

FOUNDATIONS

READING EXPLORER

THIRD EDITION

TEACHER'S BOOK

BECKY TARVER-CHASE

DAVID BOHLKE

SHIRA EVANS



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

Becky Tarver-Chase, David Bohlke, and Shira Evans

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National Geographic Learning

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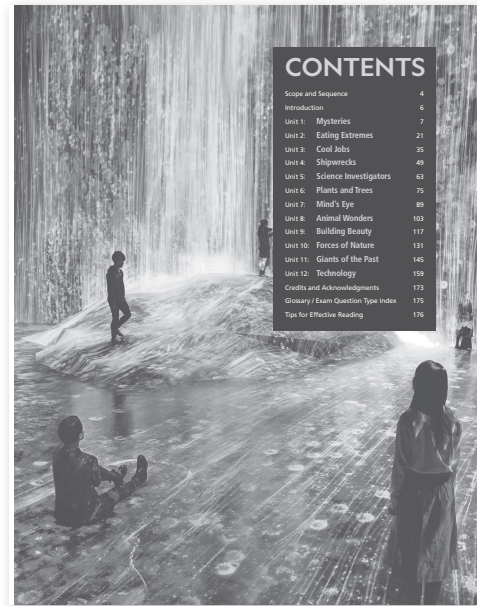
TAKE A TOUR OF READING EXPLORER

Thank you for choosing to use *Reading Explorer* 3rd Edition Level Foundations. 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, "Cool Jobs." 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.



SCOPE AND SEQUENCE

UNIT	THEME	READING	VIDEO
1	Mysteries	A: A Mysterious Visitor B: The Lost City of Atlantis	Moon Mystery
2	Eating Extremes	A: The World of Speed Eating B: The Hottest Chilies	Science of Taste
3	Cool Jobs	A: Digging for the Past B: Getting the Shot	Right Dog for the Job
4	Shipwrecks	A: I've Found the Titanic! B: My Descent to the Titanic	An Ancient Shipwreck
5	Science Investigators	A: The Disease Detective B: At the Scene of a Crime	The Flu Virus
6	Plants and Trees	A: Planting for the Planet B: Fatal Attraction	Giants of the Forest
7	Mind's Eye	A: Understanding Dreams B: Seeing the Impossible	Parasomnia
8	Animal Wonders	A: A Penguin's Year B: Do Animals Laugh?	Amazing Narwhals
9	Building Beauty	A: A Love Poem in Stone B: The Great Dome of Florence	Brunelleschi's Dome
10	Forces of Nature	A: Wild Weather B: When Weird Weather Strikes	Tornado Terror
11	Giants of the Past	A: The Mammoth's Tale B: Monsters of the Deep	Ichthyosaurs
12	Technology	A: The Robots are Coming! B: How Will We Live in 2045?	A Social Robot

ACADEMIC SKILLS		
READING SKILL	VOCABULARY BUILDING	CRITICAL THINKING
A: Scanning B: Skimming	A: Word usage: <i>pass</i> and <i>past</i> B: Word forms of <i>sink</i> and <i>strike</i>	A: Applying Ideas B: Synthesizing Information
A: Identifying the Parts of a Passage B: Pronoun Reference	A: Collocations with <i>argue</i> B: Collocations with <i>painful</i>	A: Justifying Opinions B: Applying Ideas
A: Dealing with New Vocabulary (1)—Using a Dictionary B: Understanding Suffixes	A: Collocations with <i>get</i> B: Word forms of <i>pay</i> , <i>cost</i> , and <i>spend</i>	A: Evaluating Advice B: Personalizing, Synthesizing Information
A: Identifying a Paragraph's Main Idea B: Recognizing Compound Subjects and Objects	A: Word usage: <i>agree</i> B: Synonyms for <i>totally</i>	A: Evaluating Arguments B: Evaluating Ideas; Justifying Ideas
A: Identifying the Purpose of a Paragraph B: Inferring Meaning	A: Suffix <i>-ous</i> B: Word forms of <i>possible</i>	A: Applying Ideas B: Evaluating Evidence; Synthesizing Information
A: Creating a Timeline of Events B: Understanding a Process	A: Word forms with <i>-ation</i> B: Collocations with <i>difference</i>	A: Justifying Opinions B: Applying Ideas
A: Organizing Information (1)—Creating a Concept Map B: Understanding Conjunctions	A: Adjectives with <i>-ed</i> and <i>-ing</i> B: Collocations with <i>mistake</i>	B: Reflecting; Applying Ideas
A: Dealing with New Vocabulary (2)—Using Context B: Identifying Supporting Details	A: Word usage: <i>on (your) own</i> B: Adjectives to describe emotions	A: Categorizing Information B: Evaluating Supporting Details
A: Annotating Text B: Understanding Infographics	A: Collocations with <i>promise</i> B: Words acting as nouns and verbs	A: Understanding Opinions B: Synthesizing Information; Inferring Information
A: Understanding Tenses B: Understanding Cause and Effect	A: Prefix <i>fore-</i> B: Synonyms and antonyms for <i>unusual</i>	A: Personalizing B: Ranking Advice
A: Understanding Passive Sentences B: Organizing Information (2)—A Chart	A: Collocations with <i>in</i> B: Suffix <i>-ward</i>	A: Discussing Pros and Cons B: Ranking
A: Identifying Examples B: Understanding Prefixes	A: Collocations with <i>daily</i> B: Word usage: <i>pick up</i>	A: Justifying Opinions B: Rating Predictions; Evaluating Ideas

GETTING THE SHOT
An interview with Joel Sartore

Joel Sartore is a writer, teacher, and photographer. His words—and beautiful images—show his love of photography and of the natural world. He was National Geographic's 2018 Explorer of the Year.

Question 1: _____

Question 2: _____

Question 3: _____

Question 4: _____

1 A **passionate** person has very strong feelings about something.
2 If you are **curious** about something, you want to know more about it.

42 Unit 38

Unit 38 43

4 Turn to one of the **Reading Passages** (e.g., Student's Book Foundations page 43). 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 **DVD/Audio CD 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 **DVD/Audio CD 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 Suite** 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

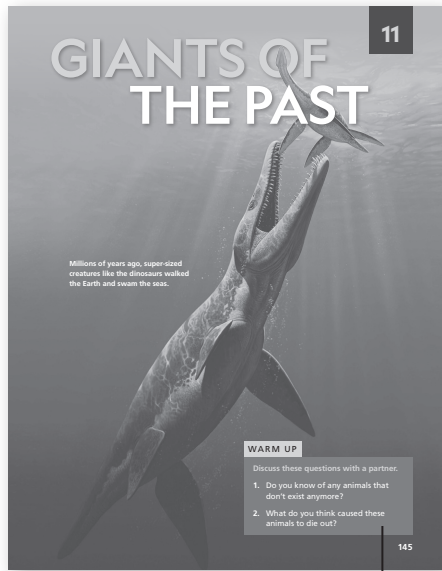
As most people are aware, the lion is a _____ cat. Lions can weigh several hundred pounds and grow to be over 10 feet long. But lions have many other interesting qualities.

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.

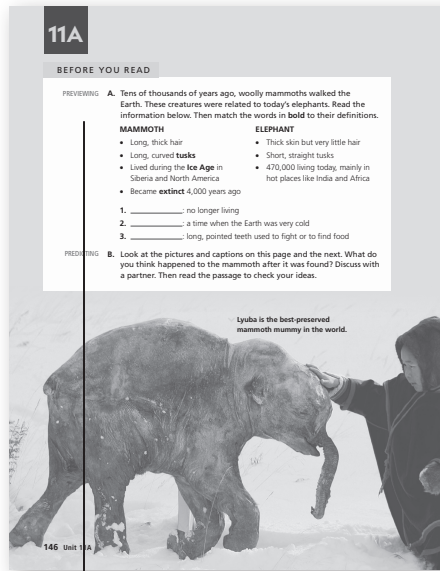
In the past, there were several lion species, but today, most are _____. Only two types remain, the African lion and the Asiatic lion. Sadly, today's lion population is getting _____ due to a combination of illness, hunting, and human impact on their habitats.

Show Answers Submit

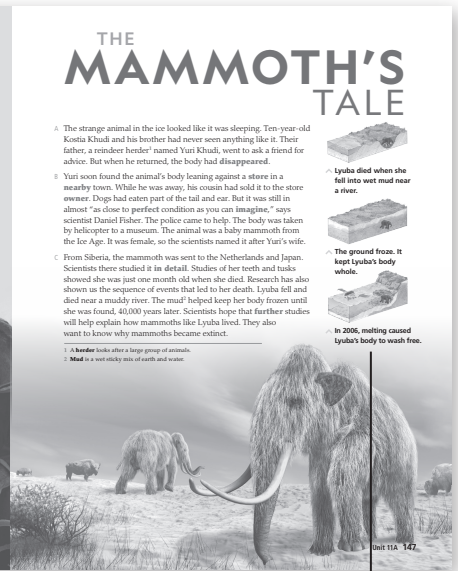
UNIT WALKTHROUGH



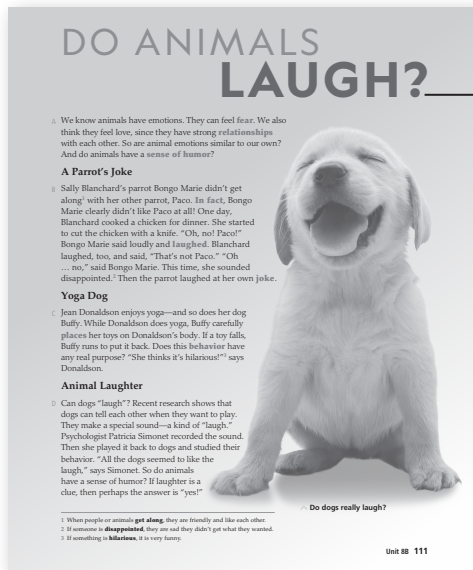
Warm Up discussion questions raise learners' interest in the unit theme and activate prior knowledge.



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.



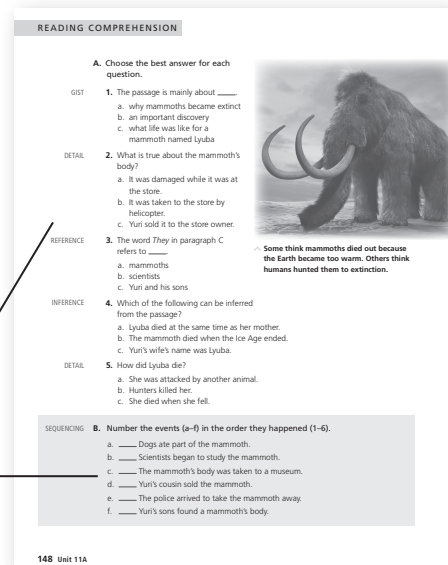
Infographics, maps, and charts support the reading passages and develop learners' visual literacy.



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.

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



READING SKILL

Understanding Passive Sentences

Reading passages often include a mix of active and passive sentences. In active sentences, the subject is the "doer" of the action. In passive sentences, the subject is the receiver of the action. The doer, if it is stated at all, usually follows **by**. Look at these examples and notice how passive sentences are formed.

Active
The boys found a mammoth.
The man's cousin had sold it.
Scientists will study it.

Passive
A mammoth was found (by the boys).
It had been sold (by the man's cousin).
It will be studied (by scientists).

UNDERSTANDING PASSIVE

A. Read the sentences below. Circle the "doer" of each action.

1. In the 19th century, some people found over 250 paintings in a cave in Rouffignac, France.
2. These incredible pictures were painted by early humans.
3. Scientists have dated the artwork to 11,000 B.C.
4. Almost 160 of the paintings show early man with mammoths.
5. The caves have been visited by tourists since the 1950s.
6. In 1979, the cave site was made a World Heritage Site by UNESCO.

B. Choose the correct words to complete the sentences. Then check your answers in Reading A.

1. Dogs had eaten / had been eaten part of the tail.
2. The body took / was taken by helicopter to a museum.
3. The mammoth sent / was sent to the Netherlands and Japan.
4. Further studies will explain / will be explained how mammoths like Lyuba live.

CRITICAL THINKING Discussing Pros and Cons

1. Work with a partner. Some scientists want to bring extinct animals, like mammoths, back to life. List arguments for and against this.

Arguments for	Arguments against

2. Discuss with another pair: Do you think extinct animals should be brought back to life? Why or why not?

Unit 11A 149

Reading Skill sections provide learners with the tools they need to become effective and critical readers. Core reading skills are recycled and reinforced throughout the book.

Critical Thinking sections challenge learners to analyze, evaluate, and reflect on what they've read, and form their own opinions.

VOCABULARY PRACTICE

COMPLETION A. Complete the information. Circle the correct words.

Close your eyes. Can you **disappear** / **imagine** a crocodile so big that it eats dinosaurs? Scientists say such a crocodile really did live 110 million years ago, but it **disappeared** / **imagined** from Earth even before the dinosaurs became extinct. They call it "SuperCroc."

In 2000, a team of researchers found some SuperCroc bones in the Sahara Desert. After some **perfect** / **further** searching, they had enough bones to make up 50 percent of SuperCroc's skeleton.

COMPLETION B. Complete the sentences. Choose the correct words.

1. If something is nearby, it is _____ you.
 - a. close to
 - b. far from
2. You would probably go to a store to _____.
 - a. see a sick friend
 - b. buy something
3. The owner of a restaurant _____.
 - a. has already bought it
 - b. plans to buy it
4. If something is perfect, you probably want to _____.
 - a. change it
 - b. keep it that way

COLLOCATIONS C. There are many phrases that begin with *in*, e.g., *in detail*. Complete the sentences using the words in the box.

action	danger	detail	fact

1. If you zoom in on this image, you can see it in _____.
2. There are many animals today that are in _____ of becoming extinct.
3. We went to the stadium to see the players in _____.
4. Tyrannosaurus was huge. In _____, it was bigger than most dinosaurs.

Unit 11A 150

Vocabulary Practice sections focus on the target vocabulary items from the reading passage.

This section also provides **expanded vocabulary practice** focusing on collocations, word usage, and word families.

MONSTERS OF THE DEEP

Sea monsters are not just imaginary. Millions of years ago, real monsters actually lived on Earth.

Eyes in the Dark

1. Termodontosaurus was definitely an unusual animal. Its name means "cutting-tooth lizard," and with good reason—it had very big teeth. It also had some of the largest eyes in nature. They were over 25 centimeters across! With such big eyes, **Termodontosaurus** could easily find its food in the dark water.

Terror of the Deep

2. Kronosaurus—the "Kronos lizard"—lived in the seas that once covered Australia. But it probably used its fins to climb out of the water and lay its eggs on land. Its head was two meters long, and its teeth were as big as bananas! The main purpose of strong jaws and teeth like these was to catch smaller animals. In fact, **Kronosaurus** was one of the most dangerous predators of all time.

The Stalker

3. Thalassomedon—the "lord of the sea"—was a large sea monster with a very long neck. It also had a special way of hunting fish: It carried stones in its stomach! These helped keep the largest part of its body and tail down in the dark water. Meanwhile, its long neck slowly rose up toward the fish. The fish didn't have a chance to get away from **Thalassomedon**. They couldn't see the sea monster until it was too late!

1. A predator is an animal that hunts and eats other animals.
2. To stalk someone or something is to follow closely and quietly.

Unit 11B 152

A **second reading** in each unit expands learners' knowledge of the unit theme and further builds vocabulary. Reading B is also followed by Reading Comprehension, Reading Skill, and Vocabulary Practice sections.

VIDEO

A three-meter-long ichthyosaur fossil on display at a museum in Germany.

ICHTHYOSAURS

BEFORE YOU WATCH

PREVIEWING A. Read the information. The words and phrases in bold appear in the video. Match each word with its definition.

Ichthyosaurs were huge prehistoric creatures that lived in the sea. The first ichthyosaurs looked a lot like lizards, but later they **developed** fish-like tails. Ichthyosaurs had **skulls** that were long and **narrow**. Their teeth were very sharp, and they had huge eyes. One type of ichthyosaur, **Termodontosaurus**, had large eyes than any other known animal.

1. develop • a. (adj) the opposite of wide
2. narrow • b. (v) to grow or change over time
3. skull • c. (n) the bones in the head

PREDICTING B. Work with a partner. Guess answers to the questions below. Note your ideas.

1. What do you think ichthyosaurs ate?
2. Why do you think they had such big eyes?
3. How fast do you think they could swim?

Video 157

Each unit concludes with a **video** related to the unit theme, supported by previewing and viewing activities.

WHILE YOU WATCH

GET A. Watch the video. Check your guesses in Before You Watch B.

COMPLETION B. Watch the video again. Complete the notes about ichthyosaurs using information from the video.

ichthyosaurs

- first appeared _____ million years ago
- name means "_____ lizard"
- smallest were only _____ long, biggest _____ long
- large tail helped them swim fast
- became extinct _____ million years before dinosaurs died out

CRITICAL THINKING Applying Ideas In countries around the world, there are stories of huge prehistoric creatures that still exist today. Can you think of any examples? Do you think any of these stories could be true? Note your ideas below. Then discuss with a partner.

VOCABULARY REVIEW

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

Reading A

<input type="checkbox"/> disappear	<input type="checkbox"/> further	<input type="checkbox"/> imagine	<input type="checkbox"/> in detail
<input type="checkbox"/> nearby	<input type="checkbox"/> owner	<input type="checkbox"/> perfect	<input type="checkbox"/> store

Reading B

<input type="checkbox"/> climb	<input type="checkbox"/> cover	<input type="checkbox"/> definitely	<input type="checkbox"/> hunt
<input type="checkbox"/> meanwhile	<input type="checkbox"/> rise	<input type="checkbox"/> toward	<input type="checkbox"/> way

*Academic Word List

158 Video

Critical Thinking encourages learners to connect the video's content with what they have learned in the rest of the unit.

Vocabulary Review sections give learners the chance to check their understanding of the unit's target vocabulary. Extra practice activities can be found on the Classroom Presentation Tool.

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

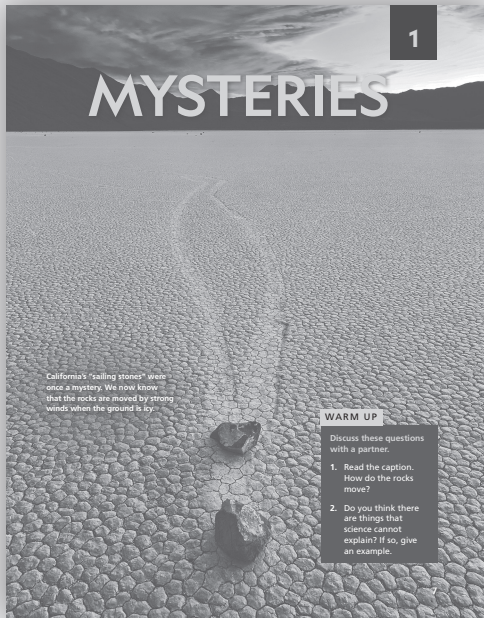
- Total course length = **48 hours** (1 unit = 4 hours)
- 12-week course = 4 hours of instruction per week
- 24-week course = 2 hours of instruction per week
- This option assumes that the teacher covers all Student's Book content in class. Lessons are often extended using supplementary worksheets from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

MYSTERIES

1



UNIT INTRODUCTION

This unit focuses on mysteries that scientists have yet to solve. In “A Mysterious Visitor,” students read about a surprising space object moving through our solar system. In “The Lost City of Atlantis,” students read about attempts to find the lost city of Atlantis. In “Moon Mystery,” students will watch a video about the possibility of life on Europa, one of Jupiter’s many moons. Students will also read about how crop circles are formed, and how some people believe the Greek island of Santorini is actually Atlantis.

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

Key Words for Internet Research: *sailing stones, ‘Oumuamua, interstellar object, lost city of Atlantis, Plato, Europa moon*

WARM UP

Answer Key

Possible answer(s):

1. The stones slide across the ice. When the ground is icy, there isn’t any friction.
2. Yes, I think there are many things that science can’t explain. For example, I once dreamed that I saw an old friend that I hadn’t seen in many years. The very next day, I ran into her at the mall! How is that possible?

TEACHING NOTES

“Sailing stones” are rocks that move along the desert ground with no gravitational cause. The rocks vary in size from a few ounces to hundreds

of pounds. This mystery had confused scientists for years, until they were finally able to capture the movement using time-lapse photography. They found that the rocks were most likely moving on ice.

- Read the Unit Title aloud and make sure students know the meaning of *mystery*. Have students discuss the terrain in the photo and what they think the tracks in the ground might be, and then say how the title relates to the picture.
- Read the caption aloud and explain the meaning of *strong winds* and *icy*. Make sure students know where California is on a map.
- Have students discuss the questions with a partner. Follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *explore, knock, maybe, pass, speed, strange, technology, thin*

Reading Passage Summary: ‘Oumuamua is the first known interstellar object to visit our solar system, discovered on October 19, 2017. The object is about 10 times longer than it is wide, which gives it a surprising shape unlike any other object ever seen in our solar system. Scientists are unsure exactly what it is and continue to research it in the hope of solving the mystery.

Answer Key

Before You Read

- A. 1. astronomers; 2. asteroid
 B. Some astronomers think this could be a piece of alien technology—like a spaceship.

Reading Comprehension

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

Reading Skill

- A. 1. Para A, line 1: ... astronomers in Hawaii;
 2. Para A, line 2 and line 6: ... something surprising; 3. Para B, line 7: ... a different theory; 4. Para C, line 2: ... a piece of alien technology; 5. Para A, line 2: ... moving through the solar system; Para C, line 9: ... came to explore our solar system; 6. Para D, line 5: ... will likely be
 B. 1. October 2017; 2. visitor from afar; 3. after it passed the sun; 4. professor; 5. Harvard University; 6. August 2017; 7. 315,800 km/h; 8. 33,000,000 km

Critical Thinking

Possible answer(s): how old it is, what it is made of, any marks on it that would suggest it came from something much larger

Vocabulary Practice

- A. 1. strange; 2. maybe; 3. thin; 4. technology
 B. 1. b; 2. a; 3. d; 4. c
 C. 1. past; 2. passed; 3. past; 4. passed

TEACHING NOTES

Before You Read



A. Definitions: Have students look at the photo and read the caption. In pairs, discuss the meanings of *astronomers* and *asteroid*. Point out *astro/aster*, and explain that these root words have to do with stars and space.

B. Skimming: Explain to students that you skim the reading passage by looking quickly through it to see what it is about. In this case, students need to look at the passage quickly to find an alternative explanation to ‘Oumuamua being a piece of rock. Have students skim the reading individually, then answer the question. Have them check their ideas with a partner.

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 passage.

- Question 2: Paragraph A states that ‘Oumuamua was an interstellar object. The word *interstellar* is defined at the bottom of the page (“traveled between different stars”). In addition, paragraph B says, “Perhaps it was knocked out of a far-off star system.” Therefore, the correct option is “a.”
- Question 5: We can see from the infographic picture and caption that ‘Oumuamua entered the inner solar system and passed around the sun before it was actually observed on its way out of the inner solar system. We can therefore infer it was first seen from Earth after it passed the sun, so option “c” is correct.

B. Summarizing: Have students try to complete the sentences with the phrases before looking back at the reading passage. Remind students that one phrase is extra. Have them compare answers in pairs before reading to check their answers.

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

Reading Skill

Have students read the paragraph **Scanning**. Point out that scanning is useful when looking for specific information. Explain the difference between *scanning* and *skimming*—both skills require looking over content quickly, but scanning is when you look for information you need, and skimming is when you read quickly to get the gist or main idea.

A. Scanning: Have students find the words quickly in the passage. Set a time limit of 45 seconds for them to complete the activity, then have them check their answers in pairs.

B. Scanning: Have students read the questions and think about what types of information they need to find (a date, a title, a reason, a distance, etc.). Have students find the answers individually and then check their answers in pairs.

Critical Thinking

Have students think about what information scientists know about 'Oumuamua (its size, shape, and speed), then think about what other information might be useful to help them solve the mystery. Have students share their ideas with a partner.

Vocabulary Practice

A. Definitions: This passage is about crop circles and how people thought they were made by aliens until it was discovered how they were made using just simple technology. Direct students' attention to the photo and caption next to activity A. Have students read the information first, then match the words in red with their definitions. Choose a volunteer to read the completed passage aloud to the class.

B. Definitions: Have students match the sentence parts to make definitions of the words in red. Check answers as a class.

C. Word Usage: Explain the difference between the past tense of the verb *pass* (passed) and the preposition *past*. Make sure students understand how to use the different parts of speech. Check answers as a class. Note that in sentence 1 *past* means *beyond* and in sentence 3 means *movement* from one side to the other. If time allows, have students write four new sentences with the options of *passed* or *past* and test each other in pairs.

Challenge: Write the following questions on the board for students who have finished the Vocabulary Practice activities:

What technology is needed to create a crop circle design? What is the purpose of making crop circles? Research online using the search term "National Geographic crop circles" to find more information.

LESSON OVERVIEW

Target Vocabulary: *finally, lost, natural, piece, purpose, report, sink, strike*

Reading Passage Summary: Over 2,000 years ago, Greek philosopher Plato wrote about the destruction of an island called Atlantis. In recent history, explorers have searched for the lost island around the globe. There are many theories about where Atlantis was—but no one has any proof that it actually existed.

Answer Key

Before You Read

- A. Plato wrote the story of Atlantis. The island disappeared into the sea.
- B. 1. Plato, Robert Sarmast, Mark Adams, Richard Ellis; 2. Atlantis, Atlantic Ocean, Cyprus, Morocco

Reading Comprehension

- A. 1. b; 2. c (Para C); 3. c; 4. b (Para C); 5. c
- B. 1. over 2,000 years ago; 2. in 2004; 3. *Meet Me in Atlantis*; 4. Richard Ellis

Reading Skill

- A. 1. Skim; 2. Scan; 3. Scan; 4. Skim
- B. b

Critical Thinking

► Possible answer(s): I think the mystery of Atlantis will be more difficult to solve because researchers have already spent years trying to solve it and haven't reached a conclusion. It's possible that Atlantis never existed, which means there will never be a resolution. / I think 'Oumuamua will be more difficult to solve because it has now disappeared from the view of all telescopes on Earth and extensive research and lots of money would be needed to send a probe to view it again.

Vocabulary Practice

- A. 1. finally; 2. lost; 3. struck; 4. sink
- B. 1. not made; 2. part; 3. "Why?"; 4. tell
- C. 1. struck; 2. sink; 3. strike; 4. sank

TEACHING NOTES

Before You Read



A. Previewing: Discuss the lost city of Atlantis, and ask students what they know about the fabled city. Make sure they understand that the picture is an artist's impression of what Atlantis might have looked like. Have students look at the picture and read the caption before answering the questions. Check answers as a class.

B. Scanning: Remind students that scanning means quickly reading over a text to find specific information. Make sure they understand the difference between capital and lowercase letters, and they know when capitals are used in English writing. Give students a time limit of one or two minutes for each question to scan the reading passage for the answers. Have students compare their answers with a partner.

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 passage.

- Question 2: Paragraph C says that Sarmast *later* realized that the structures were natural. The word *later* means "after," so the correct option is "c."
- Question 3: The first sentence in paragraph C says "Many explorers have looked for Atlantis." This tells us the main idea, and the details go on to say that nobody has found the city.

B. Scanning: Remind students that they learned about scanning in the reading skill in Unit 1A. If necessary, have students turn back to that section of the Student's Book and review this skill again. Have students read the questions, then scan the passage individually for the answers. Have them check with a partner.

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

Reading Skill

Have students read the paragraph **Skimming**. Remind students again of the reading skill in Unit 1A where they practiced scanning. Point out that skimming is looking quickly at the entire passage to see what it's about, whereas scanning is looking for specific information. Explain that they do not need to read every word when skimming. Instead, just look at titles, headings, pictures, and captions and read the first sentence of each paragraph together with the conclusion to get the gist of the reading.

A. Skimming or Scanning: Have students complete activity A. Check the answers as a class by going over each reason and eliciting why the answer is *skim* or *scan*.

B. Skimming: Remind students they should not read the content in detail. Have students complete activity B then go over the answers as a class. Elicit which clues students picked up while skimming that helped them identify the gist. After reading the first sentence of the second paragraph, students can understand that Kimura thinks he found Mu, a lost land. They can infer that it is near Japan from the information in the caption, or they can confirm it by skimming the final paragraph.

Critical Thinking

Have students note their ideas about which mystery (Atlantis or 'Oumuamua) will be more difficult to solve and why. Then have them discuss their ideas with a partner. Have a class vote on which mystery they picked and ask pairs to explain their choice.

Vocabulary Practice

A. Definitions: This passage is about how some people believe the island of Santorini might be Atlantis. Direct students' attention to the photo and caption next to the activity. Have students read the information first before completing the information by matching each word to the definition. Check answers in pairs. Choose a volunteer to read the completed passage aloud to the class.

B. Completion: Have students complete the sentences individually and then check their answers in pairs.

C. Word Forms: Make sure students know the past forms of *sink* and *strike*. Remind them that they need to memorize irregular past forms, because there aren't any rules about how to form them. Have students complete the activity individually and then check answers in pairs. If time allows, have students write additional sentences using these verbs.

Video Summary: The video gives information about the possibility of life on Europa, one of Jupiter’s many moons. There is evidence that the moon has a salty ocean underneath its icy surface, where scientists believe there might be life. Maybe the mystery will be solved if plans to send a robot to the moon’s surface become a reality.

Key Vocabulary: *conditions, exist, surface*

Answer Key

Before You Watch

A. 1. exists; **2.** surface; **3.** conditions

B. Possible answer(s): I think there might be life on Europa because there might be water on Europa, which is a basic necessity for any life form to exist.

While You Watch

A. a

B. 1. 1610; **2.** Earth’s moon; **3.** ice; **4.** Earth; **5.** robot

Critical Thinking

Possible answer(s): I think any life on Europa would be basic. It would probably be a single-cell organism and look like plankton or some other very small ocean creature.

TEACHING NOTES

Before You Watch

A. Previewing: Have students read the information in the paragraph before completing activity A individually. Then have students compare answers with a partner.

B. Discussion: Have students note their ideas to the questions and then discuss with a partner. Ask volunteers to share their ideas with the class.

While You Watch

A. Gist: Have students read the options (a–c) before they watch the video. Play the video. Then have students choose the correct answer individually, before checking in pairs.

B. Details: Have students answer the questions before watching the video again. Then play the video again and have students check their answers.

Critical Thinking

In small groups, have students discuss what they think life on Europa might look like. Then have students note their ideas and/or create a picture.

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.

EATING EXTREMES



UNIT INTRODUCTION

This unit focuses on extreme ways food can be eaten. In “The World of Speed Eating,” students read about competitive eating, where the winner eats the most in the shortest amount of time. In “The Hottest Chilies,” students read about how chilies are rated and what happens when they are eaten. In “Science of Taste,” students will watch a video about how all our senses help determine the way we taste food. Students will also read about an eating competition at a plum festival in the Czech Republic, and how people prepare cactus plants to eat.

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

Key Words for Internet Research: *Nathan’s Famous hot dog eating contest, Joey Chestnut, Takeru Kobayashi, competitive eating, Scoville heat units, chili peppers, capsaicin, Charles Spence*

WARM UP

Answer Key

Possible answer(s):

1. I really like to eat sushi, which some people think is unusual. I also like bacon in my ice cream, which my friends think is really strange.
2. The spiciest food I’ve ever eaten was a Thai curry with red chili peppers.

TEACHING NOTES

One hundred chefs in Naples came together in 2016 to make the world’s longest pizza, stretching almost two kilometers. The pizza took about 11 hours to make and included 2,000 kg of flour,

1,600 kg of tomatoes, 2,000 kg of cheese, 200 liters of olive oil, and 30 kg of basil. Hungry visitors were able to grab a slice when the record was set!

- Read the Unit Title aloud and make sure students know the meaning of *extreme*. Have students discuss the size of the pizza in the photo and how the title relates to the picture.
- Read the caption aloud and explain the meaning of *world record* and *attempt*. Have students discuss how far two kilometers actually is, giving examples of places that are about two kilometers away.
- Have students discuss the questions with a partner and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *argue, athlete, exactly, record, tradition, unhealthy, various, work out*

Reading Passage Summary: Nathan’s Famous is a brand of hot dogs, and every year on July 4th they hold a hot dog eating contest in New York. The winner is the person who eats the most hot dogs in the shortest amount of time. According to the company, four immigrants started the contest in 1916 to determine who was the most patriotic, and the tradition has continued ever since. People have mixed feelings about competitive eating—some say it is not healthy and that the food should be used to help feed the poor and hungry. Competitive eaters, on the other hand, think of themselves as athletes.

Answer Key

Before You Read

- A.** The competition is a hot dog eating contest. It’s held every year in New York, in the U.S., on the fourth of July.
- B.** Possible answer(s): I think one person could probably eat seven hot dogs in 10 minutes. (Answer: Joey Chestnut ate 74 hot dogs in less than 10 minutes.)

Reading Comprehension

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

Reading Skill

- A.** a title, photos, subheadings, a sidebar, captions, footnotes
- B. 1.** The World of Speed Eating; **2.** four; **3.** yes; **4.** four (3 on page 23, 1 on page 24); **5.** Takeru Kobayashi’s

Critical Thinking

Possible answer(s): I think eating contests are in bad taste. It’s not healthy to stuff food in your mouth and it’s also very wasteful. I think if I watched an eating contest, I would probably lose my appetite. / I think, so long as you eat healthily and keep fit in between the competitions, it must be like any other sport, right?

Vocabulary Practice

- A. 1.** soccer player; **2.** disagree; **3.** find the answer; **4.** bad
- B. 1.** tradition; **2.** exactly; **3.** various; **4.** records
- C. 1.** about; **2.** with; **3.** for

TEACHING NOTES

Before You Read



A. Previewing: Have students look at the photo and read the caption. In pairs, discuss the meanings of *hot dog* and *eating contest* as they point to descriptive parts of the photo. Elicit answers to the questions from the class.

B. Predicting: Have students answer the question and discuss their ideas with a partner. Then have them scan the passage to check. Ask students what words they scanned for to find the answer. Ask whether they were surprised by the 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 passage.

- Question 1: The title and first two headings for paragraphs B and C indicate that option “c” is correct.
- Question 3: Paragraph C says, “He is smaller and lighter than Chestnut” *He* refers to Kobayashi, which means that Chestnut is *heavier* than Kobayashi. Therefore, the correct option is “a.”
- Question 5: Inference questions require students to infer (guess) the answer *based on* the text. Students can eliminate option “c” as Kobayashi is not the one who says, “Not everybody thinks competitive eating is a good idea.” Students

can eliminate option “a” and therefore choose option “b” as the correct answer because the last sentence of paragraph D and the caption infer that Kobayashi sees himself as an athlete training to win.

B. Scanning: Remind students that they learned about scanning in the reading skill in Unit 1A. If necessary, have students turn back to that section of the Student’s Book and review this skill again. Have students try to match each person (a–c) with the sentences without looking back at the reading passage. Remind students that each person may be used more than once. Then compare answers in pairs before reading to check their answers.

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

Reading Skill

Have students read the paragraph **Identifying the Parts of a Passage**. Explain how each part of a passage works together to help the reader get a complete understanding of the text. Point out how photos give visual information and text gives further details and definitions.

A. Identifying: Have students find the parts of a passage in Reading A individually, then have them check answers in pairs.

B. Scanning: Have students read the questions and think about where they will find the information in the passage. Have students find the answers individually, then check answers in pairs.

Critical Thinking

Have students consider their opinion about eating contests, then share it with a partner, justifying their opinion with reasons.

Vocabulary Practice

A. Definitions: Have students complete the definitions individually, then check answers in pairs.

B. Completion: This passage is about a plum eating festival, in the small Czech town of Vizovice, where one of the most popular events is a plum dumpling eating contest. Direct students’ attention to the photo and caption next to activity A. Have students complete the paragraph with the words in the box, then check answers as a class. Choose a volunteer to read the completed passage aloud to the class.

C. Collocations: Make sure students understand that verbs such as *argue* have different meanings depending on the preposition that follows it. *Argue with / about* is to disagree about something, while *argue for / against* is to give reasons for or against something. Check answers as a class. If time allows, have students write a new sentence for each collocation.

LESSON OVERVIEW

Target Vocabulary: *breathe, contain, dish, fit, health, hungry, painful, plant*

Reading Passage Summary: Chili peppers contain a chemical compound called capsaicin, which is responsible for producing the “hot” sensation you feel when you bite into one. Different types of chili peppers have different amounts of capsaicin, and the Scoville scale was created to measure its concentration in each type of chili pepper—or, the pepper’s “hotness.” Scientists use Scoville heat units (SHU) to describe each pepper: the jalapeno is near the bottom of the scale (5,500 SHU) and the Carolina Reaper is at the top (1.5–2 million SHU).

Answer Key

Before You Read

A. 1. T; 2. F; 3. T; 4. F

B. She is famous for eating Naga Jolokia peppers (“ghost peppers”).

Reading Comprehension

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

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

Reading Skill

A. 1. It → jalapeno; 2. she → mother;
3. they → chilies; 4. them → chili peppers

B. 1. your mouth; 2. capsaicin; 3. Tamuly;
4. the chilies / the spiciness of the chilies

Critical Thinking

- ▶ Possible answer(s): curry, chili, tacos, stir-fry
- ▶ Possible answer(s): (4) stir-fry, (3) tacos, (2) chili, (1) curry

Vocabulary Practice

A. 1. plants; 2. health; 3. dishes; 4. painful;
5. contains

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

C. 1. memory; 2. cut; 3. lesson

TEACHING NOTES

Before You Read 

A. True or False: Discuss the information about the peppers and make sure students understand that the hottest peppers are at the top of the scale. Have students choose true or false, then compare answers in pairs.

B. Scanning: Remind students that they learned about scanning in the reading skill in Unit 1A. If necessary, have students turn back to that section of the Student’s Book and review this skill again. Have them scan the passage for the answer. Ask students what words they searched for to find the 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 passage.

- Question 4: Anandita Dutta Tamuly eats Naga Jolokia peppers, not Carolina Reaper chilies, so the correct option is “a.”
- Question 5: The phrase *I barely notice them* means “I’m so used to them that I don’t think about them anymore,” so the correct option is “c.”

B. Matching: Have students match the peppers with the descriptions without looking back at the information. Then have students check their answers by looking back at Reading B.

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

Reading Skill

Have students read the paragraph **Pronoun Reference**. Explain that pronouns such as, *he, she, it, they,* and *them* usually refer to a noun earlier in the passage and are used in place of that noun to avoid repetition.

A. Reference: For each sentence (1–4), have students match the pronouns with their nouns. Use the example in the paragraph to remind students to link them with arrows. Check the answers as a class.

B. Reference: Have students look back at Reading B to find the sentences (1–4) in the passage. Note that the answer to number 1 is actually in the sentence. Have them check their answers with a partner.

Critical Thinking

- ▶ In pairs, have students list four famous spicy foods.
- ▶ Have students rank the foods in order from 1–4 (1 = hottest). Collate a list on the board of student's chosen foods and ask students to vote for the top four hottest foods from this list. Ask: *Is the class result different to your own ranking?*

Vocabulary Practice

A. Completion: This passage is about how some cactus plants can be eaten and details one way to cook them. Direct students' attention to the photo and caption next to activity A. Have students complete the information with the words in the box before checking their answers in pairs. Choose a volunteer to read the completed passage aloud to the class.

B. Definitions: Have students match the words to their definitions individually, then check their answers in pairs.

C. Collocations: Explain that *painful* is a negative adjective that means "full of pain," describing the feeling of discomfort or distress. Often it describes a physical discomfort, such as in a *painful cut* or a *painful injury*. But the discomfort or distress can also be emotional, such as a *painful experience*, *painful reminder*, or *painful memory*. Have students complete the activity individually and then check answers in pairs. If time allows, have students write additional sentences with the different collocations.



Video Summary: The video gives information about how all our senses help determine the way we taste food.

Key Vocabulary: *bitter, salty, sour, sweet*

Answer Key

Before You Watch

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

B. Possible answer(s): **sweet:** orange, cherry, cake; **salty:** olives, pretzels, fish; **sour:** lemon, grapefruit, sour cream; **bitter:** beer, coffee, orange peel

While You Watch

A. taste, smell, sight, hearing

B. 1. d; 2. c; 3. a; 4. b; 5. d; 6. a

Critical Thinking

Possible answer(s): I would serve the main dish on a white plate and add less salt; I would use strawberries and cherries in the dessert, add less sugar, and serve it on a round plate.

While You Watch

A. Gist: Play the video. Then have students write the senses individually, and then check answers in pairs.

B. Details: Have students answer the questions before watching the video again. Remind students that each option can be used more than once. Then play the video and have students check answers in pairs.

Critical Thinking

Have students make notes on how they could use the information from the video to serve healthier food. Then have students share their ideas with a partner. If time allows, have students work in small groups to put together a new menu for the restaurant using all their ideas.

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

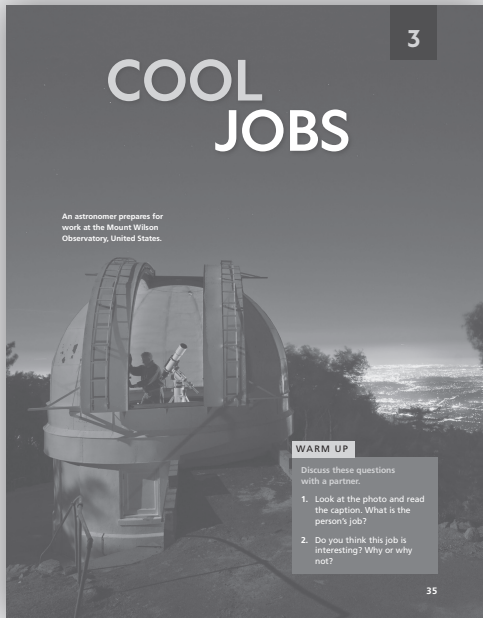
Before You Watch

A. Previewing: Have students read the information and match the word to the type of food it describes. Then have students compare answers with a partner.

B. Previewing: Have students work in pairs to add more foods to each category. Then call on volunteers to share with the class.

COOL JOBS

3



UNIT INTRODUCTION

This unit focuses on interesting jobs and how two *National Geographic* Explorers got to where they are today. In “Digging for the Past,” students read about Nora Shawki, an archeologist in the Nile Delta. In “Getting the Shot,” students read an interview with Joel Sartore, a writer, teacher, and photographer. In “Right Dog for the Job,” students will watch a video about how animal trainers teach dogs to help people. Students will also read about interesting career paths for those with a love of history, and Joel Sartore’s project called the Photo Ark.

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

Key Words for Internet Research: *archeologist, Howard Carter, Joel Sartore, the Photo Ark, Canine Assistants*

WARM UP

Answer Key

Possible answer(s):

1. This person is an astronomer. 2. I think this job is interesting because astronomers study the stars to learn more about the universe.

TEACHING NOTES

Since the beginning of humanity, people have gazed up at the night sky and wondered about what was out there. The Mount Wilson Observatory was made famous when Harlow Shapley measured the size of the Milky Way Galaxy and located our place in it, and then Edwin Hubble

proved there were distant galaxies out there similar to our own.

- Read the Unit Title aloud and ask students to define the word *cool*. Point out that it is an informal word that means something is positive or good. Have students discuss what *cool* can be translated to in their language.
- Read the caption aloud and make sure students know the meaning of *astronomer* and *observatory*. Have students discuss what an astronomer does.
- Have students discuss the questions with a partner. Follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *amazing, career, decide, follow, get married, history, hurt, lucky*

Reading Passage Summary: Nora Shawki is a *National Geographic* Explorer and Egyptian archeologist. She knew at a young age that she wanted to be an archeologist and had to overcome many obstacles to get to where she is today. She currently studies the daily lives of the people who once lived in the Nile Delta. Her words of advice to anyone starting out is to never give up and to focus on your own goals.

Answer Key

Before You Read

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

B. Possible answer(s): It might have been difficult for her because she is female. It might have been very expensive to study. (Answers: She was told the following—she was too young, not qualified, and she should get married and have kids; it was difficult to get money for grants.)

Reading Comprehension

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

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

Reading Skill

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

B. 1. verb: to examine something in detail in order to discover new information;
2. noun: learning about a subject; **3. noun:** an answer; **4. verb:** to give a lot of attention to something

Critical Thinking

► Possible answer(s): **a. 5; b. 1; c. 4; d. 2; e. 2; f. 3**

► Possible answer(s): I think “b” is the worst advice because a big company isn’t necessarily a good company. I think “a” is the best advice because it’s important to love what you do.

Vocabulary Practice

A. 1. history; 2. career; 3. follow; 4. decide; 5. lucky

B. 1. cry; 2. good or surprising; 3. husband or wife

C. 1. lost; 2. ready; 3. tired; 4. angry

TEACHING NOTES

Before You Read 

A. Definitions: Have students look at the photo and read the caption, then match each word with its definition. In pairs, have students discuss the meanings of *challenge* and *goal* and give an example of each.

B. Skimming: Have students answer the question and discuss their ideas in pairs. Then have them skim the passage to check.

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 passage.

- Question 3: Paragraph C says she decided what she wanted to be at the age of nine. The phrase *what she wanted to be* means “what she wanted *her job* to be.” Therefore, the correct option is “c.”
- Question 5: There are several meanings of the word *stress*. In paragraph E, she says, “I stress *yours*.” This means “I am putting emphasis on the word *yours*.” Therefore, the correct option is “b.”

B. Matching Headings: Have students read each paragraph again and match it to a suitable heading (a–d). Then compare answers in pairs.

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

Reading Skill 15–20 MINS

Reading Explorer Foundations level teaches students two different ways of dealing with new vocabulary. This unit looks at using a dictionary and Unit 8 looks at using context to help understand the meaning of new vocabulary. Have students read the paragraph **Dealing with New Vocabulary (1)—Using a Dictionary**. Point out the advantage of identifying a word's part of speech first, because words often have more than one definition. Then, they should look at the other words in the sentence to help pinpoint the correct definition in the dictionary.

A. Matching: Have students identify the parts of speech of the word *past* in each sentence first, before matching the sentences to the correct definition. Check answers as a class.

B. Completion: Have students read the sentences using the context to identify the part of speech, then use a dictionary to find the correct definition. Have students share their answers in pairs.

Critical Thinking 10–15 MINS

Have students consider each piece of advice, then rate it from 1–5 (5 = great advice, 1 = bad advice). In pairs, have students compare answers, giving reasons for their ratings.

Vocabulary Practice 20–30 MINS

A. Completion: This passage is about interesting career paths for those with a love of history. Direct students' attention to the photo and caption next to the activity. Have students complete the information using the words in the box. Then check answers as a class. Ask a volunteer to read their completed passage aloud to the class.

B. Definitions: Have students choose the correct word or phrase and then check answers in pairs.

C. Collocations: Make sure students understand that verbs such as *get* have different meanings depending on the adjective that follows it. Point out that two answers are not used. Check answers as a class. If time allows, have students write a new sentence for each collocation.

GETTING THE SHOT: AN INTERVIEW WITH JOEL SARTORE

LESSON OVERVIEW

Target Vocabulary: *cost, enough, free, pay, project, several, situation, spend*

Reading Passage Summary: Joel Sartore is an award-winning photographer, speaker, author, and conservationist, and he is a regular contributor to *National Geographic* magazine. He is the founder of the Photo Ark, a project that aims to document animal species before they disappear. Sartore’s photographs portray endangered animals in a powerful and interesting way.

Answer Key

Before You Read

- A.** Possible answer(s): **1.** I usually take selfies of me and my friends. **2.** I think it would be difficult to carry all the heavy equipment. Photographers also have to be very patient because they need to wait for the perfect shot.
- B. a.** Question 4; **b.** Question 2; **c.** Question 3; **d.** Question 1

Reading Comprehension

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

Reading Skill

- A.** writer, teacher, photographer, explorer
- B. 1. beautiful:** full of beauty, **natural:** relating to nature; **2. National:** relating to the nation; **3. thoughtfully:** full of thought
- C. 1.** wonderful; possible answer(s): The full moon looked wonderful in the night sky.
2. archeologist; possible answer(s): An archeologist solves mysteries about the past.

Critical Thinking

- Possible answer(s): **1.** Which photo of yours is your favorite? **2.** If you weren’t a photographer, what would you be? **3.** Do your children (or other family members) take pictures, too?

- Possible answer(s): He might answer like this:
1. I like the photos where animals are looking straight into the camera. I think it shows their emotion. **2.** Maybe I’d be a professor or a full-time writer. **3.** Yes, my children learned their love of photography from me. They sometimes join me on photo shoots.

Vocabulary Practice

- A. 1.** project; **2.** several; **3.** spent; **4.** enough; **5.** situation
- B. 1.** c; **2.** a; **3.** b
- C. paid, cost, spent; 1.** paid; **2.** cost; **3.** spent

TEACHING NOTES

Before You Read

A. Discussion: Have students look at the photo and read the caption. Discuss Joel Sartore, and ask if anyone knows anything about his work. Have students answer the questions in pairs.

B. Skimming: Remind students that they learned about skimming in the reading skill in Unit 1B. If necessary, have students turn back to that section of the Student’s Book and review this skill again. Remind students that skimming means quickly reading over a text to get the main idea. Have them skim the interview, then write each interview question (a–d) in the correct place in the passage. 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 passage.

- Question 1: Explain that *to shoot photos* is another way to say *to take photos*.
- Question 2: Although Joel Sartore works with *National Geographic*, his first job was for a newspaper. Therefore, the correct option is “a.”

B. Pronoun Reference: Remind students that they learned about pronoun reference in the reading skill in Unit 2B. If necessary, have students turn back to that section of the Student’s Book and review this skill again. Have students find the pronouns in each paragraph and circle the correct option. 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 **Understanding Suffixes**. Make sure they understand that suffixes are added to the end of words and they change the part of speech. Understanding the meaning of suffixes can help them figure out the meaning of new words.

A. Scanning: Explain that the suffix *-er* can turn a verb into a noun. Have students look back at the first paragraph of Reading B and find four words with the suffix *-er*. Then have them check their answers with a partner.

B. Completion: Have students read the three sentences from Reading B. Then have them underline any words that contain a suffix from the Reading Skill box and write a simple definition for each of these words. Elicit answers as a class, asking students to read their definitions aloud.

C. Definitions: Have students find a word for each of the suffixes (1–2) from Reading A and then write a sentence with each word. Have them compare their sentences with a partner.

Critical Thinking

- ▶ As a class, make a list of things students know about Joel Sartore from the passage. Then, have them think about three questions they’d like to ask him.
- ▶ Have students share their questions with a partner and imagine how Joel Sartore might answer them. If time allows, set this up as an interview with pairs taking turns to be the interviewer or Sartore.

Vocabulary Practice

A. Completion: This passage is about Joel Sartore’s Photo Ark project and the animals he photographs. Direct students’ attention to the photos next to the activity. Have students complete the information with the words in the box. Then check their answers in pairs. Ask a volunteer to read their completed passage aloud to the class.

B. Definitions: Have students match the two parts of each definition and then check their answers in pairs.

C. Word Forms: Explain that *pay*, *cost*, and *spend* are similar words that have to do with money. Point out that the only way to learn irregular past tense forms is to memorize them. Have students write the past tense of each word and then complete the sentences using the correct words. If time allows, have the students write additional sentences with the past tense forms.

Video Summary: The video gives information about the Canine Assistants Canine Camp. The camp trains young dogs to become caregivers and assistants to humans who need help in their daily lives.

Key Vocabulary: *train, trainer, training*

Answer Key

Before You Watch

A. 1. train; **2.** trainer; **3.** training

B. pick up things, find help, call the police, open / close doors, turn lights on, be comfortable with people, get along with other animals

While You Watch

A. See **Before You Watch B.**

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

Critical Thinking

Possible answer(s): I would like to be an archeologist because I'm interested in history, and I've studied ancient Greek, Egyptian, and Italian civilizations. I'd really like to visit the ruins and learn more about the people who once lived there.

TEACHING NOTES

Before You Watch

A. Previewing: Have students read the information and match the correct form of each word to its definition. Then compare answers with a partner.

B. Predicting: Have students work in pairs to check which ideas they think will be in the video. Tell them not to worry if they do not know the answers; they will revisit this section after watching the video.

While You Watch

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

B. Details: Have students complete the sentences before watching the video again. Then play the video and have students check answers in pairs.

Critical Thinking

Have students make notes on each job from what they have learned in this unit, then choose the one they would most like to have. Have students share their ideas with a partner.

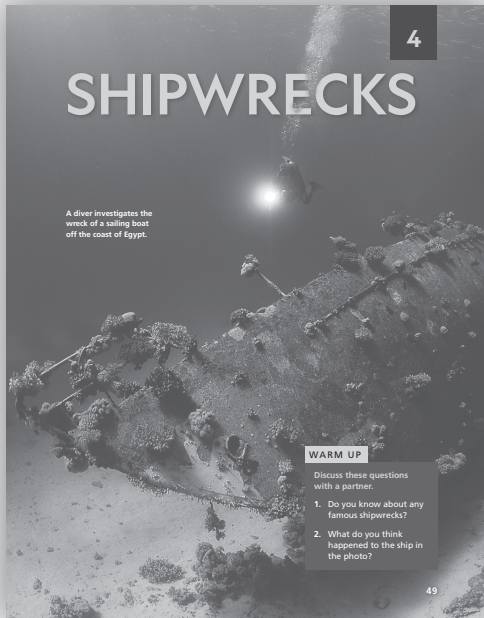
Vocabulary Review

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.

SHIPWRECKS

4



UNIT INTRODUCTION

This unit focuses on the *Titanic*, one of the most famous shipwrecks in history. In “I’ve Found the *Titanic*!” students read about Robert Ballard and his discovery of the sunken ship. In “My Descent to the *Titanic*,” students read about Corey Jaskolski and his important job on an expedition to explore the *Titanic*. In “An Ancient Shipwreck,” students will watch a video about a shipwreck discovered off the coast of the Greek island of Antikythera in 1900. Students will also read about the *Carpathia* (the ship called to help save people on the *Titanic*); the reason so many people died that fateful night; a crash between the *Andrea Doria* and the *Stockholm*, which led to tragic results; and how to visit the *Titanic* shipwreck.

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

Key Words for Internet Research: *Titanic*, *Robert Ballard*, *deep-sea explorer*, *deep-sea robot*, *submarine*, *Corey Jaskolski*, *Antikythera Shipwreck*

WARM UP

Answer Key

Possible answer(s):

1. I know about the *Titanic*, and I’ve read about many ships that were sunk during World War II.
2. I think the ship in the photo might have sunk in terrible weather because it was a sailing boat.

TEACHING NOTES

Ancient civilizations began navigating the oceans about 5,000 years ago. UNESCO estimates that there could be more than three million shipwrecks around the world. The *Titanic* is perhaps the most

famous shipwreck of all, and its story was made into a blockbuster Hollywood movie.

- Read the Unit Title aloud and have students look at the photograph. Discuss what the man with the light is doing and what he is looking at.
- Read the caption aloud and make sure students know the meaning of *diver*, *investigates*, *wreck*, and *sailing*. Point out that *wreck* is a shortened form of *shipwreck* in this case, but *wreck* can also refer to a car crash. Point out the coast of Egypt on a map, and ask where this boat might have been going and what might have happened to the people onboard.
- Have students discuss the questions with a partner and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *agree, condition, death, dream, instead, item, reach, return*

Reading Passage Summary: Robert Ballard, born in 1942, had been interested in shipwrecks since he was young. He joined the U.S. Navy and was able to use the skills and experience he gained there to begin his search for the wreck of the *Titanic*. In August 1985, his dream came true when he and his team found the famous ship on the ocean floor. The shipwreck is at a depth of about 12,500 feet, approximately 370 miles off the coast of Newfoundland, and there are hundreds and thousands of personal items spread across the nearby ocean floor. There have been many debates over the years about whether to leave *Titanic* intact or to raise the wreck out of the ocean. However, the *Titanic* is now considered too fragile to move and it is currently being protected.

Answer Key

Before You Read

- A. An iceberg is a very large piece of ice that floats in the sea; A passenger is any person who is using a mode of transport except the driver; A lifeboat is a small boat attached to a large ship for use in emergencies; A shipwreck is a ship that has been destroyed in an accident at sea; A submarine is a type of ship that can travel underwater.
- B. 1. It hit an iceberg. 2. There weren't enough lifeboats and the people drowned. 3. August 31, 1985 (73 years after it sank), explorers studied it using deep-sea submarines
- C. three times

Reading Comprehension

- A. 1. c; 2. a (Para B); 3. b (Para C); 4. b; 5. a
- B. 1. b; 2. a; 3. c; 4. f; 5. e; 6. d

Reading Skill

- A. b
- B. Para A: b; Para B: b; Para C: b; Para D: b; Para E: a

Critical Thinking

- ▶ Possible answer(s): I think he feels this way because he wants to respect the people who died. He doesn't want the items taken out of their natural environment. He wants to leave the shipwreck intact as a memorial to those who lost their lives.
- ▶ Possible answer(s): **Arguments for taking items:** to preserve them and protect them from the salt water; to allow more people to see the items; **Arguments against taking items:** to respect the dead, to keep the shipwreck as a natural artifact, to protect the items from being stolen or used in illegal ways; I don't agree with Robert Ballard because I think if the items stay at the bottom of the ocean, they will completely deteriorate and there will be nothing left of them.

Vocabulary Practice

- A. 1. deaths; 2. conditions; 3. reach; 4. returned
- B. 1. a; 2. a; 3. b; 4. a
- C. 1. on; 2. with; 3. to

TEACHING NOTES

Before You Read



A. Definitions: Remind students that they learned about dealing with new vocabulary by using a dictionary in the reading skill in Unit 3A. If necessary, have students turn back to that section of the Student's Book and review this skill again. Have students look at the picture and read the timeline. Then have them identify the part of speech for each bold word, looking to see how the words are used in each sentence. With a partner, have them discuss the meanings of these words and then check them in a dictionary. Ask for volunteers to read their definitions aloud to the class.

B. Previewing: Have students look at the picture and timeline again to answer the questions and then check answers in pairs. When the *Titanic* sank, it was one of the biggest news stories at the time. Historically, it is still the largest loss of life in a shipwreck other than ships that have sunk during wartime.

C. Scanning: Have students read the first sentence of each paragraph in Reading A to answer the question and then discuss their ideas in pairs. Then have them read the whole passage to check.

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 passage.

- Question 2: Ballard visited the shipwreck in a submarine on his *second* trip, so the correct answer is option “a.”
- Question 5: Ballard wants to protect the *Titanic* and leave it exactly as it is now on the ocean floor. He wants to put lights and cameras in and around it so others can see the shipwreck. Therefore, the correct option is “a.”

B. Summarizing: Have students read the summary and choose the correct options to complete it. Then compare answers in pairs.

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

Reading Skill

Have students read the paragraph **Identifying a Paragraph’s Main Idea**. Explain that the main idea is the main point the author is trying to make. Reading the first and last sentence together with any headings will give clues to the main idea.

A. Identifying Main Ideas: Have students read the passage before choosing the correct answer. Note that by reading the first and last sentence, students can figure out that the *Carpathia* went to help the passengers of the *Titanic* and took some to New York.

B. Identifying Main Ideas: Have students skim Reading A to recall what they have already read to help choose the main ideas for each paragraph. Have students share their answers in pairs.

Critical Thinking

- ▶ Have students think about Ballard’s reasons for wanting to leave the items in the *Titanic* exactly as they are and then discuss their ideas with a partner.
- ▶ Have students complete the chart individually and then share their ideas in pairs. Ask students whether they agree with Robert Ballard.

Vocabulary Practice

A. Completion: This paragraph is about why so many people died when the *Titanic* sank. Direct students’ attention to the photo and caption next to activity A. Have students complete the information with the words in the box and then check answers as a class. Ask for a volunteer to read the paragraph aloud to the class.

B. Completion: Have students choose the correct word or phrase to complete the sentences and then check answers in pairs.

C. Word Usage: The verb *agree* means “to share the same feeling.” Make sure students understand the meaning changes slightly depending on the preposition that follows it. Have students circle the correct preposition and then compare answers with a partner. If time allows, have students write a new sentence for each phrasal verb.

LESSON OVERVIEW

Target Vocabulary: *battery, carry on, fix, metal, pilot, plan, pull, totally*

Reading Passage Summary: Corey Jaskolski is an engineer who develops new ways to capture images in challenging environments on Earth. He helped develop a battery pack that was designed to withstand the high pressure of the deep ocean. This technology was used to power robots that were used to explore the *Titanic*, and, in 2001, Jaskolski had the opportunity to descend to the wreck in a three-man submarine.

Answer Key

Before You Read

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

B. Yes, their plan was a success and they got the green robot out.

Reading Comprehension

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

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

Reading Skill

A. Sentence 2: 1,700 passengers and crew members; Sentence 4: the Andrea Doria and Stockholm; Sentence 8: darkness and bad weather

B. 1. the robot and the ship; 2. two crew members and I; 3. suitcases and shoes

Critical Thinking

Possible answer(s): **Advantages of Robots:** They can work in dangerous places without risking human life. Their work is precise and exact. **Advantages of Humans:** They would have a better view of the surroundings. They can solve any problems that come up.

Vocabulary Practice

A. 1. pilot; 2. battery; 3. plan; 4. totally

B. 1. metal; 2. carry on; 3. fix; 4. pull

C. completely, entirely, absolutely, fully

TEACHING NOTES

Before You Read

A. Skimming for Main Ideas: Remind students that they learned about identifying a paragraph's main idea in the reading skill in Unit 4A. If necessary, have students turn back to that section of the Student's Book and review this skill again. Have students skim the first three paragraphs and match each paragraph to its main idea. Then have students check answers in pairs.

B. Skimming for Main Ideas: Have them skim the rest of the reading and answer the question, then read the passage to check their ideas.

Reading Comprehension

A. Multiple Choice: Draw students' attention to the photo and caption next to the activity. 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 passage.

- Question 3: The phrase *on our own* means "no people nearby," or "alone." *Lonely* is a negative and sad emotion, but *alone* simply means no one is around you.
- Question 5: The word *fell* is used in a respectful (and often formal) way to talk about people who have died. It's often used to describe soldiers or people who fought hard for something.

B. Summarizing: Have students complete the sentences individually and then check answers in pairs. Remind students that each option can be used more than once.

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

Reading Skill

Have students read the paragraph **Recognizing Compound Subjects and Objects**. Review the meaning of the grammar terms *subject* and *object*. Explain that a subject is the actor in a sentence and the object is what is being acted upon. In the sentence *Bill called Julie*, the action of *call* was done by Bill, the subject, to Julie, the object. When subjects and objects are compound, there is more than one. Point out the connecting word *and* used between both subjects and objects. If there are more than two subjects or objects, commas will be used along with *and*. Compound subjects and objects are used to avoid repetition and make sentences more interesting for the reader.

A. Analyzing: This paragraph tells the account of the sinking of the *Andrea Doria* after being struck by the *Stockholm*. Draw students' attention to the photo and caption next to the activity. Have students find and circle the sentences with compound subjects and objects and underline the different subjects and objects in each of these sentences. Elicit answers from the class. Have students read aloud the sentences they found.

B. Scanning: Have students find compound subjects and objects in Reading B and then check their answers with a partner.

Critical Thinking

Have students make notes on the advantages of sending robots to shipwrecks and the advantages of sending humans in submarines. Then have students discuss their ideas with a partner.

Vocabulary Practice

A. Definitions: This passage is about the idea of people being able to pay to visit the wreck of the *Titanic*. Have students read the information before completing the definitions with the words in red. Check answers in pairs. Have a volunteer read the passage aloud to the class.

B. Completion: Have students complete each sentence with a word in the box and then check their answers in pairs.

C. Word Web: Explain that *totally* means 100 percent. Have students brainstorm synonyms and check if any of their ideas fit in the spaces. Allow students to use dictionaries to complete the activity and then check answers with a partner. If time allows, have students write a sentence using *totally* then replace the word with their answers to see if the sentence still makes sense.

Video Summary: The video gives information about a shipwreck discovered off the coast of the Greek island of Antikythera in 1900. A new team of archeologists returned to the shipwreck in 2017 to learn more about the ship and the people on it.

Key Vocabulary: *ancient, seabed, statue*

Answer Key

Before You Watch

A. 1. ancient; 2. statues; 3. seabed

B. Possible answer(s): I think there would be gold coins and jewels in a 2,000-year-old shipwreck. There might also be jars and containers that might have been filled with food for the journey or to export.

While You Watch

A. b

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

Critical Thinking

- ▶ Possible answer(s): a religious symbol, a good-luck charm
- ▶ Possible answer(s): I think the medal disk was probably used as a good-luck charm. Maybe the people on the ship were going to a new land and they believed that this metal disk would help them become profitable and successful.

TEACHING NOTES

Before You Watch

A. Previewing: Have students read the information and match the words to the definitions. Then have students compare answers with a partner.

B. Discussion: Have students discuss in pairs what types of objects might be found in a 2,000-year-old shipwreck.

While You Watch

A. Gist: Play the video. Then have students choose the correct summary. Remind them that a summary is the main idea, not a specific detail.

B. Matching: Have students match the items (a–c) to the descriptions (1–5) before watching the video again. Then play the video again and have students check answers in pairs. Remind students that each item can be used more than once.

Critical Thinking

- ▶ Have students think about what the metal disk might have been used for and add two of their own ideas to the box.
- ▶ Have students share their ideas with a partner using information from the video to support their answers.

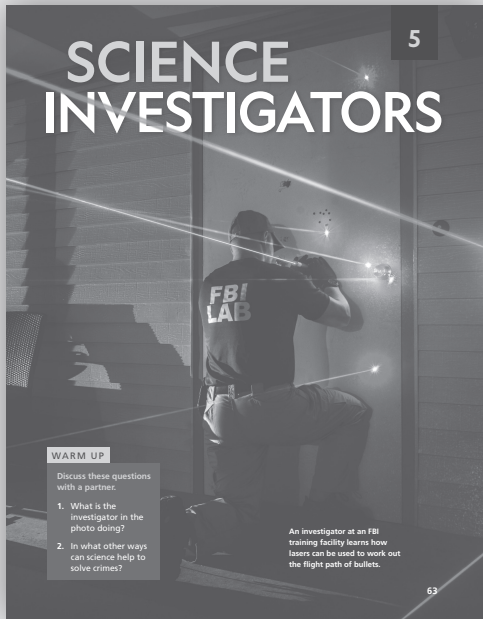
Vocabulary Review

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.

SCIENCE INVESTIGATORS

5



UNIT INTRODUCTION

This unit focuses on how science is used to solve problems. In “The Disease Detective,” students read about a doctor who finds the cause of a sickness outbreak. In “At the Scene of a Crime,” students read about clues that crime scene investigators look for when solving a crime. In “The Flu Virus,” students will watch a video about the flu virus. Students will also read about how bee stings can be helpful, and how investigators collect fingerprints from a crime scene.

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

Key Words for Internet Research: *bacteria, E. coli, DNA, crime scene investigator, influenza virus*

WARM UP

Answer Key

Possible answer(s):

1. The investigator is using lasers to analyze the flight path of bullets on a door.
2. DNA and fingerprints found at the crime scene can be analyzed and compared.

TEACHING NOTES

The Federal Bureau of Investigation (FBI) is the part of the U.S. government that investigates crimes and gathers intelligence. The FBI’s mission is to protect people’s civil rights and combat criminal organizations and violent crime.

- Read the Unit Title aloud as students look at the photo. Have students discuss what they see and how it relates to the title. Make sure students know the meaning of *investigator*, and explain that we know this man is an investigator because of the words on his shirt: FBI LAB. LAB stands for *laboratory*, which is a place where scientific testing is done.
- Read the caption aloud and explain the meaning of *training facility*, *lasers*, and *bullets*. Explain that a bullet follows a flight path, which can be analyzed to find out where it was fired from.
- Have students discuss the questions and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *dangerous, dirty, expert, ground, illness, kill, list, touch*

Reading Passage Summary: Dr. Richard Besser is an expert on strange illnesses. His job is to investigate and analyze patterns of illness to figure out what is making people sick and how they contracted it. He uses scientific techniques, such as testing DNA in bacteria, to find the cause of a mystery illness. He works as a detective to find the cause of the problem.

Answer Key

Before You Read

B. Possible answer(s): I think a “disease detective” is a person who tries to understand how and why people get sick.

Reading Comprehension

A. 1. b; 2. a (Para B); 3. c (Para B); 4. b (Para E); 5. c (Para E)
B. 1. DNA; 2. animals to humans; 3. apple juice; 4. washed, heated

Reading Skill

A. 1. a; 2. a; 3. b; 4. b
B. 1. to give background information; 2. to describe a problem; 3. to describe a solution; 4. to list a sequence of actions; 5. to give a conclusion

Critical Thinking

Possible answer(s):

- ▶ 1. Do not use apples from the ground. 2. Wash the apples. 3. Heat the juice.
- ▶ I think these rules are important because rules 2 and 3 will kill the bacteria. Rule 1 will help prevent the bacteria from getting into the juice in the first place.

Vocabulary Practice

- A.** 1. dangerous; 2. kill; 3. expert; 4. illness; 5. touch
B. 1. clean; 2. many things; 3. down; 4. a lot
C. adventure, famous, mystery; 1. adventure; 2. mystery; 3. famous

TEACHING NOTES

Before You Read 

A. Previewing: Have students look at the photo and read the title and caption. In pairs, discuss the meanings of *disease, detective, and bacteria*. Point out that this vocabulary is very specific to the topic of the passage and will be key to understanding the content. Explain that there are both good and bad types of bacteria, and some people are more sensitive than others to certain kinds of bacteria. *E. coli* is one bacteria that can cause serious illness or death in humans, especially children. Explain that a *detective* is a person looking for answers.

B. Skimming: Have students skim the reading individually to check their ideas in activity A. In pairs, have them confirm whether their original ideas were correct.

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 passage.

- Question 3: Paragraph B states “... this type of *E. coli* ...” The phrase *this type* means that there is more than one type. Therefore, option “c” is NOT true.
- Question 5: Students need to infer Dr. Besser’s opinion on how not to spread germs. Both options “a” and “b” make broad generalizations

about all apple juice and all animals, which would not be logical conclusions based on what Dr. Besser learned from the *E. coli* outbreak. It was specifically connected to the use of dirty fruit. Although the public might have an extreme reaction when hearing about an *E. coli* outbreak connected to apple juice and not want to buy it in the supermarket, make sure students understand that would not likely be Dr. Besser's opinion.

B. Summarizing: Have students try to complete the sentences without looking back at the reading passage. Then compare answers in pairs before reading to check their answers. Remind them to complete each blank with one to three words.

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

Reading Skill

Have students read the paragraph **Identifying the Purpose of a Paragraph**. Make sure they understand the importance of organizing a passage. When writing is well organized, it is much easier for a reader to understand. Analyzing a paragraph's purpose gives clues about how the passage is organized.

A. Identifying Purpose: Have students read paragraphs A, D, E, and F and think about their main purpose. Check answers as a class. Point out that the author follows a logical pattern in organizing the paragraphs in the passage. This logical organization of ideas is typical in English essay writing. Elicit examples from the text that helped students determine each paragraph's purpose. For example, paragraph A describes the problem of a mysterious illness that is making children sick.

B. Identifying Purpose: Have students turn back to Unit 4, Reading B and, in pairs, discuss the purpose of each paragraph. Check answers as a class.

Critical Thinking

- ▶ Give students time to look back at paragraph E in Reading A. Have students work individually to write their three rules.
- ▶ Have them discuss their ideas with a partner explaining the reasons for their rules.

Vocabulary Practice

A. Completion: This paragraph is about bee stings and how the poison can be used to help some people. Have students read the paragraph first before completing it with the correct words from the box. Then check answers in pairs. Ask for a volunteer to read the completed paragraph aloud to the class.

B. Definitions: Have students choose the correct options to complete the definitions. Check answers as a class.

C. Word Forms: Explain that a *suffix* comes at the end of a word. Point out that the suffix *-ous* means "full of," which can help students guess the meaning of unknown words. Check answers as a class. If time allows, have students write a new sentence for each word.

Challenge: Write the following words on the board and elicit their root words and meanings: *ambitious, anxious, delicious, enormous, generous, gracious, harmonious, nervous, poisonous, spacious*. Allow students to use a dictionary to identify the meaning of the root words, if necessary.

LESSON OVERVIEW

Target Vocabulary: *alone, catch, compare, direction, possible, space, step, vehicle*

Reading Passage Summary: A crime scene investigator’s job is to look for clues at a crime scene, then piece the clues together to solve the crime. Clues can range from shoeprints and tire marks to fingerprints and hair. An investigator gathers all the information and puts it together to try and recreate what might have happened.

Answer Key

Before You Read

- A. 1.** thief; **2.** clue; **3.** fingerprint
B. The investigator finds the following clues:
 a broken window, shoeprints, tire marks, fingerprints, a hair

Reading Comprehension

- A. 1.** b; **2.** b; **3.** b; **4.** b (Para C); **5.** a (Para D)
B. 1. F (The thief took some expensive items.);
2. T; **3.** NG; **4.** T; **5.** NG

Reading Skill

- A. 1.** b; **2.** a; **3.** b
B. Possible answer(s): 1, 2, 3

Critical Thinking

- Possible answer(s):
- ▶ 2 (a rock by the window); 5 (a mark made with a glove); 1 (a drop of blood near the window); 5 (a drop of oil from the car); 1 (a cellphone on the road outside); 1 (a flashlight on the store floor)
 - ▶ I don’t think a drop of oil or a glove mark would be very useful because they wouldn’t give any DNA evidence. The other items like the rock, flashlight, and cell phone would have fingerprints on them, and a cell phone might even have call records and/or texts that could provide more information. The drop of blood may contain DNA evidence.

Vocabulary Practice

- A. 1.** catch; **2.** comparing; **3.** space; **4.** possible
B. 1. no; **2.** feet; **3.** bus; **4.** general line it follows
C. 1. possibility; **2.** possibly; **3.** possible

TEACHING NOTES

Before You Read



A. Definitions: Have students look at the photo and read the caption. Point out that they will use the words in bold to complete the definitions. Explain that a *crime* is something that is illegal, such as theft or murder. The *scene of a crime* is the place where the illegal activity took place. Have students complete the activity individually and then check answers in pairs.

B. Scanning: Remind students that scanning means to quickly read over a text to find specific information. Make sure they understand what an *investigator* does, and that they are looking for clues at a crime scene.

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 passage.

- Question 5: Paragraph D states that the most important clues come from a person’s body, such as fingerprints and hair. These items are unique to an individual, so it is possible to use them to identify someone.

B. Evaluating Statements: Have students individually read the statements and decide if the information is true (T), false (F), or not given (NG). Remind them to correct the false statements and then have them check answers with a partner.

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

Reading Skill

Have students read the paragraph **Inferring Meaning**. Explain that *reading between the lines* refers to understanding what the author is NOT saying directly. Students should use their background knowledge and common sense when inferring.

A. Inferring Meaning: Have students complete activity A. Check the answers as a class by going over each statement and eliciting the reason the information can be inferred or not.

B. Inferring Meaning: Have students complete activity B. Point out that part of a crime scene investigator's job is to make inferences based on evidence and clues.

- Statement 1: Because the call came in at 5:30 a.m., we can infer that the crime happened in the middle of the night.
- Statement 2: It's likely that the investigator will check the fingerprints of the store workers so that the thief's prints can be identified by process of elimination.
- Statement 4: We might suspect the hair belongs to the thief, but we can't be sure.

Critical Thinking

- ▶ Have students rate each item on its usefulness, from 1 (very useful) to 5 (not useful), in helping solve a crime.
- ▶ Have pairs discuss why they rated the items in that way.

Vocabulary Practice

A. Completion: This paragraph explains how to get a fingerprint from the side of a drinking glass just by using powder and tape. Direct student's attention to the photo and caption next to activity A. Have students read the passage first before completing it by circling the correct words. Then have them check their answers in pairs. Ask for a volunteer to read the completed passage aloud to the class.

- Students may already be familiar with the verb *catch* as in the phrases *catch a ball* or *catch a cold*. The verb *catch* in *to catch a thief* means "to capture." Usually it refers to getting someone who is trying to escape. It can also be used when talking about capturing animals: *I caught a mouse in my kitchen*.

B. Definitions: Have students complete the sentences individually and then check their answers in pairs.

C. Word Forms: Make sure students understand different parts of speech and how a word changes meaning based on its suffix. Have students complete the activity individually and then check answers in pairs. If time allows, have students write additional sentences with the different word forms.

Video Summary: The video gives information about the dangers of the flu virus and describes the type A virus. The flu virus is dangerous because it is always changing and difficult to cure. Type A is the virus that can be spread from one person to another the fastest.

Key Vocabulary: *deadly, spread, virus*

Answer Key

Before You Watch

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

- B. 1.** Possible answer(s): Yes, I had the flu last year. It was horrible! I had a fever and my bones ached. I had to stay in bed for a week.
- 2.** Possible answer(s): A flu is a much stronger illness than a cold. You can still function with a cold—you might sneeze and cough and feel stuffed up, but you can still go to work or school. However, you cannot leave bed if you have the flu. The flu is usually much worse than a cold and makes you feel sicker.

While You Watch

A. 1. birds; 2. pigs; 3. birds

B. 1. 36,000; 2. 5,000; 3. 50 million; 4. 375,000

Critical Thinking

- ▶ Possible answer(s): I think a crime scene investigator has the most interesting job because every crime scene is different.
- ▶ Possible answer(s): I think a scientist creating a flu medicine has the most difficult job. The flu virus is constantly changing, and it is nearly impossible to figure out which strain of the flu to base the vaccine or medicine on.
- ▶ Possible answer(s): I think a disease detective has the most important job. Some diseases can spread very quickly, and it is necessary to figure out what the disease is and where it came from immediately so that other people don't get infected.

TEACHING NOTES

Before You Watch

A. Previewing: Have students read the information in the paragraph before completing activity A individually. Then have students compare answers with a partner.

B. Discussion: Have students discuss the questions with a partner. Then call on volunteers to share with the class.

While You Watch

A. Gist: Play the video. Have students complete the activity individually and then check answers in pairs.

B. Details: Have students answer the questions before watching the video again. Then play the video again and have students check answers in pairs. Remind students that one number in the box is extra.

Critical Thinking

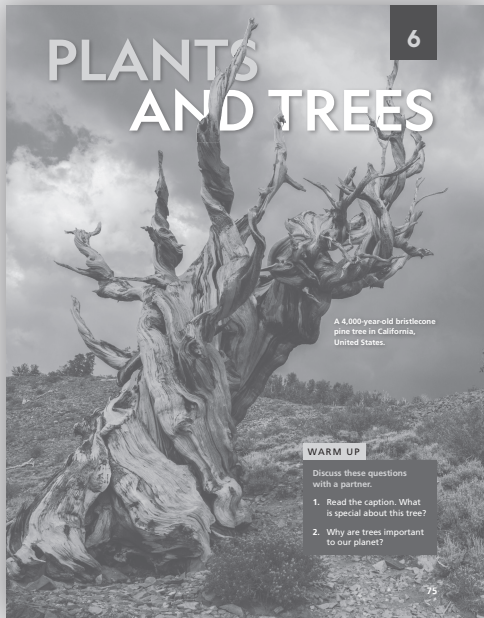
In small groups, have students discuss each job (a–c) and make a list of what each job entails. Then have students answer the questions and give reasons for their answers.

Vocabulary Review

Have students work individually 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.

PLANTS AND TREES



UNIT INTRODUCTION

This unit focuses on plants and trees. In “Planting for the Planet,” students read about Felix Finkbeiner and his successful attempt to get people to plant trees to help save the planet. In “Fatal Attraction,” students read about the Venus flytrap and how it traps its prey. In “Giants of the Forest,” students will watch a video about why giant sequoia trees grow so big. Students will also read about a man who lives on an Indian island and planted trees to protect the land, and how the sundew is another type of killer plant.

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

Key Words for Internet Research: *bristlecone pine tree, Felix Finkbeiner, Plant-for-the-Planet, Venus flytrap, sundew, killer plants, giant sequoias, General Sherman*

WARM UP

Answer Key

Possible answer(s):

1. The tree is 4,000 years old.
2. Trees absorb carbon dioxide from the air and release oxygen. They provide habitats for many living things, and when they die, they decompose and help make rich new soil.

TEACHING NOTES

Plants and trees are vital to the health of our planet. In addition to absorbing toxic gases from the air, trees release necessary oxygen for us to breathe. Plants provide us with fruit, vegetables, and grains to eat; without them, we would starve.

- Read the Unit Title aloud as students look at the photo. Have students discuss what they see and how it relates to the title. Make sure students know that a tree is also a plant, but we tend to use the word *plant* to refer to smaller things that grow in the ground.
- Read the caption aloud and explain that *bristlecone pine tree* is the name of the tree. Make sure students understand that this tree is very old, and that although it does not have any green leaves in the photo, it is still alive.
- Have students discuss the questions with a partner and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *challenge, classmate, invitation, member, news, presentation, save, speech*

Reading Passage Summary: In Germany, in 2007, when Felix Finkbeiner was nine years old, he gave a class presentation about deforestation and its negative effects on the planet. He believed people could help by planting trees, and nine years later more than 14 billion trees had been planted around the world. Finkbeiner has since spoken at the European Parliament and at the United Nations—helping lead a movement to get current leaders to address climate change before it is too late.

Answer Key

Before You Read

- A. 1. encourage; 2. plant
- B. one million trees; one trillion trees

Reading Comprehension

- A. 1. c; 2. b; 3. c (Para C); 4. a; 5. b
- B. 1. his classmates; 2. in New York; 3. 70,000 members

Reading Skill

- A. a. Para B (lines 8–9); b. Para A (lines 5–7); c. Para B (lines 4–5); d. Para A (lines 1–3); e. Para B (lines 6–7); f. Para B (lines 1–4)
- B. d, b, f, c, e, a

Critical Thinking

Possible answer(s): There is an empty field in the space behind the school. It’s not a field that is used to play soccer—it’s a waste of land because the grass is patchy and there’s a lot of dirt. I think it would be a great place to plant trees because they would provide shade and create a habitat for birds and other animals.

Vocabulary Practice

- A. 1. save; 2. members; 3. News; 4. speeches
- B. 1. school; 2. speak; 3. difficult; 4. join
- C. transportation, preparation, presentation, education, information

TEACHING NOTES

Before You Read



A. Definitions: Have students look at the photo and read the caption. In pairs, discuss the meanings of *encourage* and *plant*. Ask students why they think Felix encourages people to plant trees.

B. Scanning: Have students scan the reading for numbers and then answer the questions. Have them check their 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 passage.

- Question 3: Paragraph C says that the goal now is one trillion (not one billion). Direct students to the footnotes at the bottom of the page—a trillion is 1,000,000,000,000. Therefore, option “c” is correct.
- Question 5: Finkbeiner says that we do not have time to wait for the current younger generation to grow up and make changes. We need to push the current world leaders to act now.

B. Scanning: Have students try to answer the questions without looking back at the reading passage. Then compare answers in pairs before scanning to check their answers.

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

Reading Skill

Have students read the paragraph **Creating a Timeline of Events**. Explain that creating a timeline of events is a useful way to organize information from a reading passage, especially one with a historical focus or one that talks about a lot of events. Point out that students can use a timeline with specific dates, or they can simply put events in the correct order. Tell them that a timeline is a tool for organization that can help them understand a complicated story in the order in which it occurred. Students should look carefully for words which signal sequence to help put events in the correct place.

A. Scanning: Have students read the events (a–f) then scan Reading A to find and underline them in the passage.

B. Sequencing: Have students label the timeline with the events from activity A. Then check answers as a class.

Critical Thinking

Individually, have students think about a suitable place in their area to plant trees. Then get them to share their ideas with a partner.

Vocabulary Practice

A. Completion: This passage is about how Jadav Payeng, nicknamed the “Forest Man of India,” has helped save his island by planting trees. The resulting forest has not only stopped the island from being washed away by the river, but it has also become a wildlife haven. Direct students’ attention to the photo and caption next to activity A. Have students read the passage before completing the information using the words in the box. Remind students that two words are extra. Check answers in pairs. Choose a volunteer to read the completed passage aloud to the class.

B. Definitions: Have students choose the correct word to complete the definitions. Check answers as a class.

C. Word Forms: Explain that the suffix *-ation* is a clue that a word is a noun. The suffix is used to turn many verbs into nouns. Check answers as a class. If time allows, have students choose three of the nouns and write a sentence for each.

LESSON OVERVIEW

Target Vocabulary: *along, difference, electrical, famous, forest, leaf, lock, within*

Reading Passage Summary: A Venus flytrap is a unique type of plant because it eats insects and spiders. They are lured to the plant’s sweet-smelling nectar and—SNAP! The Venus flytrap snaps shut and starts to digest its prey. Scientists have recently discovered that the Venus flytrap is “electrical,” which means the insect or spider’s touch creates electrical signals in the leaf that tell it when to snap shut.

Answer Key

Before You Read

- A.** *Carnivorous* means “meat-eating.”
- B.** Possible answer(s): Venus flytraps first attract an insect (their food) by providing nectar for it to eat. Then, when the insect touches a hair inside the leaf, an electrical signal is created. The insect can continue to feed, but if it touches another hair within 20 seconds the trap snaps shut trapping the insect inside the leaf.

Reading Comprehension

A. 1. a; **2.** c (Para C); **3.** a; **4.** a (Para D); **5.** c (page 83)

B. c, e

Reading Skill

A. Paragraph B: recently, after, now; Paragraph C: when, now; Paragraph D: once, now, later, next

B. a → c → g → f → d → e → b

Critical Thinking

- ▶ Possible answer(s): They hunt to get food for energy. They live in the wild. They need food, air, and water.

Vocabulary Practice

- A. 1.** within; **2.** forest; **3.** lock; **4.** leaf
- B. 1.** not the same; **2.** television; **3.** many; **4.** road
- C. 1.** make; **2.** tell; **3.** make

TEACHING NOTES

Before You Read

A. Previewing: Point out the words *energy*, *catching*, and *eating* in the caption and make sure students know that living things need energy from food to survive. Explain that most plants get their energy from the sun by a process called photosynthesis, but that Venus flytraps are different. Have students check answers in pairs before looking in a dictionary.

B. Skimming: Remind students that *skimming* means quickly reading over a text to get the main idea. Make sure they know to look for information about how Venus flytraps catch their food. Have students discuss their ideas with a partner before skimming the passage to check.

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 passage.

- Question 4: Paragraph D says, “Ten days later ... the Venus flytrap is ready for its next meal.” There are approximately 30 days in a month, so the Venus flytrap is ready to eat about three times a month. Therefore, option “a” is the best choice.

B. Inference: Have students read the sentences and infer whether the situation would cause the Venus flytrap to close. Remind them that the plant closes when it feels something on its hairs twice within 20 seconds. Ask students if that means it needs to be the same insect that touches a hair both times (it does not). Have students check answers with a partner.

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

Reading Skill

Have students read the paragraph **Understanding a Process**. Remind students they practiced sequencing events in Reading 6A. Point out that a diagram makes the sequence of events clear because you can easily see in what order things happen.

A. Analyzing: Remind students what signal words are by reviewing the paragraph **Creating a Timeline of Events** in Reading 6A. Have students scan Reading B, underlining any words or phrases which signal a sequence. Compare answers in pairs.

B. Understanding a Process: Have students put the events in order without looking back at the passage before skimming the passage to check their answers.

Critical Thinking

- ▶ Have students create a Venn Diagram with the headings *Venus flytrap*, *Both*, and *Animals*. Give them a few minutes to note down their ideas individually.
- ▶ Have pairs discuss how a Venus flytrap is similar to an animal, then share their ideas with the class.

Vocabulary Practice

A. Definitions: This passage is about the sundew, a plant that is similar to a Venus flytrap. Direct students' attention to the photo and caption next to activity A. Have students read the information before matching each word in red to its definition. Then check answers in pairs. Choose a volunteer to read the completed passage aloud to the class.

B. Words in Context: Have students circle the correct word or phrase to complete each sentence, then check their answers in pairs.

C. Collocations: Make sure students understand that collocations are words often used together to make a common phrase. Have students complete the activity individually and then check answers in pairs.

Challenge: Have students work in pairs to find out more about another killer plant species. Ask them to search online. Make sure each pair chooses a different plant. Tell them to make a poster with some information about their plant, including where it grows, what it eats, and how it catches its prey. Hang the posters around the classroom, and have students walk around the class to learn about some more killer plant species.

Video Summary: The video talks about one of the largest living things on Earth—the giant sequoia tree—giving information about why they grow so big. It also gives facts about General Sherman, the world’s largest tree.

Key Vocabulary: *bark, branches, roots, trunk*

Answer Key

Before You Watch

A. 1. trunk; **2.** roots; **3.** bark; **4.** branches

B. Students point to each tree part in the photo.

While You Watch

A. 1. they live for a long time; **2.** they grow very fast; **3.** they are able to survive fires

B. 1. 2,000; **2.** 80; **3.** 40; **4.** 30

Critical Thinking

Possible answer(s): blue whale (largest animal), African bush elephant (largest land animal), Great Barrier Reef (largest coral reef), *armillaria ostoyae* (largest living organism, a fungus)

TEACHING NOTES

Before You Watch

A. Previewing: Have students read the sentences first before completing them with the words in the box. Allow students to use a dictionary, if necessary. Then check answers as a class.

B. Previewing: In pairs, have students find examples of each word in the photo.

While You Watch

A. Gist: Play the video. Then have students write three reasons why giant sequoia trees grow so big. Have them check their answers in pairs.

B. Details: Play the video again. Have students complete activity B individually, and then check answers in pairs.

Critical Thinking

Have students brainstorm what some other largest living things are and then share answers with a partner. If possible, have students do research online.

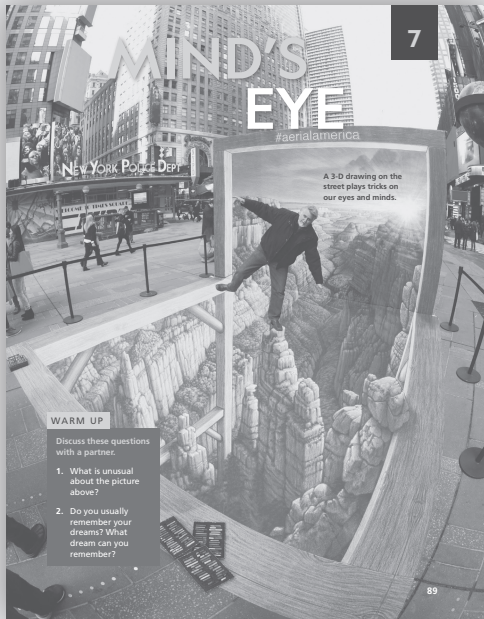
Vocabulary Review

Have students work individually 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.

MIND'S EYE

7



UNIT INTRODUCTION

This unit focuses on the human mind and how it reacts in certain situations. In “Understanding Dreams,” students read about where dreams might come from and analyze common dreams people have. In “Seeing the Impossible,” students read about how optical illusions are tricks our eyes play on us. In “Parasomnia,” students will watch a video about sleepwalking. Students will also read about how much sleep we need, and how a photo can be an optical illusion.

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

Key Words for Internet Research: *3D street art, analyzing dreams, Robert Stickgold, optical illusions, Salar de Uyuni*

WARM UP

Answer Key

Possible answer(s):

1. It looks like the man is balancing on the top of a large rock formation! This is unusual because I don't think this could really happen.
2. I don't usually remember my dreams, but last night I dreamed I was flying.

TEACHING NOTES

The street art shown in the photo is drawn in chalk and has the ability to trick the eyes of people walking by into seeing three dimensional sceneries and objects on completely flat surfaces. The picture

has to be seen from the correct angle for the illusion to work.

- Read the Unit Title aloud as students look at the photo. Have students discuss what they see and how it relates to the title. Explain that “mind’s eye” is what you see when you close your eyes—it is a mental image, or visual memory you have of something.
- Read the caption aloud and explain the meaning of *to play a trick on (someone or something)*. Make sure students understand that because the drawing is playing a trick on our eyes and mind, it is not reality.
- Have students discuss the questions, then follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *last, memory, period, prepare, problem, result, useful, worried*

Reading Passage Summary: There are many theories about why we dream and where our dreams come from. Some scientists believe our dreams help us solve problems, while other scientists believe our dreams come from our memories. People have different ideas about what their dreams mean, especially common dreams such as meeting someone while in your pajamas, flying, and not having studied for a test.

Answer Key

Before You Read

- A.** Possible answer(s): **1.** Maybe you're worried about not being prepared for a project at school or work. **2.** You feel free and happy about an event in your life. **3.** You might be scared of failure.
- B. 1.** It may be the result of an embarrassing situation. **2.** You feel happy. **3.** You are worried.

Reading Comprehension

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

Reading Skill

- A. 1.** Possible answer(s): (Para A) **Main Idea:** Our dreams come from a part of the brain that contains our thoughts and memories. **Key Details:** A person can have up to six dreams a night. Each one lasts from 10–40 minutes. Everyone dreams, but not everyone remembers their dreams. Most people dream in color, usually with sound.
- B. 1.** from 10 to 40 minutes; **2.** remembers; **3.** color; **4.** Why; **5.** problems; **6.** past; **7.** meaning; **8.** embarrassing; **9.** worried
- C.** Students' answers will vary. However, students should recognize what the main idea of the passage is and what key details support it.

Vocabulary Practice

- A. 1.** periods; **2.** lasts; **3.** results; **4.** worried; **5.** prepare; **6.** useful
- B. 1.** c; **2.** d; **3.** b; **4.** a
- C. 1.** embarrassing; **2.** worrying; **3.** embarrassed; **4.** worried

TEACHING NOTES

Before You Read 

- A. Predicting:** Have students read the dreams (1–3) and think about what they might mean. Then have students discuss their ideas in pairs.
- B. Skimming:** Have students skim the reading individually to check their ideas. Ask if they have had similar dreams before, and, if so, to describe them in small groups.

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 passage.
- Question 1: Although options “a” and “b” are both true, they do not give the main idea of the passage; instead, they are key details. The main idea is a more general idea that gives an overall statement about the passage as a whole.
 - Question 5: The passage states that if you dream you are flying, you are probably happy. You are not likely to be happy if you are going through a difficult time. So, we can eliminate option “b.” The passage states that if you dream about taking a test, you are probably worried about an important future event. We cannot infer that worry is the reason for not getting enough sleep—you might have been out with your friends instead of studying! We can therefore eliminate option “c.”

B. Applying Ideas: Have students complete the activity individually, then compare answers in pairs. Remind them one dream is used more than once.

- Statement 1: If people are pleased with your work, you will feel happy.
- Statement 2: If you have not had time to practice for a concert, you will feel unprepared.
- Statement 3: If you score three goals, you will feel happy.
- Statement 4: If people laugh at you, you will feel embarrassed.

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

Reading Skill

Have students read the paragraph **Organizing Information (1)—Creating a Concept Map**. *Reading Explorer* Foundations level teaches students two different ways of organizing information—creating a concept map and creating a chart (Unit 11). A concept map is a visual diagram that helps a reader organize information. Draw a concept map on the board as you explain how to make and use one.

A. Analyzing: Have students look back at Reading A to identify the main ideas and key details. Elicit answers from the class.

- Note that students' answers for activity A may vary somewhat as they circle important information and underline details. However, they should be able to recognize and circle the main idea in each paragraph, and underline all the information that supports these ideas. The Answer Key shows an example for paragraph A.

B. Organizing Information: Point out that ideas go from general to specific as you move outward

from the center. The second set of circles represent the main ideas of the three sections of the passage, paragraph A: facts about dreams; paragraph B: why we dream; and paragraphs C, D, and E: the meaning of dreams. Have students work in pairs to try to complete the concept map before looking back at the passage. Check answers as a class.

C. Organizing Information: In pairs, have students look through all of the reading passages from previous units. Have them discuss the main idea in each passage, then choose one to create a concept map summarizing the main ideas and key details. Encourage them to find the main idea and key details for each paragraph.

Vocabulary Practice

A. Completion: This passage is about sleep, its effects on our bodies and how we can prepare ourselves to get a good night's sleep. Direct students' attention to the photo and caption next to activity A. Have students read the passage before completing the information with the correct words from the box. Then have them compare answers with a partner. Ask a volunteer to read the completed passage aloud to the class.

- Students may be familiar with the adjective *last*, meaning "at the end." The verb *last* has a very different meaning as it shows the action of something taking place for a period of time: *The phone call lasted 20 minutes.*

B. Definitions: Have students match the words to the correct definitions. Check answers as a class.

C. Word Forms: Have students read the example, then complete the sentences. Check answers as a class. If time allows, have students write a pair of sentences for each adjective.

LESSON OVERVIEW

Target Vocabulary: *believe, impossible, mind, mistake, personal, straight, therefore, trick*

Reading Passage Summary: Optical illusions trick our brains into seeing things that are not real. These illusions can use color, light, and patterns to create images that are deceptive or misleading to our brains. Our eyes take in the information and send it to our brain, which assumes certain things to be true when, in reality, they are not! These images are simply playing tricks on our minds.

Answer Key

Before You Read

- A. 1.** Possible answer(s): I can see what looks like a large hand and spoon with a tiny person standing in the spoon. The illusion of the person standing in the spoon is made by having the person stand at a distance from the camera while someone else holds the spoon very close to the camera; **2.** Possible answer(s): Yes, I saw a photo of a person holding up the Eiffel Tower!
- B.** Possible answer(s): Each illustration tries to trick the mind by presenting the appearance of something that isn't there.

Reading Comprehension

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

Reading Skill

- A. 1.** but; **2.** or; **3.** so
- B. 1.** and / or; **2.** and / so; **3.** but / because; **4.** and / but; **5.** When / If; **6.** When / If

Critical Thinking

Possible answer(s):

- ▶ I think optical illusion 2 was the most surprising, then 1, then 3.
- ▶ I agree with the statement because when I looked at optical illusion 3, everything was spinning around, but my classmate didn't see any movement at all.

Vocabulary Practice

- A. 1.** believe; **2.** mind; **3.** mistake; **4.** tricks; **5.** therefore
- B. 1.** b; **2.** a; **3.** b; **4.** b
- C. 1.** learn from; **2.** common; **3.** made; **4.** stupid

TEACHING NOTES

Before You Read 

A. Discussion: Have students look at the picture and read the caption. Tell them that there are clues about how the picture was taken in the caption. A *salt flat*, or salt pan, is a wide area of flat ground where water has evaporated and left minerals, such as salt, visible on the ground. The salt makes the ground look white. Such a large, flat, and white surface makes a good place to create optical illusions with a camera, such as the one seen in the picture. Have students discuss the questions with a partner.

B. Predicting: Have students read the title and look at each of the illustrations on pages 96–97 and discuss what they see with a partner. Note that what people see when looking at an optical illusion may differ depending on the person, so partners may have very different answers from each other.

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 passage.

- Question 5: Paragraph B states that an optical illusion is “a trick that our eyes play on us.” It has to do with the way we see things. Option “a” refers to sound not sight, so this option can be eliminated. Option “c” refers to a shape that is real, so this one can be eliminated too. The correct answer is “b” because your eyes see something that is not really there.

B. Summarizing: Have students complete the summary of the passage individually, then check answers with a partner.

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

Reading Skill

Have students read the paragraph **Understanding Conjunctions**. Explain that a *conjunction* is a word that connects clauses into a single sentence. Point out the positioning of commas in the example sentences—before *and*, *but*, *or*, and *so*.

A. Using Conjunctions: Have students circle the correct options individually and then check answers in pairs.

B. Using Conjunctions: Have students complete the sentences and then check their answers as a class, going over the purpose of each conjunction in the sentence. Note that students must understand the general relationship between the two clauses in order to choose the correct conjunction. Remind students that more than one answer may be possible.

Challenge: Have students use the conjunctions in the Reading Skill to write four compound sentences about optical illusions.

Critical Thinking

- ▶ Have students rank the three optical illusions in order from most to least surprising.
- ▶ Have pairs compare their ideas and then discuss whether they agree with the statement. Ask:
Does everyone see things differently?

Vocabulary Practice

A. Completion: This passage is about a photograph that is an optical illusion. Direct students' attention to the photo and caption next to activity A. Have students read the passage before circling the correct words and then compare their answers with a partner. Ask a volunteer to read the completed passage aloud to the class.

- The adverb *therefore* is used to give a result after a reason is given.

B. Definitions: Have students complete the sentences individually and then check their answers in pairs.

C. Collocations: Have students complete the activity individually and then check answers in pairs. If time allows, ask students to find two or three other collocations with the word *mistake*. Make a list on the board. Then have the students write additional sentences with the collocations.

- Like the noun *problem* in Reading A, *mistake* is usually associated with a negative situation, so it is often seen with negative adjectives, such as *terrible mistake*, *stupid mistake*, *dumb mistake*, and *awful mistake*. For verb pairings, you can say *fix a problem*, or *fix a mistake*. However, the verb *solve*, which is commonly paired with *problem*, is NOT one that is paired with *mistake*.

Video Summary: This video gives information about parasomnia, a group of sleep conditions such as sleepwalking and sleep talking that can affect people without them even knowing it. These conditions can be dangerous, and scientists want to find out why they happen.

Key Vocabulary: *condition, cycle, nightmare*

Answer Key

Before You Watch

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

B. Possible answer(s): I once saw my brother kicking the covers off while he was asleep. I thought he was having a nightmare, and I woke him up. He said he couldn't remember anything about his dream.

While You Watch

A. a, c, d, f

B. Stage 1: b; **Stage 2:** a, c, d; **Stage 3:** e

Critical Thinking

- ▶ Possible answer(s): I don't think you should try and wake someone up who is sleepwalking. I think you should follow them to make sure they don't hurt themselves and help them back to bed if possible.
- ▶ Possible answer(s): I think parasomnia could be dangerous if someone was trying to hurt someone else. What if the person thought they were in a horror movie and tried to kill the "bad guy"—who was really a family member or loved one?

TEACHING NOTES

Before You Watch

A. Previewing: Have students read the information in the paragraph before completing activity A individually and then compare answers with a partner.

B. Discussion: Have students discuss the question with a partner and then share their answers with the class.

While You Watch

A. Gist: Have students read the sleep activities (a–f) before watching the video. Then play the video and have students complete the answers individually before comparing with a partner.

B. Details: Have students match the descriptions with the stages of NREM sleep before watching the video again. Then play the video again and have students check answers in pairs.

Critical Thinking

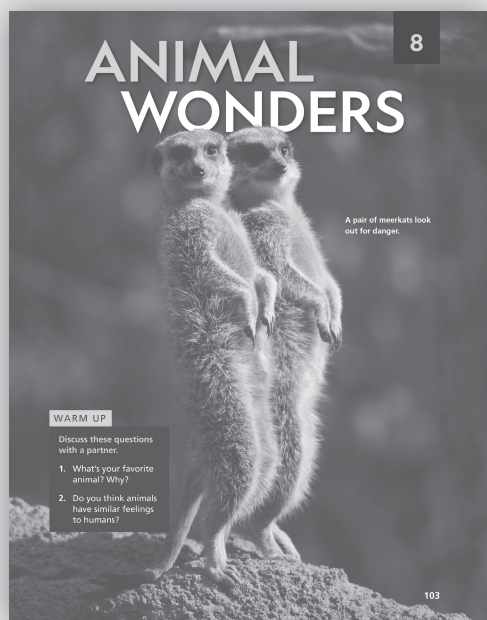
- ▶ In small groups, have students discuss what they think they should do if they see someone sleepwalking. Have groups share their ideas with the class.
- ▶ Have groups discuss other types of parasomnia that could be dangerous.

Vocabulary Review

Have students work individually 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.

ANIMAL WONDERS



UNIT INTRODUCTION

This unit focuses on animals and the way in which they interact. In “A Penguin’s Year,” students read about emperor penguins and how the males and females share the responsibility of raising their young together. In “Do Animals Laugh?” students read three stories that support the idea that animals might have a sense of humor. In “Amazing Narwhals,” students will watch a video about narwhals, a unique type of whale with a tusk. Students will also read about snowy owls, Siberian tigers, and chimp relationships and their behavior.

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

Key Words for Internet Research: *emperor penguins, Antarctica, animal emotion, animal behavior, animal psychologist, narwhals*

WARM UP

Answer Key

Possible answer(s):

1. My favorite animal is a lion because it’s so strong and powerful.
2. I think animals only feel basic emotions compared to humans. For example, a dog wags its tail when it is happy and growls when it’s angry.

TEACHING NOTES

Although scientists might disagree about the extent of emotions animals feel, they agree that animals display feelings such as fear or contentment. The more researchers study animals, the more we learn

about their fascinating behavior—and find that many animals may actually be more like us than we previously thought.

- Read the Unit Title aloud as students look at the photo. Have students discuss what they see and how it relates to the title. Point out that although *wonder* is a verb, here it is a noun that means *amazement* or *awe*.
- Read the caption aloud and explain *meerkat* and *danger*. Have students discuss how the meerkats in the photo look out for danger, and compare that to how humans might look out for danger. Are there any similarities?
- Have students discuss the questions with a partner and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *adult, careful, enter, freeze, on your own, parent, skin, weigh*

Reading Passage Summary: Emperor penguins are the largest penguins on Earth, living together in large colonies in Antarctica. Male and female emperors have a unique and special relationship in the way they care for and raise their young. After the female lays an egg, the male penguin protects it and keeps it safe while the female goes off to find food. They then take turns raising the chick together until it is ready to go off on its own.

Answer Key

Before You Read

B. 1. T; 2. T; 3. F (It can't swim until it is about five months old—the baby hatches in August, and then by December, the chick can live on its own and enters the water for the first time.)

Reading Comprehension

A. 1. a; 2. c (Para B); **3. a** (Paras B, C, and D); **4. b** (Para D); **5. a** (Para F)

B. 1. e; 2. a; 3. d; 4. f; 5. b; 6. c

Reading Skill

A. 1. Para C (For two months, the father penguins **protect** the eggs and keep them warm.); **2.** Para E (The chick is always hungry and grows **rapidly**.); **3.** Para E (They each make the trip **several** times, bringing back food for the chick.); **4.** Para B (There, each mother penguin lays just a **single** egg.)

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

C. 1. claws; 2. prey; 3. vision; 4. grab

Critical Thinking

► Possible answer(s): **What a mother penguin does:** lays an egg, walks back to the ocean to find food, returns from ocean, takes care of the newly hatched chick, takes turns with the male to bring back food for the chick; **What a father penguin does:** puts the egg on top of its feet, protects the egg for two months, gives the newly hatched chick to the mother,

takes turns with the female to bring back food for the chick.

► Possible answer(s): I think the mother has a more difficult job. She has to walk all the way to the ocean in very cold conditions to find food. Although the father has to stay and protect the egg, he can huddle down and keep warm while the mother has to make the long journey. / I think the father has a more difficult job. He has to stay and protect the egg for two months in freezing conditions without eating. The female can feed before returning with food for the chick and does not have to withstand the coldest part of the winter on the ice.

Vocabulary Practice

A. 1. adult; 2. weigh; 3. skin; 4. on their own; 5. parents

B. 1. cold; 2. driving a car; 3. inside

C. 1. their; 2. their; 3. your

TEACHING NOTES

Before You Read



A. Quiz: In pairs, have students discuss what they know about emperor penguins. Then have students take the quiz individually. Point out that it is okay if they do not know the answers—they will find the answers in the passage in the next activity.

B. Scanning: Have students scan the passage to check their answers in activity A.

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 passage.

- Question 2: Paragraph B states that the penguins move “many kilometers” from the water. *Many kilometers* is a far distance.

- Question 3: Paragraphs B and C state that the father penguin covers the egg with his *brood pouch* and for two months, protects the egg, and keeps it warm. Paragraph D states that each mother penguin returns and the newly hatched chick is carefully moved to her *brood pouch* as the chick could freeze if the chick falls at this point. Students can infer from this that the purpose of the brood pouch is to keep the egg and baby penguin warm, so option “a” is correct.
- Question 4: The baby penguin will *freeze* if left on the ice. Students must infer that this means the penguin will die because of the cold.
- Question 5: Students need to make a calculation based on the following information: The egg hatches in August, and the chick can live on its own in December. The time from August to December is five months.

B. Summarizing: Have students try to complete the summary individually without looking back at the reading passage. Then have students compare answers in pairs before scanning the reading to check their answers.

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

Reading Skill

Have students read the paragraph **Dealing with New Vocabulary (2)—Using Context**. Remind students that they have already learned about this concept. The context of a word gives more information about how that word is used. When students find a new word, they can first identify the part of speech and then look at the words around it and try to guess its meaning.

A. Scanning: Have students find each word in the passage. In pairs, have students discuss the definitions based on the context. Make sure they do not look ahead to activity B—they will match the definitions in the next activity.

B. Matching: Have students match the definitions individually using the context in Reading A to help understand the meaning of each word. Have them compare answers in pairs, then check as a class.

C. Guessing Words from Context: Have students read the paragraph about snowy owls. Then have them complete the activity individually, using the context to guess the meaning of the words. Elicit answers from the class.

Critical Thinking

- ▶ Have students work individually to complete the chart based on the passage and then compare notes with a partner.
- ▶ In pairs, have students discuss which parent has the more difficult job, stating their reasons why. Take a class vote to see which parent students have picked. Then, have a class debate where students can justify their choice.

Vocabulary Practice

A. Completion: These sentences are about tigers. Direct students’ attention to the photo and caption under activity C. Have students read the sentences first, then complete them with the correct words from the box before checking answers with a partner. Ask for volunteers to read the completed sentences aloud to the class.

B. Completion: Have students circle the correct words to complete the definitions. Check answers as a class.

C. Word Usage: Make sure students understand the meaning of *pronoun* and that it takes the place of a person, place, or thing. In the phrase *on their own*, the pronoun can be replaced with *my*, *your*, *his*, *her*, *its*, or *our*, depending on the subject of the sentence. The phrase is used to show that something can be done independently without help from others: “The chick can now live *on its own*.” Have students complete the activity individually, then check answers in pairs.

LESSON OVERVIEW

Target Vocabulary: *behavior, fear, in fact, joke, laugh, place, relationship, sense of humor*

Reading Passage Summary: Scientists have spent decades studying animals to try and understand whether they have emotions similar to ours.

Most people believe the answer is yes—a cat will show its teeth in anger when it feels threatened and a dog will wag its tail when it feels happy.

Researchers are now trying to understand whether animals have a sense of humor, and the evidence points strongly to yes.

Answer Key

Before You Read

- A. Possible answer(s): Capuchin monkey: confusion; Snub-nosed monkey: surprise; Brown-throated sloth: happiness; Brown bat: anger; I think animals have feelings, but on a much more basic level than humans do.
- B. Sally Blanchard (Para B; human), Bongo Marie (Para B; pet), Paco (Para B; pet), Jean Donaldson (Para C; human), Buffy (Para C; pet), Patricia Simonet (Para D; human); There are six names. There are three pet names and three human names.

Reading Comprehension

- A. 1. b (Para A); 2. c; 3. c; 4. c (Para C); 5. b
- B. 1. NG; 2. NG; 3. F (They didn't get along.); 4. NG; 5. T

Reading Skill

- A. b, c, e
- B. 1. joke; 2. laughed; 3. toys; 4. hilarious; 5. laugh; 6. play

Critical Thinking

Possible answer(s):
1, 3, 2; I think *A Parrot's Joke* best supports the idea that animals can have a sense of humor because telling a joke is a great form of humor. If you can tell a joke, you can laugh. It shows you think something is funny.

Vocabulary Practice

- A. 1. relationship; 2. In fact; 3. placed; 4. behavior
- B. 1. funny; 2. shark; 3. funny; 4. laugh
- C. 1. fearful / frightened; 2. happiness; 3. bored; 4. anger

TEACHING NOTES

Before You Read 

A. Discussion: Have students look at the photos then match the feelings which could describe each animal. Have them discuss in pairs whether animals really have these feelings. Keep in mind that animal responses may be different from human expressions. Also, some facial expressions may express more than one feeling. It is possible that animals make the same kinds of faces people do when they experience feelings, but it is equally possible that we look at them from a human perspective. If time allows, have pairs play a game of charades where they guess their partner's emotion based on his or her expression.

B. Scanning: Have students scan the passage for the names of humans and their pets and then check answers in pairs. Point out that an easy way for students to scan for names in a passage is to look for capital letters.

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 passage.

- Question 5: In the last line of paragraph D, the words *if* and *perhaps* mean that the author is not certain but believes it is possible. The word *may* in the correct answer, option "b," means not certain, but possible.

B. Evaluating Statements: Have students read the statements individually and decide if the information is true (T), false (F), or not given (NG). Tell them to correct the false statements and then check answers with a partner.

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

Reading Skill

Have students read the paragraph **Identifying Supporting Details**. The details that follow a main idea are important because they give more information to support the topic. Supporting details can back up an author's opinion or provide more details about a fact or claim.

A. Analyzing: Have students check the statements that support the idea that elephants are very smart animals. Direct students' attention to the photo and caption next to activity A. Have students check answers in pairs.

B. Scanning: Have students complete the summary of the supporting details before looking back at the passage to check their answers. Elicit answers from the class.

Critical Thinking

In pairs, have students retell the story in each example. Then have them rank the stories in order of how well they support the main idea: "Animals have a sense of humor." Have students share their answers with the class, giving reasons for their number one choice. Point out that each situation in the passage is interpreted from a human perspective. It seems as if each of the animals has a sense of humor, but there are other possibilities for the behavior. For example, even if dogs do laugh, why should the sound of the laugh of a dog be similar to that of a human? Or why should what we perceive as a dog's laughter necessarily have the same meaning as human laughter? Perhaps the dogs are just excited.

Vocabulary Practice

A. Completion: This passage is about chimp behavior. Direct students' attention to the photo and caption next to activity A. Have students read the passage first before completing the information. Then have them compare their answers with a partner. Ask for a volunteer to read the passage aloud to the class.

B. Definitions: Have students complete the sentences individually, then check their answers in pairs.

C. Word Forms: Make sure students understand that an emotion is a feeling such as *fear*, and point out the different parts of speech between *fear* (n) and *afraid* (adj). Have students complete the activity individually and then check answers in pairs. If time allows, have students write a sentence for each adjective.



Video Summary: The video gives facts and information about the narwhal, a unique type of whale that lives in the Arctic. The video talks about the narwhal's tusk and what it might be used for.

Key Vocabulary: *certain, sensitive, tusk*

Answer Key

Before You Watch

A. 1. sensitive; **2.** certain; **3.** tusk

B. Possible answer(s): I think the tusk might be used to find food, or maybe as a weapon to fight other narwhals.

While You Watch

A. Possible answer(s): Both of my ideas were mentioned in the video.

B. 1. in the Arctic; **2.** up to three meters;
3. They believed they were unicorn horns.
4. The animals were seen hitting fish with their tusks and then eating them whole.

Critical Thinking

- ▶ Possible answer(s): It might be difficult to study them because they live in a remote place and there aren't many of them.
- ▶ Possible answer(s): I think it's very difficult to study animals that only come out at night, and animals that are endangered.

While You Watch

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

B. Short Answers: Have students answer the questions before watching the video again. Then play the video again and have students check answers in pairs.

Critical Thinking

- ▶ In small groups, have students discuss why it might be difficult for researchers to study narwhals. Have them consider where narwhals live and what the challenges researchers may have when studying narwhals.
- ▶ In pairs, have students think about other animals that might be difficult to study and why. Have pairs share their ideas with the class.

Challenge: Have students work in pairs to find out about another animal that lives in the Arctic. Have each pair make a poster about one animal. Tell them to include a picture and basic information about that animal.

Vocabulary Review

Have students work individually 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.

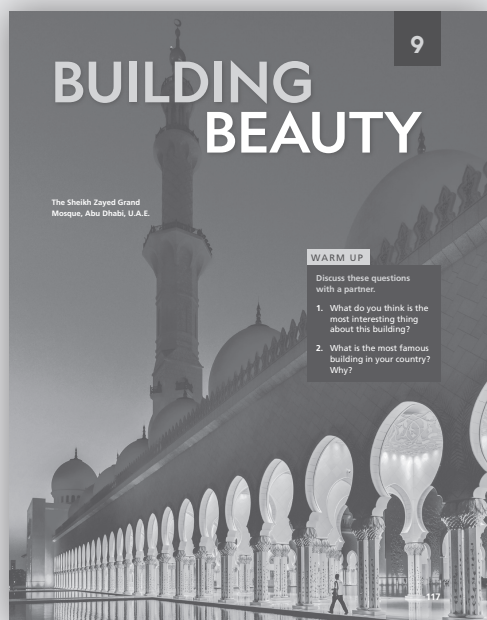
TEACHING NOTES

Before You Watch

A. Previewing: Have students read the paragraph before completing activity A individually. Then have students compare answers with a partner.

B. Discussion: Direct students' attention to the photo and caption so they can see what a narwhal's tusk looks like to help them think about what it might be used for. Have students brainstorm ideas with a partner and note down their answers.

BUILDING BEAUTY



UNIT INTRODUCTION

This unit focuses on amazing buildings and the stories behind them. In “A Love Poem in Stone,” students read about why Shah Jahan had the Taj Mahal built in India in the 1650s. In “The Great Dome of Florence,” students read about the dome of Florence’s main cathedral, the Basilica di Santa Maria del Fiore. In “Brunelleschi’s Dome,” students will watch a video about how the dome in Florence was built. Students will also read about the legend of the black Taj Mahal, and the O2 arena in London.

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

Key Words for Internet Research: *Taj Mahal, Shah Jahan, Mumtaz Mahal, dome architecture, Florence, Filippo Brunelleschi*

WARM UP

Answer Key

Possible answer(s):

1. I think the most interesting thing about this building is the architecture, with the curved domes and the way the arches are repeated.
2. There are many famous buildings in my capital city, but I think the most famous one is the train station.

TEACHING NOTES

The Sheikh Zayed Grand Mosque in Abu Dhabi, U.A.E., was completed in 2007. The mosque was created because the late president of the U.A.E, Sheikh Zayed bin Sultan Al Nahyan, wanted a

building to unite the cultural diversity of the Islamic world. It is the largest mosque in the U.A.E. and is an important place today for daily prayers.

- Read the Unit Title aloud as students look at the photo. Have students discuss what they see and how it relates to the title.
- Read the caption aloud and explain the meaning of *mosque*. Make sure students know where Abu Dhabi is in the U.A.E. In small groups, have students discuss other places of worship around the world (churches, synagogues, temples, etc.) and ask whether they know the names of other famous buildings where people go to worship.
- Have students discuss the questions with a partner and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *birth, central, complete, during, finish, promise, together, tourist*

Reading Passage Summary: The Taj Mahal is a UNESCO World Heritage Site and is one of the most admired buildings in the world. Emperor Shah Jahan had it built in Agra, India, in the 17th century in memory of his beloved wife, Mumtaz Mahal. The building is perfectly symmetrical, and it is considered to be the greatest architectural achievement in the Indo-Islamic world.

Answer Key

Before You Read

- A. 1. emperor; 2. marble; 3. monuments
- B. Possible answer(s): I think Shah Jahan might have built the Taj Mahal as a place to live.
Actual answer(s): He built the Taj Mahal to remember his wife.

Reading Comprehension

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

Reading Skill

A. Possible answer(s): In 1658, five years after the building was finished, Shah Jahan's son became emperor. He put Shah Jahan in prison. Shah Jahan stayed there until his death in 1666. His body was then put in the Taj Mahal with the woman he loved.

There are many legends about the Taj Mahal. In one story, Shah Jahan had the builders' hands cut off after the building was complete. This was supposedly done so they could never build anything as beautiful as the Taj Mahal. Another says he also wanted to build a black Taj Mahal. These are interesting stories, but they are probably not true.

The love story between Shah Jahan and his wife ended sadly. But the monument to their love still stands today. Millions of tourists visit every year. They come to see the marble

change color in the light of the rising sun or a full moon.

- B. 1. love poem; 2. Shah Jahan; 3. Mumtaz Mahal / his wife; 4. 20,000; 5. elephants; 6. over 20; 7. millions of tourists

Critical Thinking

Possible answer(s): One legend is that Shah Jahan had the builders' hands cut off after the Taj Mahal was complete so that they couldn't build another building more beautiful. The second legend is that he also wanted to build a black Taj Mahal. The author's opinion is that neither of these legends are true.

Vocabulary Practice

- A. 1. tourists; 2. together; 3. finished; 4. During
- B. 1. no more; 2. will; 3. in the middle; 4. is born
- C. 1. make; 2. break; 3. keep

TEACHING NOTES

Before You Read 

A. Definitions: Have students look at the picture and read the caption. Point out that they will use the words in bold (*monuments, emperor, and marble*) to complete the definitions. Explain that if the ruler of an empire is female, she is an *empress*. The term *empire* refers to a large domain that is ruled by one ruler, the *emperor* or *empress*. Check answers as a class.

B. Previewing: Have students discuss their ideas in pairs and then skim the reading individually to check their answer. After reading, students should understand that Shah Jahan built the Taj Mahal as a monument to his wife after her death.

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 passage.

- Question 2: The phrase *It is said that ...* means *People think that...* It is an expression used to describe something that is not proven or factual, so option “c” is correct.
- Question 3: Make sure students recognize that the reference goes back to the Shah's son in the previous sentence, so option “b” is correct. Change the sentence to *He put him in prison*, and elicit who *him* refers to. Shah Jahan's son put him in prison so that he could rule the empire instead.
- Question 4: Shah Jahan's son put him in prison, which is where he died. Therefore, option “b” is not correct. Paragraph C states they worked for over 20 years to build the monument and central dome, so this negates option “c” and option “a” is correct.

B. Creating a Timeline: Remind students that they have already learned about creating timelines in Unit 6A. Have students try to complete the timeline without looking back at the reading passage. Then compare answers in pairs before scanning the reading to check their answers.

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

Reading Skill 15-20 MINS

Have students read the paragraph **Annotating Text**. Annotating text involves marking important information, which makes it easy to find and remember the information at a later date. Go over the bulleted list with students and make sure they understand what type of information they should look for in the passage.

A. Annotating: Have students read the two annotated paragraphs in activity A and note the types of annotations made from the bulleted list. Have students annotate the rest of Reading A individually and then compare answers in pairs.

B. Summarizing: In pairs, have students use the annotated text in A and their annotated paragraphs to complete the concept map. If necessary, have them look back at the passage. Check answers as a class.

Critical Thinking 10-15 MINS

Have students discuss the two legends with a partner and say what they think the author's opinion is about them. Check answers as a class.

Vocabulary Practice 20-30 MINS

A. Completion: This passage is about the legend of the black Taj Mahal. Direct students' attention to the photo and caption next to activity A. Have students read the passage first, then complete the information with the correct words. Point out there is one extra word in the box. Have them compare answers in pairs. Ask for a volunteer to read the completed passage aloud to the class.

B. Definitions: Have students circle the correct words to complete the definitions. Check answers as a class.

C. Collocations: A *promise* is an agreement to do something. When someone makes a *promise*, it is considered a strong declaration that they will follow through on. If time allows, have students write new sentences using the collocations.

LESSON OVERVIEW

Target Vocabulary: *design, incredible, invent, lift, light, remain, solution, wide*

Reading Passage Summary: The Basilica di Santa Maria del Fiore is one of the most recognizable buildings in Florence, Italy. Constructing the dome was one of the most ambitious engineering feats of its time because the area to be covered was wider than any dome ever built up to that point. Filippo Brunelleschi had a deep understanding of physics, geometry, and engineering, and he solved the problem using creativity and innovation. The dome has a diameter of 55 meters (about 180 feet) and was completed in 1463.

Answer Key

Before You Read

- A.** Possible answer(s): **1.** The dome looks like it might be made of stone or brick. **2.** It might have taken so long to build because it is so wide. Maybe it was difficult to figure out how to build it.
- B.** **1.** stone, brick, iron, wood and tiles; **2.** No one knew how to build the dome as it was too wide to build using traditional methods.

Reading Comprehension

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

Reading Skill

- A.** how materials were lifted to the top of the cathedral; the shape of the dome when viewed from above; the different materials used to build the dome
- B.** **1.** four; **2.** eight; **3.** tiles; **4.** wood; **5.** three
- C.** **1.** St. Peter’s Basilica; **2.** Pantheon

Critical Thinking

- ▶ **1.** Agra, India; **2.** 1631; **3.** 1653; **4.** marble; **5.** Florence, Italy; **6.** 1296

- ▶ Possible answer(s): I think the dome of Florence’s cathedral must have been more difficult to build than the Taj Mahal. The builder of the dome needed to solve a big problem and figure out what material to use and how to create something that had never been built before.

Vocabulary Practice

- A.** **1.** wide; **2.** light; **3.** design; **4.** incredible; **5.** remains
- B.** **1.** make; **2.** higher; **3.** answer to
- C.** Possible answer(s): **1.** I made a promise to help my brother. / I promised to pay her back. **2.** His laugh is so loud! / When I’m with my friend, we laugh all the time. **3.** I put my trust in her. / I trust my sister to choose the best place to go.

TEACHING NOTES

Before You Read



A. Predicting: In pairs, have students look at the picture and read the caption. Make sure they understand the meaning of *cathedral* (compare it to *mosque* from the Warm Up at the start of this unit). Have them discuss the questions then share their ideas in small groups.

B. Skimming: Have students skim the reading to check their ideas in activity A.

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 passage.

- Question 1: Paragraph B states that many builders could build concrete domes but that a concrete dome would be too heavy and would easily fall. That meant that concrete domes have been built before, so option “a” is correct.

- Question 4: Paragraph B ends with the sentence “The cathedral, therefore, remained unfinished for many years.” This means that the cathedral didn’t have a roof. As a result, there would be a big hole where the roof should be.

B. Identifying Main Ideas: Remind students that they learned about identifying main ideas in the reading skill in Unit 4A. Have students work individually to match the paragraphs with the headings and then check answers in pairs. Remind them that one heading is extra.

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

Reading Skill

Have students read the paragraph **Understanding Infographics**. Make sure students understand that an infographic can help the reader understand complex information.

A. Understanding Infographics: Have students study the infographic on page 125 then check the sentences that are true. In pairs, have students compare their answers.

B. Understanding Infographics: Have students complete the activity individually, and then check their answers in pairs.

C. Understanding Infographics: Have students look back at the infographic on page 124 and answer the questions in pairs. Check answers as a class.

Critical Thinking

- ▶ Have students scan Reading A and Reading B to find the information to complete the chart. Then check answers as a class.
- ▶ In pairs, have students discuss how the Taj Mahal and the dome of Florence’s cathedral were likely built. Have them discuss which building would have been more difficult to build and therefore the greatest achievement, giving reasons for their answer. Share answers as a class.

Challenge: Have students work in pairs. Tell them to pretend that Brunelleschi and Shah Jahan wrote letters to each other about their domes. Explain that one partner will write a letter from Brunelleschi to Shah Jahan and the other will write the response from Shah Jahan to Brunelleschi.

Vocabulary Practice

A. Completion: This passage is about the O2 Arena in London. Direct students’ attention to the photo and caption next to activity A. Have students read the passage before completing the information using the words in the box and then compare their answers with a partner. Ask for a volunteer to read the completed paragraph aloud to the class.

B. Definitions: Have students circle the correct words to complete the definitions and then compare answers in pairs.

C. Word Forms: Make sure students understand that a word can be used as both a noun and a verb. Point out the different forms of *design* in the example sentences. Have students work individually and then compare answers in pairs. If time allows, have students find three more words that can act as nouns and verbs and write two sentences for each word, one as a noun and one as a verb.

Video Summary: This video gives information about Brunelleschi, the man who was given the difficult task of building the dome for the cathedral in Florence more than 500 years ago. Today, the dome remains one of the largest in the world.

Key Vocabulary: *arch, octagon, semicircle*

Answer Key

Before You Watch

- A.** 1. arch; 2. octagon; 3. semicircle
B. 1. in Florence, Italy; 2. He was a clockmaker.
 3. 15th century; 4. Brunelleschi invented a machine to lift them.

While You Watch

- A.** See **Before You Watch B.**
B. 1. a; 2. a; 3. b; 4. b; 5. b

Critical Thinking

Possible answer(s): A clockmaker has to be precise and fit together many tiny, intricate pieces. I think these are important skills that helped Brunelleschi design and build the dome.

While You Watch

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

B. Details: Have students answer the questions before watching the video again. Then play the video again and have students check answers in pairs. Have students talk with a partner about which guesses were correct and which were incorrect. Ask students which piece of information in the quiz surprised them the most.

Critical Thinking

In small groups, have students discuss how Brunelleschi's clock-making skills might have helped him design and build the dome. Ask: *How are the two jobs similar?*

- As both a clockmaker and a goldsmith, Brunelleschi probably enjoyed thinking about how to put things together. Both of these trades require intricate attention to detail and an understanding of how parts work together to function as a whole. In these ways, he had both a theoretical and a mechanical background, as well as technical skills.

TEACHING NOTES

Before You Watch

A. Previewing: Have students read the extracts before completing activity A individually. Then have students compare answers with a partner.

B. Quiz: Have students complete the questions individually and then compare answers with a partner. Tell them not to worry if they do not know the answers; they will revisit this section after watching the video.

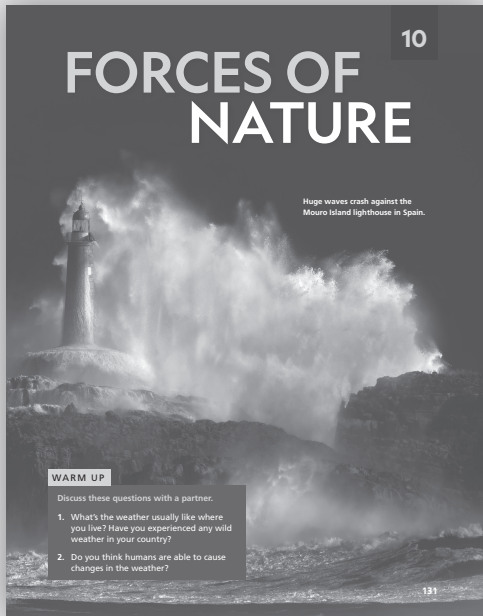
Vocabulary Review

Have students work individually 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.

FORCES OF NATURE

10



UNIT INTRODUCTION

This unit focuses on changing weather patterns and unusual weather events that can happen. In “Wild Weather,” students read about how global warming is changing weather around the world. In “When Weird Weather Strikes,” students read about three different and unusual weather events. In “Tornado Terror,” students will watch a video about tornadoes and the damage they can cause. Students will also read about recent wild weather in Australia, and how rogue waves are different from tsunamis.

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

Key Words for Internet Research: *weather patterns, global warming, extreme weather, raining frogs, fire tornado, Lake Roopkund, tornado*

WARM UP

Answer Key

Possible answer(s):

1. The weather where I live is hot in the summer and cold in the winter. Last year we had more thunderstorms than usual in the summer, and we also had a blizzard in the winter.
2. Yes, I think global warming is causing changes in the weather. Human activity is making the world warmer, and weather patterns are changing as a result.

island is a lighthouse, which has endured powerful storms and crashing waves.

- Read the Unit Title aloud as students look at the photo. Have students discuss what they see and how it relates to the title. Make sure students know the meaning of *force* and explain that this wave is very strong and big.
- Read the caption aloud and explain the meaning of *crash*. Make sure students understand that waves change frequency and size depending on the strength of the wind.
- Have students discuss the questions in pairs and follow up with a class discussion.

TEACHING NOTES

Mouru Island is located in the Bay of Biscay on the north coast of Spain. The only structure on the

LESSON OVERVIEW

Target Vocabulary: *at least, blame, financial, float, forecast, large, power, temperature*

Reading Passage Summary: Wild weather events are happening more often around the world as temperatures rise due to global warming. These weather events include floods, droughts, heat waves, hurricanes, and tornadoes, which are occurring with more strength and frequency than ever before in recorded history. The solution, experts say, is to stop the Earth from getting warmer.

Answer Key

Before You Read

- A. floods, droughts, heat waves, hurricanes, tornadoes
- B. c

Reading Comprehension

- A. 1. b; 2. a; 3. b; 4. b; 5. b (para E)
- B. 1. over 100 centimeters; 2. Brazil and Australia; 3. higher temperatures; 4. Michael Oppenheimer

Reading Skill

- A. 1. a; 2. c; 3. b
- B. Paragraph A: simple past; Paragraph B: present perfect; Paragraph D: simple present
- C. Paragraph B: The weather is changing. Paragraph C: ... people are asking questions: What is happening with the weather; The sentences describe the changing situation with the weather.
- D. Reading 5A: simple past, because the passage describes finished past events; Reading 8A: simple present, because the passage describes facts

Critical Thinking

Possible answer(s): There was a hurricane. It was October in Charleston, South Carolina. People had to evacuate. When the storm hit, there was flooding and damage from the high winds. Many people lost their homes.

Vocabulary Practice

- A. 1. temperatures; 2. large; 3. financial; 4. at least; 5. forecasts
- B. 1. b; 2. b; 3. a
- C. 1. foresight; 2. forehead; 3. forecast; 4. foreground

TEACHING NOTES

Before You Read 

A. Definitions: Remind students that they learned about using a dictionary for new vocabulary in the reading skill in Unit 3A. If necessary, have students turn back to that section of the Student’s Book and review this skill again. Have students scan paragraph B and find the wild weather nouns. In pairs, have students discuss the meanings of the words before checking in a dictionary. If necessary, remind students to look up the singular form of each word. Ask students which of their words has another definition with a different part of speech (flood (v): become covered with water).

B. Skimming: Have students skim Reading A to choose the correct summary of the passage. Then have students read the passage to check their 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 passage.

- Question 5: the phrase *stand there and take it* is used to describe a situation in which someone does nothing to change a problem that is affecting them. In paragraph E, Oppenheimer says, “We don’t have to just stand there and take it.” He thinks we

need to stop the Earth from getting warmer. Oppenheimer does not think it is too late to stop global warming, and he thinks global warming is causing extreme weather. Therefore, option “b” is correct.

B. Scanning: Remind students that they learned about scanning in the reading skill in Unit 1A. If necessary, have students turn back to that section of the Student’s Book and review this skill again. Have students read the questions and think about what types of words to scan for in the passage (a number, a name, a reason). Then have students scan the passage for the answers and compare in pairs. Remind them to complete each blank with one to three words.

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

Reading Skill

Have students read the paragraph **Understanding Tenses**. Make sure they understand the difference between the simple present, present continuous, simple past, and present perfect. Point out the examples of the verbs in the sentences given and review how to form each tense.

A. Understanding Tenses: Have students reread paragraphs A, B, and D and think about what each paragraph describes. Check answers as a class.

B. Understanding Tenses: Have students work individually to find the verbs in each paragraph and analyze the verb tenses. Have them check answers in pairs.

C. Understanding Tenses: Have students scan the reading to find two present continuous sentences and answer the question. Have them discuss the answer in pairs.

D. Understanding Tenses: Have students look back at Readings 5A and 8A to answer the question and then compare answers in pairs.

Critical Thinking

Have students work individually to make notes, then describe the wild weather event to a partner. Encourage them to be as descriptive as possible.

Vocabulary Practice

A. Completion: This passage is about how the recent weather in Australia has affected the country. Direct students’ attention to the photo and caption next to activity A. Have students read the passage first before completing the information using the words in the box. Remind students that one word is extra. Check answers in pairs. Choose a volunteer to read the completed passage aloud to the class.

- The noun *temperature* refers to a measurement of heat. In the passage it refers to the temperature of the weather. The word *temperature* can also be used to refer to the body temperature of a human or animal. A nurse might *take your temperature* to see if you have a fever. When we say someone *has a temperature*, it means that person has a higher-than-normal temperature, or a fever.

B. Definitions: Have students choose the correct word or phrase to complete the definitions. Check answers as a class.

C. Word Parts: Explain that a prefix comes at the beginning of a word. Point out that the prefix *fore-* has two meanings: “at the front” (*forehead / foreground*) and “before” (*forecast / foresight*). Check answers as a class. If time allows, have students write a new sentence for each word.

LESSON OVERVIEW

Target Vocabulary: *actually, deliver, drop, explode, increase, local, unusual, warning*

Reading Passage Summary: Every now and then, a very unusual weather event happens that makes news headlines—from raining frogs, to fire tornadoes, to giant hailstones causing an entire community to die. The cause is often a mystery, until scientists prove that weather was indeed responsible for the strange events that occurred.

Answer Key

Before You Read

A. Possible answer(s) **1.** I saw a picture of a sandstorm that covered up a city near the edge of the desert. It must have happened because the wind was very strong and it displaced all the sand. **2.** I heard a story about a place where it “rained” frogs. I also read about a place where huge ice balls fell from the sky.

B. 1. d (Para B); **2.** a (Para C); **3.** c (Para D);

Extra heading: b

Reading Comprehension

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

B. 1. d; **2.** e; **3.** c; **4.** a

Reading Skill

A. Possible answer(s): **Cause** → *A tornado passed over a lake and sucked up the frogs.* **Effect** → *It was raining frogs!*
Cause → *When a wildfire reaches very high temperatures, it causes the air to then heat up and rise.* **Effect** → *This creates strong winds, which suck up the fire.* **Cause** → *The ice pieces increase in size until the wind cannot hold them up.* **Effect** → *This results in hail stones falling to the ground, often at speeds of over 160 kilometers an hour.*

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

C. 1. temperatures; **2.** water; **3.** rain; **4.** Hurricanes

Vocabulary Practice

A. 1. unusual; **2.** actually; **3.** increase; **4.** warning

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

C. 1. odd; **2.** weird; **3.** strange; **4.** usual; **5.** normal; **6.** ordinary

TEACHING NOTES

Before You Read

A. Discussion: Have students look at the photo and read the caption. Point out the *giant cloud of dust* in the photo and make sure students know the meanings of the words. Discuss how tall 1,500 meters is and how long 160 kilometers is. Have students answer the questions and share their ideas with a partner.

B. Skimming: Remind students that skimming means quickly reading over a text to find the main idea. Have them match the headings and then compare answers with a partner. Remind students that one heading is extra.

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 passage.

- Question 1: Although Paragraph D states that “Today, scientists think ...” the main purpose of the reading is not to explain new research. It is to give examples of different types of strange weather.
- Question 5: The sentence “Many had holes in their skulls—but they weren’t hurt in any other way” means the only sign of injury the skeletons showed was the holes in their skulls, so option “c” is the correct answer.

B. Matching: Have students read the sentences and think about which paragraph it matches best, and place it at the end. Remind students that one sentence is extra. Check answers as a class.

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

Reading Skill

Have students read the paragraph **Understanding Cause and Effect**. Make sure they understand the difference between a *cause* and an *effect* and point out that a cause happens first. The effect happens as a result. Cause and effect can sometimes be signposted with words such as *cause*, *result*, *create*, and *make*. Encourage students to ask the questions in the Reading Skill box if they are unsure about the connection between two events.

A. Scanning: Have students find examples of causes and effects in Reading B. Check the answers as a class by going over each cause and eliciting the effect.

B. Matching: Have students complete activity B, referring back to the passage as necessary, especially paragraph C. Remind them that the cause happens first. Check answers in pairs.

C. Understanding Cause and Effect: Have students look back at Reading A, paragraph D to find words to complete the chart. Check answers as a class.

Vocabulary Practice

A. Completion: This passage is about rogue waves and how they differ from tsunamis. Direct students' attention to the photo and caption next to activity A. Have students read the passage first before completing the information using the words in the box. Remind students that one word is extra. Check answers in pairs. Choose a volunteer to read the completed passage aloud to the class.

B. Definitions: Have students match each sentence part to make definitions and then check their answers in pairs.

- As a noun, the word *local* refers to someone that lives in a particular area: The *locals* around here are quiet people. Reading B uses *local* as an adjective, in which it is used to describe something connected to a particular area: "There were thousands of them," one person told a *local* newspaper.

C. Word Web: Make sure students understand the meaning of *unusual* and then have small groups brainstorm synonyms and antonyms. Have students complete the activity individually and then check answers in pairs. If time allows, ask students to substitute their synonyms into this sentence from the passage: *Then something very unusual happens*, to say whether the sentence still makes sense.



Video Summary: The video gives information and facts about tornadoes, such as how fast they go, when and where they tend to occur, and the damage they can do.

Key Vocabulary: *average, formed, spinning*

Answer Key

Before You Watch

A. 1. formed; **2.** average; **3.** spinning

B. 1. T; **2.** T; **3.** T; **4.** F (not in Antarctica)

While You Watch

A. See **Before You Watch B.**

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

Critical Thinking

Possible answer(s): 2, 3, 1, 4: I definitely wouldn't hide under my car because the wind could pick the car up, and it might smash against me. Maybe I would be safest if I moved away from it and lay flat on the ground.

TEACHING NOTES

Before You Watch

A. Previewing: Have students read the information in the paragraph before completing activity A individually. Then compare answers with a partner.

B. Quiz: Have students read the sentences and choose T or F. Explain that they will find the answers in the video. Have students compare their answers in pairs before watching the video.

While You Watch

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

B. Details: Have students answer the questions before watching the video again. Then play the video again and have students check answers in pairs. Point out that three-quarters (three-fourths) is the same as 75 percent.

Critical Thinking

Have students individually rank the advice in order from 1–4 (1 = best advice), based on what they think is the best thing to do. Then have students compare answers with a partner, giving reasons for their answers.

Vocabulary Review

Have students work individually 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.

GIANTS OF THE PAST

11



UNIT INTRODUCTION

This unit focuses on large prehistoric animals that are now extinct. In “The Mammoth’s Tale,” students read about a baby mammoth mummy that was recently found in Siberia. In “Monsters of the Deep,” students read about three prehistoric sea creatures that lived in our oceans millions of years ago. In “Ichthyosaurus,” students will watch a video about another prehistoric sea creature. Students will also read about a prehistoric crocodile and one of the most unusual creatures in the sea, the giant squid.

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

Key Words for Internet Research: *woolly mammoth, Lyuba, Temnodontosaurus, Kronosaurus, Thalassomedon, Ichthyosaur*

WARM UP

Answer Key

Possible answer(s):

1. dodo, woolly mammoth, saber-toothed tiger, great auk
2. I think either their environment changed or they were killed by humans.

TEACHING NOTES

During the period from 230 million years ago to 65 million years ago, there were over 1,000 different kinds of dinosaurs. However, about 65 million years ago something happened that made most dinosaurs go extinct. Scientists believe it was either an extraterrestrial impact, such as an

asteroid, or a massive volcanic eruption which filled the sky with debris, starving the Earth of sunlight.

- Read the Unit Title aloud as students look at the photo. Have students discuss what they see and how it relates to the title. Point out the difference in size between the predator and the prey in the photo and ask which creature is the giant. Have students name other “giants” in the animal kingdom and in stories they have read.
- Read the caption aloud and explain the meaning of *dinosaur*. Make sure students know how much time “millions of years” really is.
- Have students discuss the questions with a partner and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *disappear, further, imagine, in detail, nearby, owner, perfect, store*

Reading Passage Summary: In Siberia, a young boy discovered the remains of a baby woolly mammoth, perfectly preserved in the ice for almost 40,000 years. The mammoth was sent to a museum in Siberia, then on to the Netherlands and Japan where scientists were able to study it and learn more about the extinct animal.

Answer Key

Before You Read

- A. 1. extinct; 2. Ice Age; 3. tusks
- B. Answer(s): The mammoth mummy was given to a museum. (Para B)

Reading Comprehension

- A. 1. b; 2. a (Para B); 3. b; 4. c (Para B); 5. c (Para C)
- B. a. 3; b. 6; c. 5; d. 2; e. 4; f. 1

Reading Skill

- A. 1. some people; 2. early humans; 3. Scientists; 4. the paintings; 5. tourists; 6. UNESCO
- B. 1. had eaten; 2. was taken; 3. was sent; 4. will explain

Critical Thinking

Possible answer(s):

- ▶ **Arguments for:** to learn how the animal behaves; to learn more about our past; to bring more diversity to our current world;
- Arguments against:** the animals will disrupt the ecosystem; they might kill humans; they might bring disease
- ▶ I feel strongly that extinct animals should not be brought back to life. They could cause more damage to the planet than we can even imagine.

Vocabulary Practice

- A. 1. imagine; 2. disappeared; 3. further; 4. in detail; 5. perfect
- B. 1. a; 2. b; 3. a; 4. b
- C. 1. detail; 2. danger; 3. action; 4. fact

TEACHING NOTES

Before You Read



A. Previewing: Have students read the information and match the words to their definitions. Point out that some other animals with *tusks* are walruses and wild pigs, such as hogs and boars.

B. Predicting: Have students look at the pictures, read the captions, and then answer the question. Encourage them to think about where archeological discoveries often go when they are found in order to keep them safe. Have students discuss their ideas with a partner and then read 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 passage.

- Question 4: Paragraph B says, "It was female, so scientists named it after Yuri's wife." The captions to the right and paragraph C refer to the baby mammoth as Lyuba so, we can infer from this that Lyuba is the name of Yuri's wife.

B. Sequencing: Have students try to number the events in order before looking back at the reading passage. Students should then compare answers in pairs before reading to check their answers.

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

Reading Skill



A. Have students read the paragraph **Understanding Passive Sentences.** Explain the difference between the *doer* and the *receiver*. Point out that identifying a passive sentence can be easy if students simply look for the *be* + past participle. Explain that in the passive example, "A mammoth was found (by the boys),"

“by the boys” is not necessary. In passive sentences, the doer is often implied.

A. Understanding Passive: Remind students that they should think about whether the subject is the doer of the action or the one that something is happening to. Have students read the sentences and circle the “doer” of each action. Check answers as a class.

B. Understanding Passive: Have students circle the correct verbs to complete the sentences. Then, check their answers in Reading A.

Critical Thinking

- ▶ Have students work with a partner to think of arguments for and against bringing extinct animals back to life and note their ideas in the chart.
- ▶ Have pairs discuss their ideas with another pair, explaining their reasons. Have a class discussion to see if the majority of students are for or against the idea of bringing extinct animals back to life.

Vocabulary Practice

A. Completion: This passage is about a huge crocodile that lived 110 million years ago. Direct students’ attention to the photo and caption next to activity A. Have students read the passage first before completing the information by circling the correct words. Check answers in pairs. Choose a volunteer to read the completed passage aloud to the class.

B. Completion: Have students choose the correct words to complete the definitions. Check answers as a class.

C. Collocations: Explain that *in* is a preposition that can be added to different nouns to create commonly used expressions. Have students complete the sentences and then check answers as a class. If time allows, have students write a new sentence for each collocation.

LESSON OVERVIEW

Target Vocabulary: *climb, cover, definitely, hunt, meanwhile, rise, toward, way*

Reading Passage Summary: Millions of years ago, giant sea monsters ruled the oceans. *Temnodontosaurus*, *Kronosaurus*, and *Thalassomedon* are three examples of prehistoric sea creatures with unique body parts, ranging from huge eyes to long necks and very sharp teeth.

Answer Key

Before You Read

- A. From top to bottom: (2) teeth; (1) jaws; (3) stomach; (5) fins; (4) tail
- B. 1. three; 2. *Temnodontosaurus* had very big teeth. *Kronosaurus* had a long head with big teeth. *Thalassomedon* had a very long neck.

Reading Comprehension

- A. 1. a (Para B); 2. b (Para C); 3. b; 4. c (Para D); 5. c (Para D)
- B. 1. F (Its name means “cutting tooth lizard”); 2. T; 3. F (It climbed out of the water to lay its eggs on land); 4. NG; 5. T; 6. NG

Reading Skill

- A. **Temnodontosaurus:** “cutting-tooth lizard,” big teeth, largest eyes (25 centimeters), easily find its food in the dark water; **Kronosaurus:** “Kronos lizard,” fins to climb out of water and lay its eggs, head two meters long, teeth as big as bananas, strong jaws and teeth to catch smaller animals, most dangerous predator; **Thalassomedon:** “lord of the seas,” very long neck, carried stones in its stomach, neck slowly rose up, fish didn’t have a chance
- B. 1. tooth; 2. teeth / eyes; 3. eyes / teeth; 4. food; 5. lizard; 6. bananas; 7. catch; 8. jaws; 9. seas; 10. neck; 11. stones; 12. fish

Critical Thinking

Possible answer(s):

- I would rank the sea monsters: 2, 1, 3
- I think *Kronosaurus* would be the most dangerous because its strong jaws and teeth are perfect for catching animals like humans. Also, it came out of the water, so it could catch humans on land.

Vocabulary Practice

- A. 1. rise; 2. definitely; 3. hunt; 4. way; 5. toward
- B. 1. b; 2. c; 3. a
- C. 1. forward; 2. backward; 3. upward

TEACHING NOTES

Before You Read 

A. Labeling: Have students look at the illustration and read the paragraph. Then have them label the illustration. Point out that each vocabulary item is a common word for an animal body part and is not limited to ancient creatures. Have students check answers in pairs.

B. Predicting: Have students skim the headings and look at the pictures and captions in the passage. Point out that they should focus on what is unusual about each creature, then answer the questions. 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 passage.

- Question 1: There is no mention of what it ate so we cannot infer it only ate plants, so we can eliminate option “b.” Also, the caption next

to the activity states the *Kronosaurus* was the largest sea reptile that ever lived, so we can eliminate option “c.” Paragraph B states its name means “cutting tooth lizard.” We can therefore infer its teeth were very sharp, so the correct answer is option “a.”

- Question 2: Paragraph C says: “its teeth were as big as bananas!” We can infer therefore that the correct answer is 20 centimeters, or option “b,” as option “a” is too long and option “c” is too short.
- Question 5: Paragraph D says that stones kept *Thalassomedon*’s body deep underwater so it could use its long neck to sneak up on fish before they saw it coming.

B. Evaluating Statements: Have students individually read the statements and decide if the information is true (T), false (F), or not given (NG). Remind them to correct the false statements. Then have them check their answers with a partner.

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

Reading Skill

Have students read the paragraph **Organizing Information (2)—A Chart**. Remind students that they have already learned about this concept in Unit 7A. Make sure students understand that a chart is a visual way to compare information, which makes it a helpful way to review all the details from a text.

A. Analyzing: Have students look back at Reading B and underline the key details about each sea creature. Explain that they will use these key details in activity B.

B. Organizing Information: Have students complete the chart with information from Reading B and then compare answers in pairs. Remind students to use the key details they underlined in activity A and to write only one word in each space.

Critical Thinking

- ▶ Have students rank the sea monsters in order of how dangerous they would be to humans by using information from the chart in Reading Skill B to support their ideas.
- ▶ Have students share their ideas with a partner, explaining the reasons for their ranking. Then have a show of hands to see which sea monster the class thinks would be the most dangerous.

Vocabulary Practice

A. Completion: This passage is about giant squid, one of the most unusual creatures in the sea. Direct students’ attention to the photo and caption next to activity A. Have students read the passage first before completing the information using the words in the box. Remind students that one word is extra. Check answers in pairs. Choose a volunteer to read the completed passage aloud to the class.

B. Definitions: Have students match the words to their definitions and then check their answers in pairs.

C. Word Parts: Make sure students understand how a suffix is used to change a word’s meaning. Have students complete the activity individually and then check answers in pairs. If time allows, have the students write additional sentences using each word in the box.



Video Summary: The video gives information about Ichthyosaurs, an ancient reptile that lived about 250 million years ago, about 20 million years before dinosaurs came about. Although they were at the top of the food chain, about 25 million years before dinosaurs were wiped out, the ichthyosaurs became extinct. The exact reason for this still remains a mystery today.

Key Vocabulary: *develop, narrow, skull*

Answer Key

Before You Watch

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

B. 1. fish and squid; 2. to help the creature see through dark water; 3. about 35 kmph

While You Watch

A. See **Before You Watch B.**

B. 1. 251; 2. fish; 3. 60 centimeters; 4. 26 meters; 5. 25

Critical Thinking

Possible answer(s): People claim to have seen the Yeti in the Himalayas, the Loch Ness Monster in Scotland, and a Megalodon in the ocean. I don't think these stories are true because if they were, there would be more proof. The pictures I've seen are very blurry and do not look real.

TEACHING NOTES

Before You Watch

A. Previewing: Have students read the information in the paragraph before matching the words to their definitions. Then have students compare answers with a partner.

B. Predicting: Have students look at the photograph and discuss the questions with a partner. Then call on volunteers to share their ideas with the class before watching the video.

While You Watch

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

B. Completion: Have students try to complete the notes before watching the video again. Then play the video again and have students check answers in pairs.

Critical Thinking

Have students think about stories they have heard of prehistoric animals still alive today. Then have students share their ideas with a partner.

Vocabulary Review

Have students work individually 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.

TECHNOLOGY

12



UNIT INTRODUCTION

This unit focuses on robots and how advances in technology will change our lives. In “The Robots are Coming!” students read about how robots may become part of our daily lives. In “How Will We Live in 2045?” students read predictions about what life will be like in the future. In “A Social Robot,” students will watch a video about a robot named Sophia. Students will also read about one of the first humanlike robots, and how “smart clothes” might be used in the future.

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

Key Words for Internet Research: *robot, ASIMO, Sophia, animal-bots, SpotMini, nanotechnology, smart clothes*

WARM UP

Answer Key

Possible answer(s):

1. I use my smartphone all day. I ride in a car to school and take a bus to go downtown. I do my schoolwork on a computer. I watch movies on my tablet or on the TV.
2. I think all cars will be self-driving and people will live longer due to advances in medicine.

TEACHING NOTES

A robot is defined as a machine programmed to do a series of tasks. Most people already use machines and technology in everyday life and the age of robots is set to be the way of the future.

- Read the Unit Title aloud as students look at the photo. Explain that *technology* means “the use of science and machines to do things.” Have students discuss what they see in the photo and how it relates to the title. Discuss how the robot in the photo might move.
- Read the caption aloud and explain the meaning of *sticky*, *copy*, and *movements*. Make sure students understand that “sticky-bot” is the name of the robot in the photo, and that this is a view from underneath it.
- Have students discuss the questions with a partner and follow up with a class discussion.

LESSON OVERVIEW

Target Vocabulary: *act, daily, factory, operate, rough, sign, simple, uncomfortable*

Reading Passage Summary: Robots were originally created to do simple factory jobs, but new technology has significantly changed their capabilities. Robots today are able to more closely match human actions, and some can even show emotions. New technology is the way of the future, and robots may soon play a big part in our daily lives.

Answer Key

Before You Read

- A.** Possible answer(s): I think robots can climb stairs, jump, walk up walls, drive cars, talk to people, run, and dance. They can probably be programmed to write poems and play soccer, and even take care of people by taking their blood pressure or temperature. I don't think they can feel emotions or learn new things on their own.
- B.** climb stairs, talk to people, jump, run, take care of people, dance, walk up walls, learn new things

Reading Comprehension

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

Reading Skill

- A.** Paragraph A: such as, for example, such as; Paragraph B: like; Paragraph C: Such; Paragraph E: for example, like
- B.** 1. *Star Wars, Transformers*; 2. take care of children or the elderly, fight fires; 3. ASIMO; 4. snake-bot; 5. SpotMini
- C.** 1. d; 2. c; 3. b; 4. a

Critical Thinking

- Possible answer(s):
- ▶ nurse, teacher, chef
 - ▶ I think nurses will be replaced by robots because they could take a person's temperature, blood pressure, and vital signs. They could also draw blood and manage lab

results. I think teachers will be replaced by robots because they can present information to students and then give computerized tests. I think chefs could be replaced by robots because they can cut and chop food and then be programmed to put it together and cook it in specific ways.

Vocabulary Practice

- A.** 1. simple; 2. rough; 3. act; 4. signs; 5. uncomfortable
- B.** 1. a; 2. a; 3. b
- C.** 1. work; 2. exercise; 3. events

TEACHING NOTES

Before You Read 

- A. Discussion:** Have students read the words and phrases in the box and look at the picture of the robot ASIMO. In pairs, have students decide what robots can and cannot do, adding their own ideas to the list.
- B. Scanning:** Have students scan the reading to check their ideas. Point out that the passage says social robots can *show* emotions, but they do not *feel* emotions.

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 passage.
 - Question 4: Paragraph E gives information about frog-bot, which can jump over objects, and sticky-bot, which can walk up walls. Since the best way to get over a rock is to jump, option "a" is the correct answer.
- B. Scanning:** Have students try to complete the sentences without looking back at the reading passage. Then have students compare answers in pairs before scanning to check their answers.

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

Reading Skill

Have students read the paragraph **Identifying Examples**. Make sure they understand that writers use the phrases *for example*, *like*, and *such as* as clues that an example will soon follow. Writers use examples to help explain difficult ideas to the reader.

A. Identifying Examples: Have students look back at Reading A and circle the words and phrases that introduce examples. Remind them that they learned *for example*, *like*, and *such as* in the Reading Skill paragraph.

B. Identifying Examples: Have students find the examples and then check answers with a partner.

C. Identifying Examples: This paragraph is about one of the first humanlike robots. Direct students' attention to the photo next to activity C. Have students read the paragraph first before completing the information using examples from the box. Then have students check answers in pairs. Choose a volunteer to read the completed paragraph aloud to the class.

Critical Thinking

- ▶ Have students work individually to list three jobs they think robots will take over from humans in the future.
- ▶ Have students discuss their ideas with a partner and explain their reasons.

Vocabulary Practice

A. Completion: This passage is about how robots are being developed. Direct students' attention to the photo and caption next to activity A. Have students read the passage first before completing the information by using the words in the box. Then have students check answers in pairs. Choose a volunteer to read the completed paragraph aloud to the class.

B. Definitions: Have students choose the correct words to complete the definitions. Check answers as a class.

C. Collocations: Explain that *daily* is the adjective form of the noun *day*. It means "every day" and it collocates with different nouns to make common phrases. Check answers as a class. If time allows, have students write a new sentence for each collocation.

Challenge: Write the following question on the board for students who have finished the vocabulary activities:

What are the advantages and disadvantages of having a robot pet instead of a real pet?

LESSON OVERVIEW

Target Vocabulary: *electricity, get dressed, mirror, pick up, program, recently, turn, voice*

Reading Passage Summary: Life in the year 2045 may be significantly different than life as we know it today. As technology progresses, so will the way in which we live. Some predictions for the future include medical breakthroughs that would lead to an increased life span, new forms of transportation, and new ways of saving energy.

Answer Key

Before You Read

- A.** Possible answer(s): I think all appliances will be computerized with voice recognition. For example, if you want a piece of cheese from the refrigerator, you'd just say "cheese," and a robot in the fridge would bring it to you. Shopping will be done by robots, and all cars will drive themselves. Air and train travel will be much faster, and car lanes will be at different altitudes, so there won't be any traffic jams. I also think people will live much longer.
- B.** People will live longer. Nanotechnology will be used to cure illnesses. People will wear smart clothes. Robots will know what's in your fridge and will shop for you. Homes will automatically go into "sleep" mode when you leave to save energy. Cars will drive themselves.

Reading Comprehension

- A.** 1. a (Para A); 2. b (Para B); 3. b; 4. c; 5. b
- B.** 1. nanotechnology; 2. the sun; 3. ten minutes; 4. they drive themselves

Reading Skill

- A.** 2. review; 3. superstar; 4. anti-social
- B.** 1. anti-aging: against aging (not getting old); 2. unhealthy: not healthy (sick); 3. replace: place again (put a new one there); 4. supermarket: above a market (bigger than a market)

Critical Thinking

Possible answer(s):

I would rate the predictions: many people live to be 120: 3; clothes can change colors: 2; every home has a smart fridge: 1; you can grow new body parts in a lab: 3; cell phones get energy from the sun: 1; most cars are driverless: 1. I think the most likely prediction is that most cars will be driverless, and every home will have a smart fridge, because I know this technology is being created now. I think solar power is going to be the most common way to generate energy in the future, so using solar power to charge phones is also very likely. Growing new body parts in a lab is something scientists are working on, but it seems much too difficult to become a normal part of life in the next few decades.

Vocabulary Practice

- A.** 1. mirror; 2. voice; 3. pick up; 4. get dressed; 5. turns; 6. program; 7. recently; 8. Electricity
- B.** 1. get dressed; 2. turn; 3. electricity; 4. programmed
- C.** 1. c; 2. b; 3. a

TEACHING NOTES

Before You Read 

- A. Discussion:** Have students discuss how they think life will be different in 2045 in pairs.
- B. Skimming:** Have students skim the passage to check their answers and then note other ideas described in the passage.

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 passage.

- Question 4: Although paragraph F says that cars will drive themselves, people will still use them. Therefore, the correct answer is option “c.”

B. Short Answers: Have students use information from the passage to answer the questions and then check answers with a partner.

Challenge: Have students work in pairs to search online for more examples of nanotechnology. Then have them use the terms they learned in Lesson A Reading Skill to present the examples to a small group.

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

Reading Skill

Have students read the paragraph **Understanding Prefixes**. Note that three of the prefixes mentioned in the box are quite similar in meaning. The prefix *un-* means “not” or “the opposite”: *undone*, *unselfish*. The prefix *dis-* means “opposite” or “reverse”: *dislike*, *disadvantage*. The prefix *mis-* means “wrongly” or “badly”: *misunderstand*, *mismanage*. Explain that understanding prefixes can help them guess the meaning of a new word and that some words with prefixes are hyphenated, so they will need to use a dictionary to check.

A. Understanding Prefixes: Make sure students understand the meanings of the prefixes and then have them create new words. Check answers as a class. Point out that *super* means great or big—in other words, more than average.

B. Definitions: Have students find the words with the prefixes in the passage and write the definition, then compare answers with a partner.

Critical Thinking

Have students rate each prediction on how likely it is to happen and then compare ideas with a partner, discussing their reasons.

Vocabulary Practice

A. Definitions: Have students complete the definitions using the correct form of the words in the box and then check their answers in pairs.

B. Completion: This paragraph is about “smart clothes” of the future. Direct students’ attention to the photo and caption next to activity B. Have students read the paragraph first before completing the information by using the correct form of the words in activity A. Then have students check answers in pairs. Choose a volunteer to read the completed paragraph aloud to the class.

C. Word Usage: Make sure students understand that a phrasal verb consists of a verb and a preposition, and that a phrasal verb can have different meanings depending on the context. Have students complete the activity individually and then check answers in pairs. If time allows, have students use the three definitions of *pick up* in their own sentences.

Challenge: Have pairs research and make a poster about smart technology that is available today for clothes, home appliances, or cars. Alternatively, have students imagine and design a new smart product.

Video Summary: The video gives information about Sophia, a type of robot that can communicate with humans. Robots like Sophia can be used in many ways, including providing friendship to elderly people and helping diagnose sick people.

Key Vocabulary: *advanced, emotions, facial expression*

Answer Key

Before You Watch

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

B. Possible answer(s): I think robots like Sophia could be used to help lonely people feel better and help take care of people in hospitals and nursing homes.

While You Watch

A. Possible answer(s): The video mentions talking with elderly people and helping doctors diagnose patients. It also says that social robots could help manage crowds in busy places and help teachers by answering students' questions in classrooms.

B. 1. She was activated. **2.** "wisdom" in Greek; **3.** around 50; **4.** She was given legs and the ability to walk.

Critical Thinking

Possible answer(s): **Advantages of Robots:** They could help free up time for more important work, like research. They could make people's lives easier. They could provide friendship to lonely people. **Disadvantages of Robots:** They could take away people's jobs. People could become too dependent on them. They could get out of control and create unforeseen problems in the world.

TEACHING NOTES

Before You Watch

A. Previewing: Have students read the information in the paragraph before completing activity A individually. Then have students compare answers with a partner.

B. Discussion: Have students discuss the questions with a partner. Then call on volunteers to share with the class.

While You Watch

A. Gist: Play the video. In pairs, have students discuss which of their ideas were mentioned and then note any other uses for social robots they saw in the video.

B. Short Answer: Have students answer the questions before watching the video again. Then play the video again and have students check answers in pairs.

Critical Thinking

In small groups, have students make a list of the advantages and disadvantages of having robots in our daily lives. Then have students discuss their ideas with a partner.

Vocabulary Review

Have students work individually 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.