Review what they learned about organization in **Taking Notes on a Reading (1)** in Reading 8A. Then point out the features of a concept map, including the circles, notes, and lines.

A. Taking Notes: Have students do activity A individually. Check answers as a class. Have students discuss which method of note-taking they prefer, and why.

Critical Thinking

As a class, discuss what information students should look for when doing research on the life of the famous historical person they have chosen (when they lived, where they were born, what their achievements were, why they became famous, etc.). Write their ideas on the board so students can use them as they create their concept map. Have students create a concept map individually and then compare notes in pairs. If time allows, group students who have chosen the same historical figure, and have groups share their notes and concept maps with the class.

Vocabulary Practice

A. Definitions: This paragraph is about Ibn Battuta’s final journey home and his humorous encounter with the new king of Mali. Have students do activity A and then check answers in pairs. A *misfortune* is usually considered to be an unlucky circumstance that a person did not have control over, such as an accident or an illness. A very bad misfortune is called a *tragedy*. *Prior* means “before.”

B. Completion: Have students do activity B. Check answers as a class. To *finance* something means to provide the money for it to happen. To *consent* to something means to allow it to happen.

C. Word Parts: Make sure students know how the prefix *mis-* changes the meaning of each base word in the box. Have students do activity C and check answers in pairs.



Video Summary: The video explores Marco Polo's legendary journey to China. Some inaccuracies in Marco Polo's book have made some historians question the integrity of his statements, while others believe certain details in his book prove that his journey was true.

Key Vocabulary: *banquet, excavate, formidable, province*

Answer Key

Before You Watch

A. 1. d; 2. c; 3. b; 4. a

B. Possible answer(s): One of the reasons historians don't believe Polo actually visited China is that already-existing timelines don't match Marco Polo's records, and that puts the information he provided in doubt.

While You Watch

A. b (fellow prisoner); c (1271 AD); e (vast halls)

B. a. A (1268); **b.** A (fish with fur); **c.** F (coal); **d.** F (summer palace)

Critical Thinking

- ▶ Possible answer(s): I think that the argument is stronger that Marco Polo did visit China. His book has a lot of specific details that could not have been made up. Also, when writing his record of the battle, it's possible that he didn't know exactly what year it was, especially if he had been traveling for such a long time.
- ▶ Possible answer(s): I think the reading is written as fact, so the author must believe that Marco Polo really did visit China.

B. Predicting: Have students brainstorm some ideas on why historians may not believe that Marco Polo actually visited China. Have them compare their ideas in pairs.

While You Watch

A. Gist: Have students read the questions (a–f). Then play the video and have students do activity A. Check answers as a class.

B. Detail: Have students read the descriptions (a–d) before watching the video. Then play the video again and have students do activity B. Check answers as a class and ask students to give evidence for each answer.

Critical Thinking

- ▶ Have students decide which argument is stronger. Then have them work in pairs to make a list of supporting evidence.
- ▶ Have students look at Reading A again. Point out that the video gives a balanced argument, but the reading passage presents Marco Polo's travels as fact, and does not mention that it may not be true. If time allows, have students form groups and use their ideas to argue for and against the claim that Polo visited China.

Vocabulary Review

Have students work alone to check their understanding of the unit's target vocabulary. If time allows, have students write an example sentence with each word. Ask for volunteers to read their completed sentences aloud to the class.

Additional vocabulary practice questions are available for download on the *Reading Explorer* website.

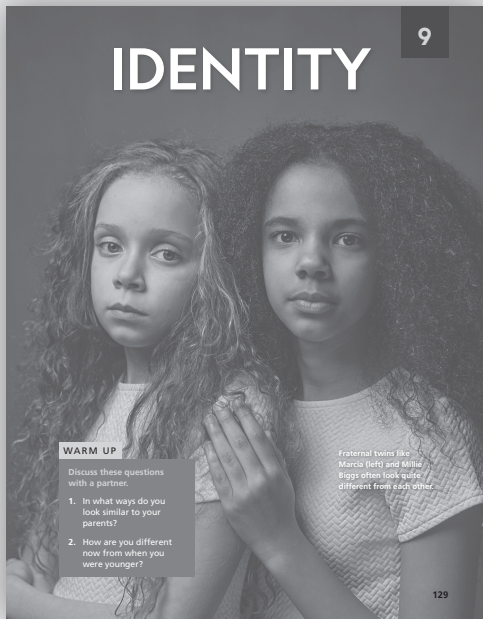
TEACHING NOTES

Before You Watch

A. Previewing: Have students read the extracts in quotation marks and the words in bold (1–4). Have them do activity A individually. Then have them use a dictionary to check their answers.

IDENTITY

9



UNIT INTRODUCTION

This unit focuses on our identity by concentrating on how our brains change throughout adolescence and the role genetics plays in forming our personalities. In “The Teenage Brain,” students read about how changes in the brain are responsible for teenagers acting in different ways from adults. In “Seeing Double,” students read about a study into how much genetics and environment affects intelligence and personality. A set of identical twins were separated at a young age and later reunited, with surprisingly similar personalities and IQ.

Visit the *Reading Explorer* website to download supplementary worksheets for this unit.

Key Words for Internet Research: *adolescent brain, genetics and intelligence, teenage behavior, teenage brain, teenage social connections, identical twins, Thomas Bouchard Jr., twins, geneticist*

WARM UP

Answer Key

Possible answer(s):

1. I am similar to my mother because we have the same color hair and we are both short. I'm like my dad because we both have blue eyes.
2. When I was young, I had blond hair and was very skinny. Now my hair is dark, and I've put on a lot of weight! I used to love sports, and now I don't really do much anymore. My interests have changed a lot over the years.

TEACHING NOTES

Amanda and Michael Biggs are a biracial couple in Birmingham, England, who had twin girls on July 3, 2006. Marcia had light brown hair and fair skin like her mother. Millie had black hair and brown skin like her father.

- Read aloud the Unit Title and the caption as students look at the photo. Explain the words *fraternal twins*.
- Have students discuss the questions in the Warm Up box in pairs, and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *conclude, deal with, excitement, go through, intense, pleasure, realize, reward, risk, upgrade*

Reading Passage Summary: The teenage brain measures risk and reward differently from an adult’s brain, which causes them to think less about consequences. Teenagers usually take more risks and spend more time socializing with friends—it is believed that having a wide circle of friends will make young people more successful in life.

Answer Key

Before You Read

A. 1. c; 2. a; 3. b

B. Possible answer(s): I think a person’s brain probably finishes developing by the time they are 17 or 18. (Actual answer: Our brains continue to change until age 25.)

Reading Comprehension

A. 1. b; 2. b (Para B); 3. b; 4. a; 5. a

B. 1. brain-imaging; 2. six; 3. computer system; 4. 25; 5. adult; 6. wide circle; 7. parents’ care

Reading Skill

A. 1. Recently, scientists discovered that though our brains are almost at their full size by the age of six, they are far from fully developed. (Para B) **2.** Now, scientists have concluded that our brains continue to change until age 25. (Para B) **3.** However, a still-developing brain does this clumsily. The result, scientists claim, is the unpredictable behavior seen in teenagers. (Para B) **4.** The studies confirm that teens are more likely to take risks and behave in extreme ways. (Para C) **5.** Researchers believe this makes the rewards seem more important than the risks, and makes teens feel the excitement of new experiences more keenly than adults do. (Para D) **6.** The scientists’ findings suggest that

in the long run, the impulses of the teen brain are what help teens leave their parents’ care and live their own lives successfully. (Para F)

B. 1. discovered, H; 2. concluded, H; 3. claim, L; 4. confirm, H; 5. believe, L; 6. suggest, L

Critical Thinking

Possible answer(s): Someone in their 30s will probably take fewer risks because they will be more aware of their responsibilities. For example, someone with children might be less likely to go skydiving or travel to a dangerous place than a teenager because they feel responsible for their children. They would feel like they need to be safe so that they can continue to provide for their children.

Vocabulary Practice

A. 1. risk; 2. realize; 3. rewards; 4. deal with; 5. concluded

B. 1. b; 2. b; 3. a; 4. a; 5. a

C. go over = review; go on = continue; go for = choose; go ahead = start

TEACHING NOTES

Before You Read



A. Definitions: Have students read the caption and the words (1–3) in activity A. Ask them to guess the meaning of the words by using context. Have them do activity A individually. Then check answers as a class. Discuss the caption about the teenage brain and ask for any personal examples of wild teenage behavior. Explain the meaning of the phrasal verb *seek out*.

B. Predicting: Tell students to guess the age at which they think a brain stops developing based on their own knowledge and experience. Have students share their predictions in pairs or with the class. Then have students scan the passage to check their answers.

Reading Comprehension

A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 2: Paragraph B states that brain changes are good because they help us balance our impulses with the need to follow rules. But an adolescent's brain is still developing and balances impulses clumsily, so it is not better at following rules than an adult's brain.
- Question 5: The focus of paragraph F is on the brain, rather than on friendships (Para E) or parents.

B. Summarizing: Have students do activity B individually and then check answers in pairs. If time allows, have them summarize each statement in their own words.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph **Understanding Claims**. Explain that a claim is a statement of truth; the person making the claim believes it is true. However, some claims are stronger than others. A claim based on evidence, for example, is strong. A claim based only on the belief of the speaker is not strong. The verb that an author uses when presenting a claim tells us how strong the claim is.

A. Scanning: Have students do activity A individually. Then check answers as a class.

B. Understanding Claims: Have students do activity B individually and then check answers as a class. In Question 4, the verb *confirm*, meaning "to establish the truth," is used.

Critical Thinking

In groups, have students consider different age groups and discuss what life stage each group is in (e.g., 25–35 year olds are just starting their careers; 30–40 year olds may be getting married/having children/buying a home; 50–60 year olds may have children leaving home; 60–70 year olds are thinking about retirement; 70-plus may be enjoying their golden years by traveling/spending time with grandchildren, etc.). Have pairs discuss the question by contrasting teenagers to adults at various ages.

Vocabulary Practice

A. Completion: This paragraph is about an experiment by Laurence Steinberg on how social rewards can lead teens to take more risk. Have students do activity A individually and then check answers in pairs. To *realize* something means to understand it clearly. The noun *reward* refers to something you get for doing something. A reward is usually positive. The phrasal verb *deal with* is a synonym for *handle*, which was a vocabulary word in Unit 7A. It can also mean "to take care of" or "to be in charge of."

B. Words in Context: Have students do activity B individually. Check answers as a class. Something that gives *pleasure* is positive because it makes you feel happy and good. *Upgraded* is usually used to describe a new version of technology; for example, a computer or software upgrade. When something is upgraded, it is improved or made to be more efficient.

C. Word Web: Have students think about all the phrasal verbs they know with *go* before reading the prepositions in the box. Have them discuss the meanings in pairs before looking at the definitions in the word web. Have students do activity C individually and then compare answers in pairs.

LESSON OVERVIEW

Target Vocabulary: *admit, adopt, boundary, coincidence, colleague, divorce, genetic, raise, severe, tell apart*

Reading Passage Summary: The Jim twins were separated and adopted by different families when they were three weeks old, but they rediscovered each other in 1979 at age 39. Thomas Bouchard Jr., a psychologist who studies twins, heard the story and brought them into his lab for testing. What he found was staggering—they had similar names, similar interests, and similar histories. The research that came from this study indicates that characteristics such as personality and intelligence are primarily related to genes—instead of the environment.

Answer Key

Before You Read

- A. 1. in common; 2. IQ; 3. identical; 4. genes
- B. They looked alike. They were both the same height and weight. They had the same smile and voice. Also, they both had named their dogs Toy, both had married and divorced women named Linda, both had had the same job (sheriff), “enjoyed making things with wood,” both got bad headaches, and both liked to leave love notes for their wives.

Reading Comprehension

- A. 1. b; 2. a (Para A); 3. c; 4. a (Para D); 5. c
- B. 1. d; 2. e; 3. c; 4. b; 5. a

Reading Skill

- A. 1. Yes; 2. No; 3. Yes; 4. No; 5. Yes
- B. Possible answer(s): 1. probably not; 2. probably; 3. probably; 4. probably

Critical Thinking

Possible answer(s): 1. Studies like this are not very common because there probably aren’t many sets of older twins that have been separated. 2. They probably grew up in different environments because the article makes a point to say that environment might not play such a big role in similarities after all. 3. Geneticists probably

often study identical twins because their DNA is the same. 4. The similarities were probably coincidences because things like the dogs’ name and the wives’ name do not have anything to do with genetics.

Vocabulary Practice

- A. 1. adopted; 2. admitted; 3. apart; 4. coincidences; 5. Raised
- B. 1. others in your family; 2. a lot; 3. edges; 4. married; 5. work
- C. 1. problem; 2. injuries; 3. weather; 4. headache

TEACHING NOTES

Before You Read 

A. Definitions: Tell students to look at the words in context to understand their meanings. Have them do activity A individually. Check answers as a class. Ask students what things they all have *in common* (learning English, living in the same country, etc.). Explain that twins can be *identical or fraternal*.

B. Predicting: Have students do activity B individually. Ask them to write a list of their predictions. Students will likely first think about common physical features. Encourage them to guess what aspects of personality that the twins might have in common. Then have them read the reading passage to check their predictions.

Reading Comprehension 

A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 1: Paragraph 1 ends with the main idea of the passage, which is that scientists now think genetics has more influence on who we are.

- Question 2: In paragraph A, the words *once believed*, *while*, and *but* are clues to the answer. These words are used to say that scientists used to believe similarities were due to genetics, and personalities were due to the environment. However, scientists are now changing these ideas.

B. Summarizing: Have students read the words (a–f) and check meaning. Have them do activity B individually and then check answers in pairs.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Making Inferences**. Explain that “reading between the lines” refers to understanding what is not being said directly by the author. Students should use their background knowledge and common sense when inferring.

A. Making Inferences: Have students do activity A individually. Check answers as a class by going over each inference and eliciting the reason why it is a valid inference or not.

- Question 1 can be inferred because the Jim twins like the same things.
- Question 3 can be inferred because Bouchard gave the twins a test and then compared their IQ scores. Common sense tells us that the test was an IQ test.
- Question 5 can be inferred because Bouchard’s team reached a conclusion. That conclusion was based on 137 sets of separated twins, so the results must have been similar for most of the twins.

B. Making Inferences: Explain that, for activity B, students need to use inference to understand general meaning, instead of specific details as in activity A. They should use their own knowledge as well as what they read in the passage. Have

students do activity B individually and then check answers as a class. Remind students that there are no right or wrong answers for the activity. However, they should be able to justify their opinions.

Critical Thinking

Have students work in pairs to discuss how they came to their opinion for each question (1–4) in activity B. Have them say what information from the reading passage informed their decision.

Vocabulary Practice

A. Completion: This paragraph is about another pair of separated twins who found each other as adults. Have students do activity A and then check answers in pairs. The verb *admit* means “to confess that something is true.” It is also used to confess to doing something wrong. Another meaning of *admit* is the action of checking in, as in at a hospital. *Adopt* is the process of legally taking in a child that is not your biological offspring. Adoption may be a topic that requires some extra sensitivity when being discussed. This is also true of *divorce* in activity B. If time allows, ask students to describe the story of the two sisters in their own words. Ask for their thoughts on how the sisters must have felt when they found out about each other.

B. Definitions: Have students do activity B individually. Check answers as a class. A *boundary* can be physical (i.e., something you can see) or imaginary (i.e., an emotional wall).

Challenge: Write the following question on the board: *How would you feel if you found out you had been separated from your identical twin at a young age?* Have students discuss the question in small groups and then share their ideas with the class.

C. Collocations: Students learned the adjective *intense* in Unit 9A, which is a synonym for *severe*. *Severe* is usually used when there is a strong negative impact. Have students do activity C and check answers in pairs.



Video Summary: The video shows a presenter talking to a group of people who participated in the National Geographic Genographic Project. The Genographic Project is an effort by National Geographic to collect as much human DNA as possible to learn about our ancestors and our genetic journey to the present day. So far, over 600,000 people have participated in the project in which a person's DNA sample is taken, tested, and then analyzed to find ancestral genes. The aim of the project is to learn more about our genetic past in order to understand more about our present world. The people find out that we're all more connected than we may imagine.

Key Vocabulary: *ancestors, DNA, participant*

Answer Key

Before You Watch

- A. 1.** Possible answer(s): People in my country might have originally come from Africa.
2. Possible answer(s): Some benefits could be learning more about genetic diseases and making more medical discoveries to improve our quality of life.

While You Watch

- A. 1.** their ancestors came from; **2.** back; **3.** Africa
B. 1. the Americas; **2.** Europe; **3.** East & South Asia; **4.** the Middle East; **5.** Africa

Critical Thinking

Possible answer(s): I learned that the human race is genetically one big family, and so the problems humans have with getting along are similar to the problems any family experiences. It is surprising to think that we all have the same genetic roots.

TEACHING NOTES

Before You Watch

A. Discussion: Have students read the paragraph and look at the photos. Have them discuss the title "The Global Village" and what they think it means. Have students do activity A individually and then share answers and ideas with the class.

While You Watch

A. Gist: Have students read the sentences (1–3). Then play the video and have students do activity A. Check answers as a class.

B. Completion: Have students read the sentences in the bubbles. Then play the video again and have students do activity B. Check answers as a class.

Critical Thinking

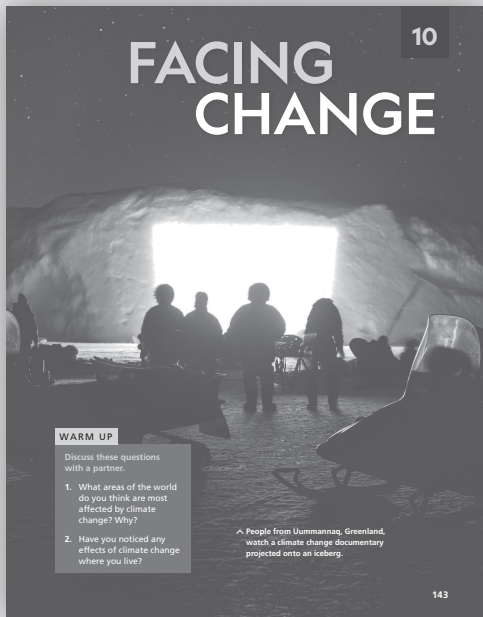
Have students work in pairs. If time allows, play the video again and allow pairs to make notes on new and/or surprising information. Then have pairs share with the class.

Vocabulary Review

Have students work alone to check their understanding of the unit's target vocabulary. If time allows, have students write an example sentence with each word. Ask for volunteers to read their completed sentences aloud to the class.

Additional vocabulary practice questions are available for download on the *Reading Explorer* website.

FACING CHANGE



UNIT INTRODUCTION

This unit focuses on climate change and how the planet is changing as a result of rising temperatures and thawing ice. In “The Big Thaw,” students read about the effects of global warming and learn why scientists are becoming increasingly concerned for the health of our planet. In “Life on the Edge,” students read about the instability of a town in Greenland and find out what its residents are doing as a result of climate change.

Visit the *Reading Explorer* website to download supplementary worksheets for this unit.

Key Words for Internet Research: *Chacaltaya, global warming, climate change, glacier melt, Greenland, Jakobshavn Isbræ, “Before the Flood” documentary, Uummannaq, Niaqornat, ice loss*

WARM UP

Answer Key

Possible answer(s):

1. I think areas near the Arctic Circle are the most affected by climate change because the ice is melting at an increasingly faster rate.
2. I’ve noticed that the summers are hotter and the winters are colder where I live. Storms are getting stronger, too.

TEACHING NOTES

Greenland, located in the North Atlantic Ocean, is the world’s largest island. Two-thirds of the island lie in the Arctic Circle, and 80 percent of Greenland is covered by ice caps and glaciers. Last century,

scientists began to notice that Greenland’s vast ice sheet was shrinking, and, over the years, scientific data has shown that global warming is the reason.

- Read aloud the Unit Title. Have students look at the photo, and ask them what they think the people are looking at.
- Read aloud the caption and explain the words *climate change*, *documentary*, and *projected*. The people in the photo are watching a documentary about the effect of climate change projected onto an iceberg.
- Have students discuss the questions in the Warm Up box in pairs, and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *absorb, consequence, crack, critical, exceed, host, shift, slide, terrifying, unexpected*

Reading Passage Summary: The Earth is a living planet, and its climate has changed dramatically throughout its history. However, the climate change we see now—the complex shifts affecting our planet’s weather and climate systems—is happening much faster now than ever before. Most scientists today agree that this is due to human activity, which is releasing too much carbon dioxide and other human-made emissions into the atmosphere. Glaciers are retreating everywhere—including in the Alps, the Himalayas, the Andes, the Rockies, Alaska, and Africa. Humans need to act now to slow down climate change—the fate of our planet hangs in the balance.

Answer Key

Before You Read

- A. 1.** 1960, 2014; **2.** 1.5 degrees Fahrenheit (0.83 degrees Celsius); **3.** Antarctica, 15 degrees Fahrenheit
- B.** Chacaltaya (Bolivia), North and South Poles, Arctic Ocean, Greenland, Jakobshavn Isbræ, Antarctica, the Himalayas, the Andes, India, Bangladesh, Peru; The Arctic Ocean and Greenland have seen the greatest rise in temperature.

Reading Comprehension

- A. 1.** b; **2.** b; **3.** a (Para D); **4.** b (Para F); **5.** a
- B.** b > c > a > d > e

Reading Skill

- A. 1.** Ten years ago, scientists warned that the Arctic Ocean could lose all its ice in about a hundred years. Now, they think it could happen much sooner. **2.** In fact, the glacier is moving twice as fast as it was in 1995. **3.** For instance, water from melting ice runs down cracks in the surface and gets between the ice and rock below. **4.** If the ice sheet of Antarctica continues to melt at its current

rate, the next few centuries could see at least a two-meter rise in sea levels, forcing tens of millions of people out of their homes.

5. An increasing number of heat waves and droughts worldwide also suggests global warming is having an impact on humans right now, and that it could change the face of the world in the future. **6.** “We need to vote for leaders who understand the serious issues impacting our climate,” he says. “There is no issue this important—because the future of the planet is at stake.”

- B.** Possible answer(s): I don’t think the author provided enough supporting information in Question 1. The author mentioned “human activity” but did not give any concrete examples of what humans have done to cause the problem.

Critical Thinking

- Possible answer(s): **1.** When we eat or drink sugary foods, the sugar enters our blood and affects the parts of our brain that make us feel good. **2.** “Sugar, we believe, is one of the culprits, if not the major culprit,” says Johnson. **3.** From breakfast cereals to after-dinner desserts, our foods are increasingly filled with it. **4.** Many schools are replacing sugary desserts with healthier options, like fruit.
- Possible answer(s): **1.** I think this is very well supported because the passage says the sugar affects parts of our brain that make us feel good, then the feeling goes away, which leaves us wanting more. That sounds like the science behind an addiction. **2.** I don’t think this is well supported because there is no evidence that sugar causes high blood pressure and diabetes. The passage simply states it as fact. **3.** I think this is well supported because the passage says sugar is found in everything from breakfast cereals to after-dinner desserts. Sugar is also used to replace taste in foods with low fat. **4.** I think this is well supported because the passage says schools are serving healthier options, growing their own food, and providing ways for students to exercise more.

Vocabulary Practice

- A.** 1. absorbs; 2. consequence; 3. terrifying;
4. critical
- B.** 1. thin line; 2. surprise; 3. changes;
4. smoothly; 5. provide the facilities; 6. more
- C.** 1. gradual; 2. sudden; 3. major; 4. slight

TEACHING NOTES

Before You Read



- A. Interpreting Infographics:** Remind students that they learned about interpreting infographics in the reading skill section from Unit 5A. If necessary, have students turn back to that section of the Student Book and review this skill again. Point out the key at the lower left corner of the map. Make sure students recognize that the key gives more information about the purpose of the map. After students study the map and read the caption, have them do activity A. Check answers as a class, asking students to give evidence from the map.
- B. Scanning:** Have students do activity B individually and then check answers in pairs.

Reading Comprehension



- A. Multiple Choice:** Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.
- Question 4: If something is *at stake*, it is at risk. DiCaprio is saying that if we don't act now, the entire world could change for the worse.
- B. Cause and Effect:** Have students review paragraph A, focusing on the Chacaltaya glacier. Have students work in pairs to say what happens to cause each event. Remind them that they learned about cause and effect in the reading skill section from Unit 6A. If necessary, have students turn back to that section of the Student Book and review this skill again. Then have them do activity B individually. Check answers as a class.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill



Have students read the paragraph on **Identifying Supporting Information**. Supporting information can be details and examples that help support a claim.

- A. Identifying Supporting Details:** Have students do activity A individually and then check answers in pairs. If time allows, go over answers as a class and have volunteers share their answers.
- B. Analyzing:** Have students do activity B and then check answers as a class. For each claim, have them give supporting details to support their opinion.

Critical Thinking

- ▶ Refer students to Reading A in Unit 1. Have students work in pairs to locate each claim in the passage and then identify the supporting details.
- ▶ Have students discuss their ideas in pairs.

Vocabulary Practice



- A. Completion:** This paragraph is about how Arctic ice is quickly disappearing and why that is happening. Have students do activity A individually and then check answers as a class. When a situation is *critical*, it is at the point of crisis or disaster. Another meaning of *critical* describes a disapproving attitude. Ask students for some synonyms for *consequence*. They are already familiar with *effect* and *result*. Point out that *consequence* is often used to describe an unpleasant result.
- B. Definitions:** Have students do activity B individually, and then check answers as a class. The noun *crack* describes a line where the surface of something has broken open. The verb *crack* describes the action of that happening.
- C. Collocations:** Have students do activity C individually. *Gradual* means "slow," and *sudden* means "quick." *Major* means "a lot," and *slight* means "a little." Point out the word *only* in Question 4; it is a clue that the shift is small.

LESSON OVERVIEW

Target Vocabulary: *appeal, debate, economic, encourage, exception, gathering, give up, government, lifestyle, manage*

Reading Passage Summary: Uummannaq is a town in central west Greenland, founded in 1763. It has about 1,250 residents and is the second largest town on the island. In Greenlandic, the word *Uummannaq* means “heart-shaped,” which is a description of the nearby mountain that rises up to about 1,170 meters. The summers here are short, cool, and cloudy; and the winters are long, snowy, and overcast. The temperature typically ranges from -20° C to 11° C. In the summer, the sun is continuously above the horizon from mid-May to the end of July; in the winter, it doesn’t rise between mid-November to the end of January. The reading passage is about how climate change is affecting the daily lives of Uummannaq’s residents, and how many are leaving for the cities.

Answer Key

Before You Read

- A. 1.** in Greenland; Possible answer(s): It’s a small town of about 1,000 people. **2.** It’s an island in the summer. In the winter, the water freezes and it’s no longer an island. **3.** Possible answer(s): One effect of climate change is that sea levels are rising because the ice is melting.
- B.** Possible answer(s): I read that ice loss has shortened the hunting season, so people in Uummannaq are losing money.

Reading Comprehension

- A. 1.** a; **2.** a (Para A); **3.** b; **4.** a; **5.** b
B. 1. b (Para B); **2.** e (Para D); **3.** c (Para E);
4. a (Para E); **5.** d (Para B)

Reading Skill

- A.** D, E
B. 1. isolated; **2.** government; **3.** hunting;
4. fishing; **5.** job opportunities; **6.** city; **7.** Inuit hunting culture; **8.** (sustainable) future

Critical Thinking

- ▶ Possible answer(s): I think the argument against is stronger because I think people need to change with the times. Greenland is very different today than it was before, and people need to find new ways to earn a living.
- ▶ Possible answer(s): If I were a young resident of Uummannaq, I would leave because I would not want to be so isolated from the rest of the world.

Vocabulary Practice

- A. 1.** government; **2.** appealed; **3.** economic;
4. encouraged; **5.** lifestyle; **6.** give up
B. 1. d; **2.** a; **3.** b; **4.** c
C. 1. take; **2.** make; **3.** show; **4.** keep

TEACHING NOTES

Before You Read

A. Predicting: Have students look at the photo and read the caption. Point out that dog sleds and snowmobiles are used as a method of transportation. Have them do activity A in pairs. Make sure they understand that the view in the photo will change completely in the winter. Check answers as a class.

B. Previewing: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Have volunteers say whether their ideas from activity A, question 3 were mentioned in the reading passage.

Reading Comprehension

A. Multiple Choice: Have students do activity A based on what they remember, and then check answers as a class.

- Question 2: Paragraph A mentions that Løvstrøm wants to move to a larger town. This means that Uummannaq is not the largest.

- Question 3: *Ambition* is what motivates you—it's your dream in life.

B. Summarizing: Have students do activity B in pairs. Encourage them to do the activity based on what they remember. Check answers as a class.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Identifying Arguments For and Against an Issue**.

Tell students that a T-chart can be useful in summarizing reasons for and against an idea in order to identify and evaluate both sides of an argument.

A. Identifying Arguments: Have students do activity A individually, and then check answers as a class. Ask students to give evidence for their answers from the reading passage.

B. Understanding Arguments: Have students do activity B individually. Remind students to use up to three words for each blank. Remind students that this is a common question type in exams.

Critical Thinking

Have students look at the arguments for and against in the chart. Have them work in groups and brainstorm some ideas on whether people in Greenland should leave or stay. Encourage them to convince their group members that their argument makes the most sense.

Challenge: Have students work in groups to make a presentation about a disappearing tradition in their culture. Ask them to end their presentation with suggestions for how the tradition can be preserved.

Vocabulary Practice

A. Completion: This paragraph is about the effect climate change has on Arctic communities. Have students do activity A and then check answers in pairs. *Appeal* means to ask for help. Governments often appeal for foreign aid during times of crisis.

B. Definitions: Have students do activity B, and then check answers as a class.

C. Collocations: The preposition *up* is commonly used with phrasal verbs. *Take* (something) *up* means to start a new hobby, *make up* means to use one's imagination, *show up* means "to arrive," *keep up* means "to follow the latest fashions or trends."



Video Summary: The video provides information about why many sled dogs in Greenland are now unwanted. Sled dogs were traditionally used to pull sleds across ice, but nowadays there is less ice and the dogs aren't needed. They are expensive to keep and, as a result, they are not taken care of.

Key Vocabulary: *descended, expense, landscape, necessity*

Answer Key

Before You Watch

A. 1. costs; **2.** need; **3.** family that lived in the past; **4.** mountains and rivers

While You Watch

A. 1. an old; **2.** More; **3.** only slightly; **4.** the dogs sometimes bite; **5.** making new laws

B. 1. fisherman, team, solid ice; **2.** veterinarian, need help, take better care

TEACHING NOTES

Before You Watch

A. Previewing: Have students read the paragraph and use context clues to guess the meanings of the words in bold. *Landscape* is a general term and can describe any kind of natural feature, such as mountains, hills, forest, and so forth. Have students check answers in pairs.

While You Watch

A. Gist: Have students read the statements (1–5) before watching the video. Then play the video and have students do activity A. If necessary, pause after each piece of information is mentioned. Check answers as a class.

- Question 3: The video states that in Illulissat, there are 4,500 people and 4,000 dogs.

B. Summarizing: Check that students know who Finn Sistall and Marit Holm are. Play the video again and have students do activity B. Check answers as a class.

Critical Thinking

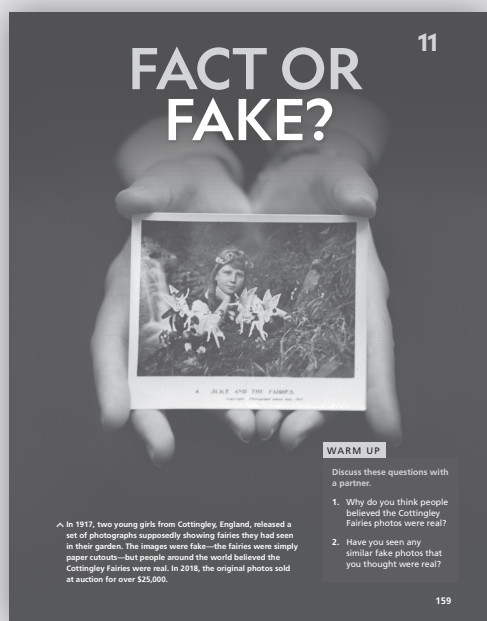
- ▶ Have students work in pairs and brainstorm a list of possible laws that the Greenland government could pass to help the sled dogs.
- ▶ Have students think about what happens to unwanted animals in their own country. Have them brainstorm what people do to help, and discuss if those ideas could be applied to Greenland's unwanted sled dogs. If time allows, have volunteers share their ideas with the class.

Vocabulary Review

Have students work alone to check their understanding of the unit's target vocabulary. If time allows, have students write an example sentence with each word. Ask for volunteers to read their completed sentences aloud to the class.

Additional vocabulary practice questions are available for download on the *Reading Explorer* website.

FACT OR FAKE?



UNIT INTRODUCTION

This unit focuses on how we figure out what is real and what is fake, and what we think is acceptable to lie about. In “The Knowledge Illusion,” students read about the importance of questioning what is presented as fact. In “The Limits of Lying,” students read about the extent to which most people feel comfortable lying.

Visit the *Reading Explorer* website to download supplementary worksheets for this unit.

Key Words for Internet Research: *Steve Sloman, fake news, Adam Waytz, Dan Ariely, study of lying, Matrix Experiments*

WARM UP

Answer Key

Possible answer(s):

1. I think people believed that fairies existed prior to the pictures, so they had an easy time believing the photos were real.
2. I once saw a photo of an alien that looked real.

TEACHING NOTES

The Cottingley Fairies photographs taken in 1917 are considered by many to be the greatest hoax of the 20th century. Elise Wright and Frances Griffiths,

ages 16 and 9, photographed themselves with paper cutouts of fairies, pretending the fairies were real. Many people were fooled, including members of the Theosophical Society and even Arthur Conan Doyle, the author of *Sherlock Holmes*. It wasn't until the early 1980s that the photographers finally admitted the pictures were fake.

- Read aloud the caption and ask students to discuss other well-known stories where people have claimed unlikely things to be true, such as the Loch Ness Monster or UFO sightings.
- Have students discuss the questions in the Warm Up box in pairs, and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *average, concept, encounter, experiment, individual, media, norm, rely on, researcher, volunteer*

Reading Passage Summary: The idea of fake news—news with no basis in fact, but presented as truth—dates back thousands of years as a way to mislead the public and spread false information. With the rise of social media today, fake news is spreading more and more quickly than ever before and is now seen as a threat to democracy. If people pause and think more about what they read and hear, they will be able to reduce false social consensus in their lives and their community.

Answer Key

Before You Read

- A.** Possible answer(s): The ball costs 5 cents. (Correct) It costs 10 cents. (Incorrect)
- B.** Possible answer(s): I was not correct. The answer is 5 cents.
- C.** Possible answer(s): Most people say what I said: 10 cents. That is because most people will give an intuitive response.

Reading Comprehension

- A. 1.** b; **2.** a; **3.** c; **4.** c (Para E); **5.** c (Para G)
- B. 1.** F (Para D); **2.** NG; **3.** T (Para E); **4.** NG

Reading Skill

- A. 1.** b; **2.** b; **3.** c
- B.** Possible answer(s): nature = (n) the basic characteristics of something; train = (v) to teach a skill or behavior; face = (n) the surface or the part you see

Vocabulary Practice

- A. 1.** rely on; **2.** concept; **3.** average; **4.** norm; **5.** encounter; **6.** media
- B. 1.** b; **2.** d; **3.** a; **4.** c
- C. 1.** salary; **2.** day; **3.** family; **4.** size

TEACHING NOTES

Before You Read



A. Previewing: Have students do activity A individually.

B. Scanning: In pairs, have students compare answers, then scan paragraph A and paragraph B to check. The correct answer is in paragraph B. Some students are likely to write 10 cents because $\$1.00 + .10 = \1.10 . However, if you think it through, you'll soon realize that if the ball costs 10 cents and the bat costs \$1.00 more than the ball, then the bat would cost \$1.10 for a total of \$1.20. The correct answer to this problem is that the ball costs 5 cents and the bat costs—at a dollar more—\$1.05 for a total of \$1.10.

C. Skimming: Have students skim the rest of the passage to find the answer most people give and to compare it to their own answer.

Reading Comprehension



A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 3: The bat and ball question is a trick question. The answer seems so obvious that you answer quickly without thinking it through.
- Question 5: Motivated reasoning is when people make a decision about something only if it confirms their opinion. For example, a person who likes pizza will believe a news story that says pizza is healthy, and a person who doesn't like pizza will believe a news story that says pizza is unhealthy. Therefore, option "c" is an example of motivated reasoning.

B. Evaluating Statements: Have students do activity B individually, and then check answers as a class. Ask students to give evidence for their answers using paragraph references from the reading passage.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Dealing with Unfamiliar Vocabulary (3)—Using a Dictionary**. Remind students that they have learned two other strategies for dealing with unfamiliar vocabulary—by using context (Unit 4) and by identifying affixes (Unit 5). Some words have multiple meanings depending on the part of speech and the context in which the word is used.

A. Scanning: Have students do activity A individually and then check answers in pairs. Point out the part of speech in each answer choice.

B. Scanning: Have students do activity B individually and then check answers in pairs. If time allows, have students share their definitions with the class. *Train* and *face* can be nouns or verbs, so students need to decide on the context used in the passage.

Vocabulary Practice

A. Completion: This paragraph is about why people tend to believe what they hear. Have students do activity A. Then check answers as a class. The adjective *average* means “not out of the ordinary,” “usual,” or “common.” The noun *average* is used in a mathematical context to mean “the value that is computed by dividing the sum of a set of terms by the number of terms;” for example, the *average* of 5, 10, and 15 = 10. *Norm* means “usual practice,” or “custom.”

B. Definitions: Have students do activity B individually and then check answers in pairs. A *researcher* conducts an *experiment* and a *volunteer* is an *individual* who participates in it. Make sure students understand that *researcher*, *volunteer*, and *individual* are people.

C. Collocations: Have students do activity C individually and then check answers in pairs. Remind students that *average person* was used in activity A.

LESSON OVERVIEW

Target Vocabulary: *cheat, excuse, honest, justify, lie, participate, presumably, report, score, sum*

Reading Passage Summary: The reading is about psychologist Dan Ariely and the research he has carried out into lying and other forms of dishonesty. The findings from Ariely's *Matrix Experiments* suggest that most people lie but that there are limits to the extent of the lies people will tell. Ariely suggests that these limits are largely determined by our notions of what is considered socially acceptable behavior.

Answer Key

Before You Read

A. Possible answer(s): I think it's OK to tell someone you like something about their appearance even if you really don't. I think it's OK to lie to make someone feel better.

B. b (Para C)

Reading Comprehension

A. 1. b (Para A); 2. c (Para C); 3. c; 4. a; 5. b

B. 1. E; 2. - ; 3. B; 4. A; 5. D; 6. C

Reading Skill

A. 1. conclusion; 2. results; 3. method; 4. purpose

B. Purpose: How do swamp sparrows learn their song? **Method:** Researchers recorded the calls of 615 male swamp sparrows and used computer software to break each song into notes. They measured the differences between the tunes. **Result:** Only 2 percent of male sparrows sang a different song from the standard tune. **Conclusion:** The song types have probably been there for 1,000 years.

Possible answer(s): The information in Reading 2B is presented in a different way. The conclusion comes first. In Reading 11B, the order is presented in a linear way.

Critical Thinking

- ▶ Possible answer(s): **1.** The player might feel this is a tactic that all players use. **2.** The worker might feel that he or she would use that stationery at the office anyway, so there's no harm in bringing it home. **3.** The salesperson might feel that the customer would buy the product somewhere else.
- ▶ Possible answer(s): Another example of common dishonest behavior is a worker using the office printer for printing personal documents. I think this behavior can be justified because the worker may think it does not cost much.

Vocabulary Practice

A. 1. participate; 2. excuse; 3. honest; 4. report/reported; 5. lie

B. 1. e; 2. d; 3. b; 4. c; 5. a

C. 1. dishonest; 2. honestly; 3. dishonesty; 4. honest

TEACHING NOTES

Before You Read

A. Discussion: Have students look at the photo and read the caption. Have them share their opinion about the soccer player. Do they think it's OK for the player to lie about his injury? Why or why not? In pairs, have students discuss what types of lies they think are OK.

B. Skimming: Remind students that skimming involves looking over the pictures, titles, and first and last sentences of paragraphs in a reading passage. Give students one minute to do activity B. Then check answers as a class.

Reading Comprehension

A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 4: The passage describes two versions of the same experiment. Paragraph B describes the first version, and paragraph D describes the second. In the second version, the participants were offered much more money than in the first version.
- Question 5: Ariely says that most people want to be honest because it is an important value in our society. Most people lie, but only a little bit, and only when it can be justified.

B. Matching Paragraphs: Have students read the headings (1–6) and then match them to the paragraphs in the passage. They should look for details in the paragraphs that give more information about each heading. Have students check answers in pairs.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Understanding a Research Summary**. Explain the difference between *results* and *conclusion*, and point out that a conclusion usually answers the question in the purpose.

A. Understanding Research: Have students do activity A individually. Then check answers as a class.

B. Understanding Arguments: Have students look back at Reading 2B, *The 1,000-Year Bird Song*, focusing on the details of Lachlan’s research. Have students look for information to explain each point in the **Understanding a Research Summary** paragraph. In pairs, have students focus on the organization of the information and compare it to Reading 11B.

Critical Thinking

- ▶ Have students read the scenarios (1–3) and think about the situation from each person’s point of view. Have students work in pairs and discuss their ideas. If time allows, have pairs share their answers with the class.
- ▶ In pairs, have students discuss how far they would go in a lie. Where do they draw the boundaries? Have students share their ideas with the class.

Vocabulary Practice

A. Completion: Have students do activity A individually and then check answers with a partner. To *make an excuse* is to make up a reason to do something.

B. Definitions: Have students do activity B individually. Then check answers as a class. *Presumably* means you assume something is true but cannot prove it. It usually comes at the beginning of a sentence.

C. Word Forms: Have students read the words in the word box and focus on the different parts of speech before doing activity C. The prefix *dis-* means “not.” The word *honestly* is used to show emphasis or expression and means “really” (e.g., *I honestly didn’t know that you were sick!*). Have students compare answers in pairs.

Video Summary: The video gives information about fake and real smiles by considering how we move different muscles to convey what we are feeling. A real smile involves using the muscles around the eyes. A fake smile doesn't.

Key Vocabulary: *facial expression, genuine, nonverbal, spot*

Answer Key

Before You Watch

A. 1. d; 2. c; 3. b; 4. a

B. Possible answer(s): I think the smile on the right is the real one. She looks like she's laughing out loud here, whereas on the left she looks like she's just smiling for the camera.

While You Watch

B. 1. Real; 2. Real; 3. Fake; 4. Real; 5. Fake

Critical Thinking

- ▶ Possible answer(s): To show anger, people lower their eyebrows and frown. To show disappointment, people raise their eyebrows and frown. To show surprise, people open their mouth wide and raise their eyebrows. To show joy, people open their mouth wide and smile.
- ▶ Possible answer(s): People might fake surprise if, for example, they had found out about a surprise party but didn't want to ruin it. They might fake joy if they received a gift they don't like.

B. Predicting: Have students look at the two photos and discuss the similarities and differences in the facial expressions. In pairs, have one partner smile and the other partner describe what they see. Have students discuss which photo is a real smile and which isn't.

While You Watch

A. Gist: Play the video and have students check their predictions from Before You Read B.

B. Detail: Have students read the sentences (1–5). Then play the video again and have students do activity B. Check answers as a class.

Critical Thinking

In pairs, have students act out each emotion and notice their partner's facial expression and body language. Have students discuss their findings and focus on whether each partner had the same idea about how their partner reacted.

Vocabulary Review

Have students work alone to check their understanding of the unit's target vocabulary. If time allows, have students write an example sentence with each word. Ask for volunteers to read their completed sentences aloud to the class.

Additional vocabulary practice questions are available for download on the *Reading Explorer* website.

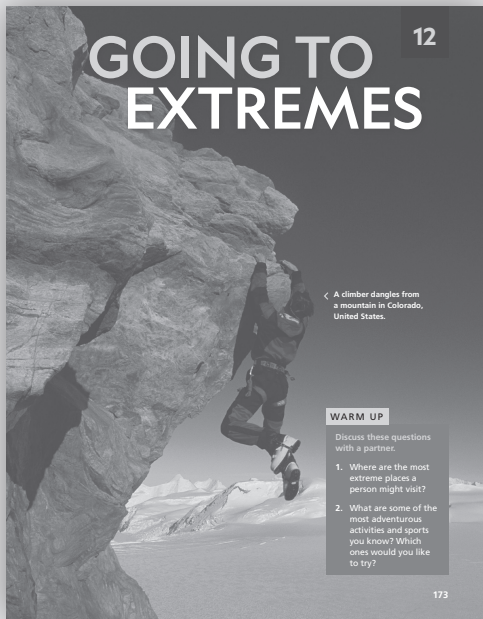
TEACHING NOTES

Before You Watch

A. Previewing: Have students do activity A individually. Check answers as a class. Have students give other examples of nonverbal forms of communication. The verb *spot* has a slightly informal meaning, as in *spot the difference*. It means "see" or "identify."

GOING TO EXTREMES

12



UNIT INTRODUCTION

This unit focuses on extreme sports and exploration. In “The Dream of Flight,” students read about how humans have finally made their desire to fly a reality. In “Dark Descent,” students read about the deepest cave system in the world, and how caving has pushed humans to break new world records.

Visit the *Reading Explorer* website to download supplementary worksheets for this unit.

Key Words for Internet Research: *Icarus, history of flight, Leonardo da Vinci, BASE jumping, Yves Rossy, Krubera, caving, García-Dils, Gennady Samokhin*

WARM UP

Answer Key

Possible answer(s):

1. Extreme places a person might want to visit are high mountain peaks, deep caves, deep areas of the ocean.
2. Some adventurous sports include skydiving, BASE jumping, caving, rock climbing, mountain climbing, and backcountry skiing. I would like to try skydiving because I am not afraid of heights, and it would make me feel free.

TEACHING NOTES

An *extreme sport* is usually categorized as such because it is considered more dangerous than regular sports. Extreme sports, such as rock climbing, involve strength, control, and finesse. Rock climbing will be an official sport in the 2020 Olympic Games in Tokyo, along with other extreme sports such as skateboarding and surfing.

- Read aloud the Unit Title as students look at the photo. Ask students to discuss the relationship between what the man is doing and the word *extreme* in the title.
- Have students discuss the questions in the Warm Up box in pairs, and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *cliff, courage, engine, fantastic, motivate, steer, thrill, tightly, unlike, wing*

Reading Passage Summary: The human desire to fly dates back thousands of years—even ancient mythology includes an example of the human dream to fly like a bird. In 1485, Leonardo da Vinci came up with a design to show how humankind could fly. In fact, the modern-day helicopter is based on this concept. Over the centuries, humankind has moved forward with ideas for hot air balloons, gliders, and, finally, planes. In 1903, the Wright Brothers created a plane that traveled 120 feet in five seconds. During the 20th century, flight became a reality, and today it has become another form of transportation, rather than an unattainable dream.

600 meters, which means that jumpers have very little time to open their parachutes.

Vocabulary Practice

- A.** 1. wings; 2. thrill; 3. fantastic; 4. cliffs; 5. Unlike
- B.** 1. difficult; 2. skydiving; 3. car; 4. hands; 5. want to do
- C.** Possible answer(s): great, amazing, cool, extraordinary, tremendous, terrific, huge, monumental, phenomenal

Answer Key

Before You Read

- A.** Possible answer(s): airplane, skydiving, hang gliding, BASE jumping
- B.** flying machine, hang gliding, BASE jumping, wings with small engines

Reading Comprehension

- A.** 1. c; 2. b (Para D); 3. b; 4. b (Para F); 5. b (Para G)
- B.** 1. d; 2. b; 3. c; 4. f; 5. e

Reading Skill

- A.** 1. d; 2. a; 3. b; 4. f; 5. c; 6. e
- B.** 1. a hang glider; 2. tandem flight; 3. BASE jumpers; 4. free-falling

Critical Thinking

Possible answer(s): skydiving, flying with a jet-powered wing, BASE jumping, hang gliding, flying in a small airplane. I think that the higher a flyer goes, the more danger there is in getting injured badly or dying. Hang gliding might be considered the safest because gliders don't fly at great heights. BASE jumping might be considered the most dangerous because it's at a low height. Jumps happen from a height of less than

TEACHING NOTES

Before You Read



A. Discussion: Have students work in pairs to come up with ideas. *Flying* can refer to being inside a plane with a pilot in control, as well as hang gliding. Have pairs share with the class.

B. Skimming: Remind students that skimming means reading quickly for information. Have students look at the photos first and think about what information to skim for. Check answers as a class.

Reading Comprehension



A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 2: Although the author was terrified, the experience wasn't dangerous. After she'd taken off, the experience was thrilling! The author thought it was exciting, not terrible.
- Question 4: BASE jumpers jump off buildings, cliffs, and bridges—they do not go up in an airplane.
- Question 5: Although Yves Rossy flew from France to England, he did not hang glide. He invented wings with engines attached to them.

B. Scanning: Remind students that they learned about scanning in the reading skill section from Unit 2B. If necessary, have students turn back to that section of the Student Book and review this skill again. Have students try to do activity B without referring back to the reading passage. Then have them find the information in the passage and check their answers.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Understanding Definitions in a Text**. Most definitions in the passage follow dashes.

A. Analyzing: Have students read the definitions (a–f). Then have them do activity A individually. Tell them they can use a dictionary if needed. Check answers as a class.

B. Scanning: Have students do activity B individually and then check answers in pairs. *Tandem* as a noun refers to a bike for two, and *tandem* as an adjective means having two things arranged one in front of the other. Have students find a new word in the passage and write a sentence using its definition, with activity A as an example. Put students in pairs and have them complete each other's definitions.

Critical Thinking

Have students discuss each activity in pairs and explain their opinions. Encourage students to debate their ideas, and have students try to agree on the rankings. Arguably the most dangerous of the sports, BASE jumping, is the action of leaping off fixed objects and free-falling for a short time before opening a parachute. The man credited with inventing the sport died while doing it!

Vocabulary Practice

A. Completion: This paragraph is about the world's longest zipline in the United Arab Emirates. Have students do activity A individually. Check answers as a class. *Unlike* signals the introduction of a different idea. The noun *thrill* describes a sudden feeling of excitement. Someone who likes extreme sports is a *thrill seeker*. The verb *thrill* is to cause someone to have a sudden feeling of excitement.

B. Definitions: Have students do activity B individually. Then check answers as a class. Something that is *tight* is usually hard to move. A space that is described as *tight* is narrow and hard to move in. To *steer* something means to guide or direct it in a specific direction.

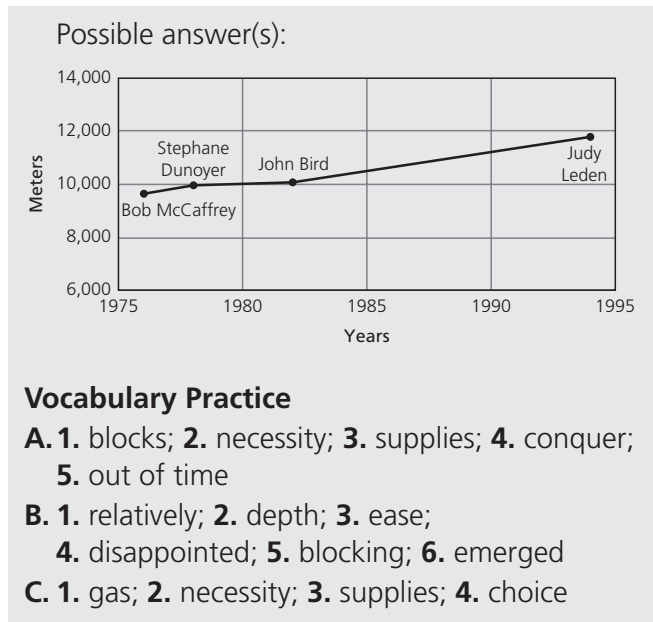
C. Word Web: The word *fantastic* means "excellent" or "great." It is stronger than *good* and is often used to show that the speaker feels very positive about the topic.

Challenge: Have students choose an extreme sport and go online to find a video on that particular sport. Tell them to write a summary of the video using as many vocabulary words from the unit as possible.

LESSON OVERVIEW

Target Vocabulary: *block, conquer, depth, disappointed, ease, emerge, necessity, out of time, relatively, supplies*

Reading Passage Summary: Krubera Cave, in the western Caucasus Mountains, is the world’s deepest known cave. Since 1999, teams of cavers have been pushing their limits to descend deeper and deeper, breaking records each time. The record of 1,840 meters was broken in October 2004, when they reached a record depth of 2,080 meters. The cavers’ desire to break the previous records speaks to their endurance and determination. They carried more than five tons of gear and endured numerous vertical drops and freezing torrents of water. Along the way down, they lived in a series of underground camp sites they had built themselves. The current world record of 2,197 meters will most likely be broken again.



Answer Key

Before You Read

- A.** 1. b; 2. a; 3. c
- B.** squeeze = tight passage (Para C); sump = a passage filled with water (Para D); pit = an area of a cave that falls straight down (Para F)

Reading Comprehension

- A.** 1. b; 2. c (Para E); 3. c; 4. b (Para E); 5. c
- B.** 1. a; 2. c; 3. b; 4. b; 5. c; 6. a

Reading Skill

- A.** 1. January 2001 2. sump; 3. supplies; 4. Millennium pit; 5. Game Over; 6. Gennady Samokhin
- B.** 1994, 11,800 meters; 1976, 9,631 meters; two years later; 9,973 meters; 1982, 85 meters; 12 years

TEACHING NOTES

Before You Read 

A. Definitions: Have students read the caption and look at the picture. Then ask them to read the words (1–3) and definitions (a–c). Have them do activity A individually. Check answers as a class. Ask students to explain what they learned about caving from the caption.

B. Identifying Definitions: Remind students that they learned about identifying definitions in the reading skill section from Unit 12A. If necessary, have students turn back to that section of the Student Book and review this skill again. Point out that quotation marks can also be used when giving a definition of a word. In the passage, the words *squeezes* is in quotation marks, and *sump* and *pit* are followed by a dash.

Reading Comprehension

A. Multiple Choice: Have students read the entire passage silently and then answer the questions. Alternatively, play the audio and have students read along. Check answers as a class, asking students to give evidence for their answers using paragraph references from the reading passage.

- Question 5: The last paragraph describes Samokhin’s return to the cave to successfully break his record, again and again. This shows that his record will most likely be broken in the future and deeper caves will eventually be found.

B. Scanning: Have students read the descriptions (1–6) and do activity B individually. If necessary, play the audio again. Check answers in pairs.

Challenge: Have students work in pairs to search online for information about other unique caves. Ask each pair to present about their cave to the class.

Additional comprehension questions are available for download on the *Reading Explorer* website.

Reading Skill

Have students read the paragraph on **Taking Notes on a Reading (3)—Creating a Visual Summary**. Remind students that they have already learned some strategies for taking notes in Unit 8. Explain that diagrams and sketches show information in a visual way that makes it clearer and easier to understand.

A. Summarizing: Have students do activity A individually. Then check answers as a class. Have students point out the pictures, captions, footnotes, and map in the reading passage. For Question 1, students will need to look at the labels on the map.

B. Summarizing: Have students do activity B individually. Then check answers as a class. Make sure students understand the sequence of events by writing the dates on the board and creating a timeline together if necessary.

Challenge: Ask students to think about the type of information that can be presented visually, like in a chart or diagram. Have them look back

over previous units and choose a reading passage that could be summarized visually. Have students create a visual summary of the information in that particular passage.

Vocabulary Practice

A. Definitions: Have students read the words in the box and then do activity A individually. Check answers in pairs. The verb *block* can be used to describe being stuck due to a physical obstruction as well as a nonphysical one. The noun form changes depending on the case. In physical cases, the noun is *blockage*: *There’s a blockage in the kitchen drain.* In nonphysical cases, the noun is *block*. For example, the term *writer’s block* is a common way to describe a writer’s condition of being stuck and not able to move forward in a story. Something or someone that is *conquered* is defeated.

B. Completion: This paragraph is about cave expert Louise Hose and her exploration of the Well of Birds in Oman. Have students do activity B individually. Check answers as a class. The adverb *relatively* means “in comparison.” If someone feels *relatively good*, it likely means that they were feeling bad before and have made some improvement.

C. Collocations: Have students read the words in the word box, then do activity C individually. *Out of* can mean something is depleted or finished. It can also mean “because of.” A *necessity* is something one must have. The word has a slightly stronger tone than its synonym *need*. A common partnership is *bare necessities*, which refers to the basic things we need in order to live, such as food, water, and shelter.

Challenge: Ask the class to identify some absolute necessities for exploring caves. Possible answer(s): ropes, light sources (headlamps to keep hands free), helmets, wetsuits or other body covering, communication equipment, and first-aid equipment. For longer explorations, food, water, and tents are necessities.

Video Summary: The video describes Matainaka Cave in New Zealand, the longest sea cave in the world. Geologist Nicholas Barth talks about the geology of the cave, the creatures that live there, and what the cave can teach us about the past. Barth and his team also use state-of-the-art technology to help them understand the area's risk for earthquakes and tsunamis in the future.

Key Vocabulary: *geologist, narrow, survey*

Answer Key

Before You Watch

A. 1. a; 2. c; 3. b

B. Possible answer(s): I think Barth and his colleagues learned more about the geology of the area. They probably found many clues about the age of Matainaka Cave, and the way in which it was formed.

While You Watch

A. Possible answer(s): My idea about Barth learning more about the geology of the area was mentioned in the video. I saw that he and his team found some impressive rock formations. The team is also studying the cave for evidence of past earthquakes and tsunamis. They also found out that the cave is about 80,000 years old and is getting 2 cm deeper every year.

B. 1. 1.5; 2. 70; 3. 6; 4. 80; 5. 2

Critical Thinking

Possible answer(s): Yves Rossy invented experimental jet packs and has the nickname of "Jetman." He even had to be registered as an airplane in Britain in order to fly with his jet pack. I think that his inventions are impressive because they may lead to faster and more innovative ways for an individual to travel.

TEACHING NOTES

Before You Watch

A. Previewing: Have students read the information and the words (1–3) and then do activity A individually. Check answers as a class.

B. Discussion: Have students work in pairs to create a list of ideas. If time allows, elicit some ideas from pairs.

While You Watch

A. Gist: Play the video and have students check their list of ideas. Remind them to also note the information that comes up in the video. Check answers as a class.

B. Completion: Have students read the notes on Matainaka Cave. Then play the video again and have students do activity B. Have students check answers in pairs.

Critical Thinking

Have students look at each name in the word box. Put students in pairs and have them choose a person and create a list of their achievements. Draw a chart on the board with each name for students to copy and take notes on each person's achievements. Lead a class discussion about which achievement is the most impressive, and why.

Vocabulary Review

Have students work alone to check their understanding of the unit's target vocabulary. If time allows, have students write an example sentence with each word. Ask for volunteers to read their completed sentences aloud to the class.

Additional vocabulary practice questions are available for download on the *Reading Explorer* website.