

## In This Unit

**Theme** This unit looks at exploration and the reasons people explore.

### Content Objectives

- Students will
- identify explorers and the reasons that they explore.
  - identify how technology is useful for exploration.
  - identify and describe an historic flight.
  - read about a gene associated with exploration.

### Language Objectives

- Students will
- talk about why it's important to explore.
  - use new phrases to hesitate or buy time when answering questions.
  - use narrative tenses to tell a story.
  - use *the* correctly when talking about places.
  - write an essay that compares and contrasts exploring in the field and exploring virtually.

### Vocabulary

- pp. 78–79** *curious, to drive, to encounter, exciting, expert, high-tech, to investigate, knowledge, to look into, pioneer, purpose, remote, to research*
- p. 80** *achievement, to encourage, to engage in, to require*
- p. 83** *to educate, globe, motion, route, to set a record*
- p. 84** *associated, gene, to motivate, trait*

**Vocabulary Strategies** Words with *en-* prefix; Pronunciation

**Speaking Strategy** Hesitating or buying time when answering questions

### Grammar

- Grammar 1** Use narrative tenses to tell a story
- Grammar 2** Use *the* correctly to talk about places

**Reading** *The Explorer Gene*

**Reading Strategy** Make a personal connection

**Video** Scene 5.1: *Why Is It Important to Explore?*; Scene 5.2: Meet Corey Jaskolski

**Writing** Compare and contrast essay

**National Geographic Mission** Learn by Doing

### Project

- Expedition plan
- Explorer profile
- Exploration from home

**Pronunciation** Sounds of letter *x*

**Pacing Guides** 4.5.1, 4.5.2, 4.5.3



# Why We Explore

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## Introduce the Unit

- **Activate prior knowledge** Say *The theme of our next unit is exploring. You may not realize it, but we've already learned about many different types of exploring. We learned about Cory Richards, who explores extreme places. We've also learned about Patrick Meier, who uses digital technology to explore crisis areas. And Barton Seaver explores the world through food. If you were a National Geographic Explorer, what would you want to explore?* Have students discuss this question in pairs. Then call on pairs to share their responses.
- Say *Open your books to pages 76 and 77.* Ask *What is the man in the photo doing? (jumping out of a spacecraft) Do you think he's an explorer? Why or why not?* Listen to several students' responses.
- Call on a student to read Corey Jaskolski's quote aloud. Say *Think of a time that you saw something new or different. What was it? How did it make you feel?* Call on several students to share their stories. Then ask *How can we see the world in a "different format," as Corey mentions? What tools do you use to explore the world?* Students may respond that they use technology to explore the world.



Austrian BASE jumper Felix Baumgartner jumps from the edge of space, 39 km (24 mi.) above the surface of the Earth.

**"We really need to show people the world in a different light, in a new format—something that they can engage with and be excited about."**

—Corey Jaskolski

1. In the photo, we see a man jump from the edge of space and then free-fall, attached only to a helium balloon. Would you try this? Why or why not?
2. Why do you think people explore? What can be learned from exploring new places?
3. Where would you like to explore? Explain.

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- Call on a student to read Question 1 on p. 77 aloud. Have students discuss the question in pairs. Say *Raise your hand if you would be willing to try this jump.* Wait for students to raise their hands. Then ask several of those students *Why would you want to do this? What would you risk?* After that discussion, turn to students that didn't raise their hands and ask *Why wouldn't you do this?* Listen to several responses.
- Have a student read Question 2 aloud. Guide students to use examples from their own experiences in their discussions.
- Have a different student read Question 3 aloud. Then have students make a list of two or three places they'd like to explore and why. Remind students that their responses could include places in your region or more remote places.

## Extend

- Distribute **Worksheet 4.5.1**. Pair students. Explain that partners will be writing about and discussing exploration.

## Unit Opener

### Objectives

- Students will
- describe and discuss a photo.
  - discuss why and how people explore.

**Content Vocabulary** *format, to free-fall, helium*

**Resources** Worksheet 4.5.1 (Teacher's Resource CD-ROM/Website); CPT: Unit Opener

## Be the Expert

### About the Photo

The photo shows Felix Baumgartner, an Austrian skydiver, just before he performed an historic skydive—the highest in history—on October 14, 2012. Baumgartner took a custom-built space capsule to the edge of space to make this "space jump." With a top speed of 1,343 kph (834 mph), the jump made Baumgartner the first person ever to break the speed of sound in a free fall. He continued to free-fall for four minutes before opening his parachute to land in the desert of New Mexico, United States. The entire journey back to Earth lasted only nine minutes and nine seconds.

### Teaching Tip

When students get really excited about a topic, they tend to speak out in class. If you have a topic that you think will capture students' interest, plan ahead for strategies that will allow each student to share their ideas without interrupting others. For example, ask students who are interested in answering a question to raise their hands. Those students should signal their interest in speaking by standing their book upright, or giving another sign. Have students put their hands down. Then, one by one, let each student talk for a certain amount of time. After each student speaks, have him or her put the book down. When students have a visual clue that others want to contribute, it will be easier for them to understand that they need to stop talking and give others a chance.

### Related Words

*to skydive, capsule*

1 Why do we explore? Discuss. Then listen and read. TR: 57

Objectives

- Students will
- identify and use vocabulary related to exploration.
  - use new vocabulary to read about and discuss explorers and their work.

**Target Vocabulary** *curious, to drive, to encounter, exciting, expert, high-tech, to investigate, knowledge, to look into, pioneer, purpose, remote, to research*

**Content Vocabulary** *3D scanning, to assemble, contribution, to gather, hominid, paleoanthropologist, to squeeze*

**Pronunciation** Sounds of letter x

**Resources** Graphic Organizer: T-chart; Pronunciation Answer Key (Teacher's Resource CD-ROM/Website); TR 57–58, 122–124 (Audio CD/Website/CPT); CPT: Vocabulary and Pronunciation



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Warm Up

- **Build background** Say *Today, we're going to read about three explorers. One of them explores the ocean, another explores caves, and a third creates technology that helps explorers learn about many different places.*

- Make the following T-chart on the board:

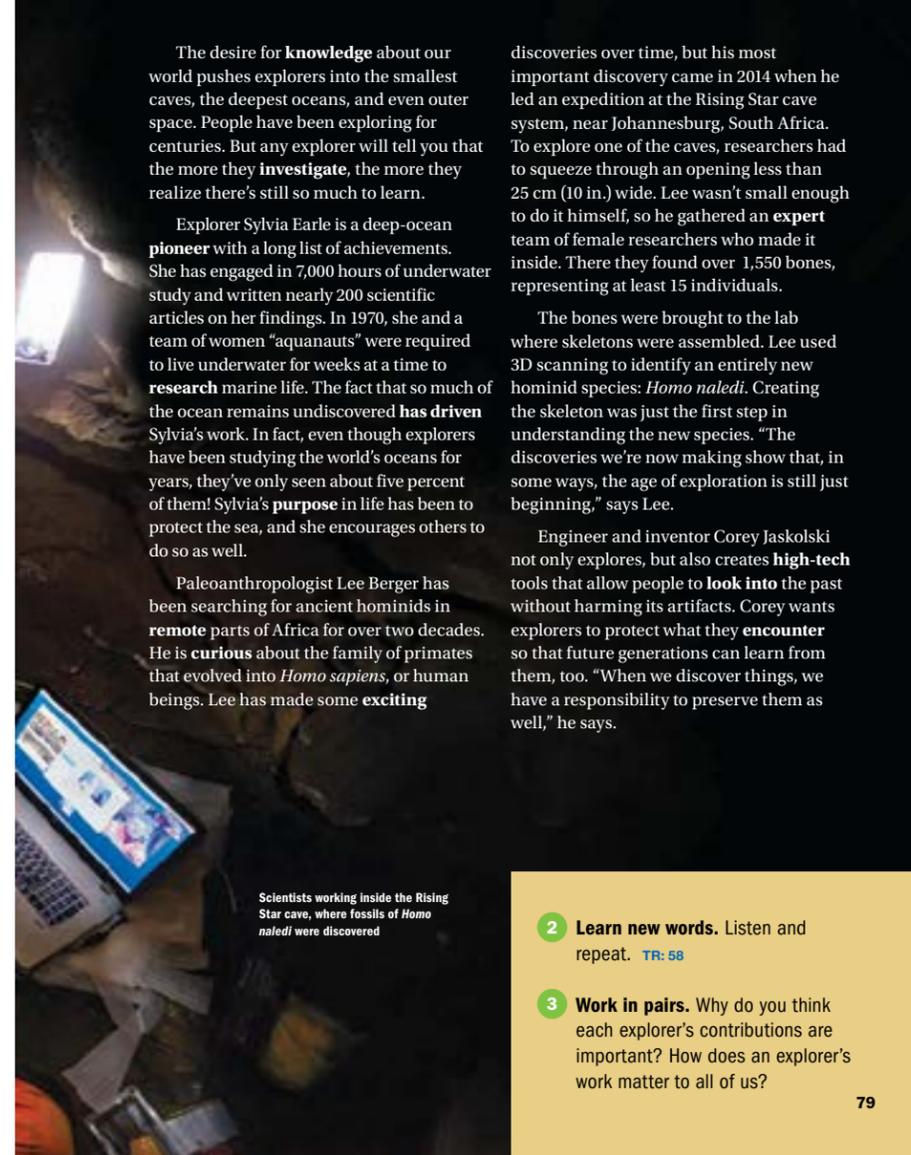
Ocean	Cave

- Give each student a copy of the T-chart organizer, and have students copy the column heads onto their charts. Say *Imagine you had the opportunity to explore the ocean. Make a list of all of the things you can see and learn about while exploring underwater.* Give students several minutes to complete the first column on their chart. Then, repeat the instruction for the Cave column.

- Divide the class into small groups and have them discuss their charts. Then call on several students to share answers, and write them in the chart on the board. When you finish, ask *Does this list make you want to explore the ocean? A cave?* Call on several students to answer and explain their responses.

Present 1 2

- Have students open their books to pp. 78–79. Point to the photo and say *The people in the photo are exploring a cave. What equipment do you see in the photo?* (helmets, lights, computers) *What do you think they're looking for with this equipment?* Students may answer that the explorers are looking for ancient artifacts or fossils. Have a student read the caption aloud to confirm students' responses.



Scientists working inside the Rising Star cave, where fossils of *Homo naledi* were discovered

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- 1 Play TR: 57 and have students listen and read. Discuss the reading with students. Have them respond to the following:
  - What do explorers realize once they start investigating?* (There's still so much to learn.)
  - What is Sylvia Earle's purpose in life?* (protecting the sea)
  - What was Lee Berger's most significant discovery?* (*H. naledi* bones)
  - How can Corey Jaskolski's high-tech tools help preserve ancient artifacts?* (Researchers can study them without moving/harming them.)
- 2 Play TR: 58. Have students listen and repeat. Then have students work in pairs to practice pronouncing the words together.

- Play TR: 58 a second time, this time pausing after each word. Repeat the word aloud, and then call on a student to use the word in a sentence describing one of the explorers.

Practice 3 4 5

- 3 Give examples Read the questions aloud, and then say *We've read about three explorers. Now, let's think about their contributions, or what their work brings to their fields of study.* Give an example. Say *Sylvia Earle has explored for many hours underwater, and she has published more than 190 articles about what she's learned. Other people read these articles and learn from her discoveries.* Have students work in pairs to discuss the contributions of Lee Berger and Corey Jaskolski.

About the Photo

The photo shows photographer Elliot Ross and paleontologist Ashley Kruger communicating with Lee Berger via computers from inside of the Dinaledi chamber of the Rising Star cave system. Lee found out about the fossils and had to select a special team of six slender experts to get into this area of the cave. In several areas, openings are less than 25 cm (10 in.) wide. To access the Dinaledi chamber—the most remote part—explorers had to fall down a narrow chute. However, the difficult entry was worth it: this chamber is where the bones of *H. naledi* were located.

Pronunciation

Go to Student Book p. 146. Use Audio TR: 122–124.

**Sounds of letter x** The letter x can sound like /gz/ if (1) the x comes before a vowel, and (2) the syllable after x is stressed. Otherwise, the pronunciation is /ks/.

Students may have trouble with words like **Mexico** or **exercise**, since these follow the first rule, but not the second, so they sound like /ks/. One exception is the word **exit**, which can be pronounced either way.

**Objectives**

- Students will
- practice using vocabulary related to exploration.
  - use a vocabulary strategy to learn new words.

**Target Vocabulary** *achievement, to encourage, to engage in, to require*

**Vocabulary Strategy** Words with *en-* prefix

**Content Vocabulary** *360-degree, camera trap, to disturb, high-resolution*

**Resources** Online Workbook/ Workbook pp. 46–47; Worksheet 4.5.2 (Teacher’s Resource CD-ROM/ Website); TR 59–60 (Audio CD/ Website/CPT); CPT: Vocabulary

**Materials** graph paper (two pieces per student) (*optional*)

4 Read and write the words from the list. Make any necessary changes.

curious	drive	encounter	exciting	expert
high-tech	investigate	knowledge	purpose	remote

Corey Jaskolski is an expert engineer and inventor whose high-tech inventions are helping explorers—and ordinary people—to see the world in a different way. For example, his underwater robotic cameras can get high-resolution photos of very remote parts of the ocean. These devices were used to investigate and film the *Titanic* shipwreck. Corey has also developed 360-degree viewers for the purpose of allowing people to explore exciting places, such as King Tut’s tomb, just by moving their mobile devices! Corey also has created night-vision cameras and 3D camera traps that help photographers capture images of animals without disturbing them. Conservation is what drives much of Corey’s work. His equipment can be used to gain knowledge about places or animals without harming them at all. Corey wants to protect what’s here on Earth so that future generations can enjoy exploring just like he does.



5 Learn new words. Listen for these words and match them to the definitions. Then listen and repeat. TR: 59 and 60

achievement	to encourage	to engage in	to require
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- to encourage 1. help or support someone
- to require 2. make someone do something
- to engage in 3. be involved in a cause
- achievement 4. success

6 Choose an activity.

1. **Work independently.** How well do you know your community? Investigate your area. Explore both online and “in the field.” Share your experience with the class.
2. **Work in pairs.** How might technology help in making new discoveries? Make a list of five ideas. Present your list to the class.
3. **Work in groups.** Investigate Corey’s work. Which of his inventions would you like to own? What would you do with it?

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- Have students turn to p. 80. Hold up your book and point to the photo. Say *This is Corey Jaskolski, the unit explorer. Corey is an engineer. He explores, but he also creates tools to help others explore.* Have students scan the text to identify the types of tools they’ll read about.
- 4 Have a student read aloud the direction line for Activity 4. Then call on another student to read the words in the box aloud. Guide students to look at the reading on p. 79 to review how each word is used in context. After students review the meaning of each word, give them time to complete the activity individually. Then review their responses as a class.
- 5 **Learn new words** Play TR: 59 once and have students write each word next to the definition. Play it again and have students check their work. Then, play TR: 60 and have students repeat each word and sentence. Review the answers to items 1–4 as a class. Then have students look for each word in context on p. 79.
- **Vocabulary strategy** Write the word *encourage* on the board and underline the *en-* prefix. Read aloud the sentence with the word *encourage* on p. 79. Say *The word encourage starts with en-*.

**Vocabulary Strategy**

**Words with *en-* prefix** The prefix *en-* comes from Latin, and has two meanings, both of which students see in this lesson. First, *en-* means *to cause*. In addition to the word *encourage*, students can see this meaning in words like *enable* and *envision*. The prefix *en-* can also mean *to put into* or *to surround*. Students will see this meaning in words such as *enclose* and *engrave*. With certain consonant sounds, the prefix *em-* can also be used to convey this meaning, as in the words *embed* and *empower*.

**Our World in Context**

Corey Jaskolski has helped develop several tools that will help researchers learn more about animals and their activities. For example, he’s developed a color night-vision camera that can show activity at night in full color, as though the images are being taken during the day. He has also worked on a camera trap to capture still images of animals in their habitats, without their knowledge. This allows animals to be measured without trapping and tranquilizing them. To get the results he needed for this camera, Corey tested the device on his own cat!

*This prefix has more than one meaning. It can mean to cause. For example, if you encourage someone to do something, your words or actions may cause this person to do this action. Write the words engage in on the board. Say The prefix en- can also mean to put into something. If I engage in an activity, I put my interest and efforts into that activity.*

**Apply 6**

- 6 Read aloud the three activity options. Have students form pairs or groups if they choose the second or third activity options.
- Have students who choose the first activity brainstorm different ways to virtually explore the community. Then have them choose a nearby place to explore. Point out that *in the field* simply refers to exploring out of the classroom or home. Allow students to choose a format to share their experience with the class.
- Point out to students who choose the second option that technology doesn’t necessarily need to be modern technology. They can find out about a past discovery that used the technology available at that time.
- There are several videos online in which Corey Jaskolski talks about his inventions and how they work. Guide students to view these videos to get information for their response to option three.

**Extend**

- Give each student two sheets of graph paper. Have students choose eight of the new vocabulary words. On one paper, have students practice writing the words as a crossword puzzle, intersecting letters from each word. Students should use this as a model to create their crossword puzzle on the other sheet of graph paper. After students draw the blanks for the puzzle on the second sheet of graph paper, have them write clues for each word. For example, if *exciting* is the first word going down, students can write *1. Down: interesting and appealing; not boring.* **Note:** If resources are available, students can go online to generate a crossword puzzle.
- Collect puzzles and redistribute among the class. Allow time for students to complete the puzzles. Then, return the puzzles to their authors, who will check the responses.
- If time allows, assign **Worksheet 4.5.2**. Explain that students will use vocabulary words to talk and write about explorers.

**Wrap Up**

- Divide students into three groups, and assign each group an explorer: Sylvia Earle, Lee Berger, or Corey Jaskolski. Set a timer for one minute, and have groups make a list of as many vocabulary words as possible that relate to their explorer.
- After the timer goes off, call on groups to read aloud their lists, and to briefly explain how each word connects to the explorer and his or her work.

**Formative Assessment**

- Can students
- identify and use vocabulary related to exploration?  
Ask students to use the words *high-tech*, *discovery*, and *purpose* in a sentence about exploration.
  - use new vocabulary to read about and discuss explorers and their work?  
Ask students to name one of Lee Berger’s contributions as an explorer.

**Workbook** For additional practice, assign Workbook pp. 46–47.

**Online Workbook** Vocabulary

## Objective

- Students will
- use new phrases to hesitate or buy time during a conversation.

**Speaking Strategy** Hesitating or buying time when answering questions

**Academic Language** *to buy time, to hesitate*

**Content Vocabulary** *league*

**Resources** Online Workbook; Worksheet 4.5.3; Graphic Organizer: Pie chart (3 slices) (Teacher's Resource CD-ROM/Website); TR 61–62 (Audio CD/Website/CPT); CPT: Speaking Strategy

### SPEAKING STRATEGY TR: 61

#### Hesitating or buying time when answering questions

Where do you see yourself in 5 years?	Hmm . . . that's tough. I'd like to be studying in South America, but I might need to get a job.
What made you want to learn Cantonese?	Well, it's hard to explain. I guess I've just always wanted to travel to Guangzhou.
Why do you think humans explore?	That's a good question. Let me think about that one for a minute.

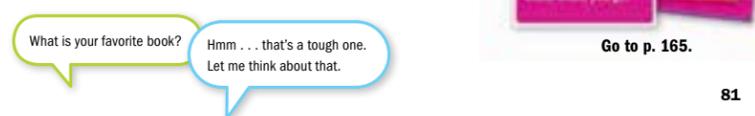
**7 Listen.** How does the speaker buy time before responding to the question? Write the phrases you hear. **TR: 62**

**8 Read and complete the dialogue.** Possible answers:

Caleb: So Kenji, how do you like living in Canada?  
 Kenji: Well, it's hard to explain. I guess I'm enjoying my experience overall, but there have been some challenges.  
 Caleb: What's been the biggest challenge?  
 Kenji: Hmm, that's tough . . . probably speaking English all the time and trying to make friends.  
 Caleb: But joining the baseball team has made you pretty popular. We're number one in the league for the first time! How'd you get so good at it?  
 Kenji: That's a good question. In Japan, I'm just a normal player. We practice a lot. All year, in fact. Don't you do the same with hockey?  
 Caleb: Some people do, but I just play for fun. Besides, I like playing baseball in spring.  
 Kenji: Would you like to visit Japan someday?  
 Caleb: I guess it'd be fun, but it sounds like I better get serious about baseball first!

**9 Work in pairs.** Cut out the cards on p. 165. Take turns asking each other the questions on the cards. Use the phrases above to buy time when necessary.

**10 Work in groups.** Write five original questions to ask your group. Then take turns asking and answering your questions.



Go to p. 165.

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## Warm Up

- **Preteach** Ask students *What would you like to know about me? Write a question to ask me about my preferences, my goals, my plans, and so on.* Encourage students to write open-ended, informational questions. Remind students to avoid personal or sensitive topics. If you feel uncomfortable talking about yourself to your students, role-play a popular celebrity, and answer as though you were that person.
- Collect the questions and read aloud the ones that you would feel comfortable answering in front of the class. After you read the question aloud, model buying time. Say *Hmmm... (my favorite food. That's tough).* Model using each of the strategy phrases.
- Read aloud five or six questions. When you finish, say *With each question I read, I had to think about the answer. Today, we're learning how to use language to show that we're thinking about a question.*

## Present 7

- Have students turn to p. 81. Play **TR: 61**. Say *Notice that the questions being asked are "big" questions. When someone asks you a big or important question, you should think carefully about how to respond. Coming up with a response might take several seconds, but you don't want to be silent. By using a phrase to buy time, you're telling your listener, "I heard you and I'm thinking about how to answer you."*
- **7** Say *Now listen as two people have a conversation about studying abroad. When you hear one of the phrases from the box, write it down.* Play **TR: 62** once, and have students just listen to the dialogue. Then, play the track again and have them write the phrases used to buy time.

## Practice 8

- **8** Direct students' attention to Activity 8. Allow

time for students to complete the activity independently. Then, have students compare their responses in pairs. Call on a pair of students to read the dialogue aloud.

## Apply 9 10

- **9** Direct students to p. 165, and have them cut the cards out. Students can create a single pile of cards, and set them face down on the desk.
- Call on a student to read the small card on p. 81 aloud, and another student to read aloud the model in the speech bubble. Have students do the activity in pairs. Walk around the room and make sure they're correctly using phrases to buy time.
- **10** Have students work individually to write questions. Remind students that they should avoid *yes/no* questions or other questions that do not require a thoughtful answer. Point out that students should also be sensitive when writing their questions, avoiding any that may be too personal. If students are struggling to write appropriate questions, provide the five questions for them.

## Extend

- Give each student a copy of the pie chart (3 slices) graphic organizer. Have students write each of the following in one of the sections on the graphic: *5 years, 10 years, and 25 years.*
- Say *I'm going to ask three students where they see themselves in five years.* Turn to a student and ask *Where will you be in five years?* Be sure to have the student buy time before responding.
- Have students walk around the classroom to talk to nine different students, each time talking about where they would be in 5, 10, or 25 years. Walk around the room as students work, listening in to their conversations. If necessary, answer the question yourself, modeling buying time as needed.
- If time allows, assign **Worksheet 4.5.3**. Explain that students will use the worksheet to practice buying time in conversations.

## Wrap Up

- Prepare a list of questions. Include questions that require quick, easy answers (*Do you like to eat peanuts?*), and others that require more thoughtful answers (*What's the best meal you ate this week?*). Include questions about a variety of topics in your list.
- One by one, read your questions aloud, and have students raise their hands each time they hear a question that would require them to hesitate or buy time before answering.
- Discuss each question individually. Point out that if a student uses phrases for hesitating or buying time for an easy question, it may be interpreted as sarcastic or disrespectful (*Do you like to eat peanuts? Hmm . . . let me think about that.*) Then, call on students to give additional examples of questions that they *wouldn't* buy time for before answering.

## Strategy in Depth

In English, when a question is asked, it's important that a speaker signal that he or she is listening and has heard the question. Phrases for buying time will show that the speaker is thinking of an answer. When a speaker asks a question, the listener may look disinterested or impolite if he or she is silent while thinking of an answer. This is when it's appropriate to use phrases for buying time. On the other hand, when a question requires a simple, direct answer, it may be perceived as impolite to use phrases for buying time.

Additional helpful phrases for buying time include:

*Well, let me see . . .*  
*Great question . . .*  
*That's hard to say . . .*  
*I hadn't thought of that . . .*

## Formative Assessment

- Can students
- use new phrases to hesitate or buy time before answering a question?
- Ask students *What do you want to be doing in 20 years?* Have them buy time in their response.

**Online Workbook** Speaking Strategy

Objectives

- Students will
- use narrative tenses to understand and tell stories.
  - identify and use new words related to Barrington Irving's record-setting flight around the globe.

**Grammar** Narrative tenses: Telling a story

**Target Vocabulary** to educate, globe, motion, route, to set a record

**Academic Language** narrative, prompt

**Content Vocabulary** to accept, historic, to offer, ice pick, solo, stop

**Resources** Online Workbook/Workbook pp. 48–49; TR 63–66 (Audio CD/Website/CPT); CPT: Grammar 1

**Materials** index cards, copies of a comic strip (one per pair)

GRAMMAR TR: 63

Narrative tenses: Telling a story

Barrington Irving **had been preparing** to become a pilot since he was 15.

He **found** a manufacturer to build an airplane from donated parts that he **had received**.

On the day of the flight, he **was** ready, but he **was feeling** a little nervous.

Finally, Barrington **set off** on his historic flight. He **flew** around the world in 97 days and set a world record.

11 Listen. Answer the questions below using the narrative tenses. TR: 64

Possible answers:

1. What happened when Barrington met a Jamaican pilot?  
He **decided to become a pilot himself**.
2. What career had Barrington been preparing for?  
He **had been preparing for a career in professional football**.
3. How did he start learning to fly?  
He **used a video game**.
4. What had he been offered? Did he accept the offer?  
He **had been offered the chance to play football at universities, but he turned them down**.
5. What was Barrington doing before his first solo flight?  
He **was practicing and going to flight school**.
6. How was his first solo flight?  
He **flew well and landed the plane with no problem**.

12 Read. Underline the narrative tenses in the paragraph.

13 Write. Reread the prompt from Activity 12. Write your own response using the narrative tenses. Then share your response in a group.

**Prompt:** Tell about a time when you achieved something important. What did you achieve? How had you been preparing?

Once I climbed a mountain that was over 3,000 m (10,000 ft.) tall. I had been training with my dad all spring to get ready. We had been practicing on smaller mountains. To climb the mountain, we were using special equipment like ice picks and thick ropes. After we had reached the top, it felt great to look down on the forest below us. I later climbed three other mountains with my dad, and we plan to do another next month.

Warm Up

- Say *Today we're going to learn about telling stories. When we tell stories, we need to use different tenses for verbs, or action words. Although we use the past tense, there are different forms of the past tense in English. What are they?* (simple past, past progressive, past perfect, and past-perfect progressive) If students cannot name these tenses, guide them to give examples of verbs in different past tenses.
- **Set the stage** Say *Listen as I tell a story. As you listen, write the verbs that you hear.* Tell the class a story about something that happened to you recently. Use the narrative tenses in your story. Or, tell the following story: *Last Saturday, I went out for a run. I had been running through the same park every day for years, and I had never seen anything unusual. But last Saturday was different. The run started off okay. I was running at a good speed and was feeling great. I had just gone around the park's lake when I saw a tiger! It was sleeping under a tree, as if it belonged there. I felt very afraid. I froze. I didn't know what to do: I had never seen a tiger outside of*

Grammar in Depth

Narrative tenses are used to describe past actions or events. Four past tenses make up the narrative tenses:

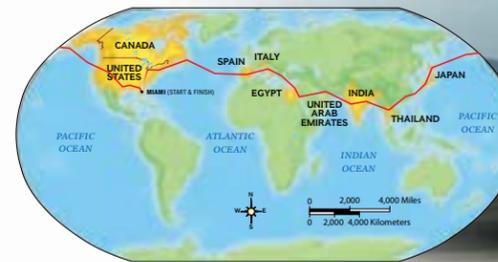
- simple past (watched, spoke)
- past progressive (was watching, were speaking)
- past perfect (had watched, had spoken)
- past-perfect progressive (had been watching, had been speaking)

The most common tense when telling a story is the simple past. Use of the other tenses helps to clarify when events in the story happened in relation to one another.

About the Photo

The photo shows National Geographic Explorer, pilot, and educator Barrington Irving who was, at 23, the youngest person ever to fly around the world solo. He was also the first African-American to do so. Barrington faced many obstacles before finally taking off on this historic flight in 2007. Before he could take off, he needed a plane. He had more than 50 rejections for sponsorship before finding airplane-part manufacturers who were willing to donate parts to have his plane built. When he finally took off, he had no weather radar equipment, no de-icing system, and only \$30 in his pocket. After 26 stops in 97 days, he returned to the United States. Barrington held the record for youngest pilot to fly around the world until 2012, when 22-year-old Swiss pilot Carlo Schmid broke it.

14 Learn new words. Listen to the story of Barrington's first solo flight around the world. Then listen and repeat. TR: 65 and 66



This map shows the route that Barrington flew. His plane was in motion for most of his 97-day trip around the globe.

Barrington set a record as a pilot. Now he works to educate students in math and science.



15 Work in pairs. Read the interview questions and fill in the blanks with the correct words from the box. Then answer the questions as if you were Barrington. Use the narrative tenses.

globe motion pilot route set a record

Possible answers:

1. Q: How had playing video games prepared you to become a pilot?  
A: I had been using video games to practice flying.
2. Q: How were you able to get an airplane to fly around the globe?  
A: I had helped find donated airplane parts to get the plane built.
3. Q: How many stops were on your route?  
A: There were 27 stops on my route.
4. Q: What were you doing to stay awake while in motion for so many hours?  
A: I was singing to myself.
5. Q: How did you feel when you heard you had set a record?  
A: I felt excited.

16 Work independently. Investigate another person who has explored new places. Write a narrative about the explorer's route, experiences, and accomplishments. Share what you learned with the class.

*the zoo! Suddenly, the tiger rolled over and stretched. I thought it would wake up. Luckily, the tiger went back to sleep. I quickly turned and ran home. I had never run so fast in my life!*

- Call on students to identify the verbs you used in your story. Write the verbs on the board. Say *Notice that you have different verb forms here, such as had been running, had run, and ran.* Have students identify the different tenses of the verbs on the board.

Present

- Have students open their books to pp. 82–83. Say *We've learned four past tenses: simple past, past progressive, past perfect, and past-perfect progressive. These are called the narrative tenses. We use narrative tenses together to describe a past event or to tell a story.*
- Direct attention to the yellow box at the top of p. 82. Say *Find verbs in the simple past.* Call on students to name the verbs in the simple past. (used, was, set off, flew) Repeat this instruction for the other three narrative tenses. Then play TR: 63 and have students follow along.

Teaching Tip

Remember to consider students' different learning styles as you plan each unit's lessons. During the course of each unit, try to provide an equal number of visual, aural, and kinesthetic activities. Visual activities involve using photos and illustrations, diagrams, and other graphics. Aural activities provide opportunities for students to listen to songs, dialogues, and other audio input. Kinesthetic activities involve movement of the body and manipulation of items, such as flashcards or game pieces.

Practice 11 12 13

- 11 Call on a student to read the instructions aloud, and then have students preview the questions. Then say *You're going to hear an audio passage about how Barrington Irving got his start as a pilot. I will play the audio one time. Just listen the first time. Then, I'll play it a second time. As you listen the second time, answer the questions.* Play **TR: 64** once and have students just listen. Play it a second time, and have them respond to the questions. Have students compare their responses in pairs. If necessary, play **TR: 64** a final time so that students can check their work.

- 12 Direct students' attention to the paragraph on the bottom right-hand side of p. 82. Call on a student to read the prompt and the paragraph aloud. Then have students work together to underline the verbs in the paragraph. Review their work. Call on students to read the underlined verbs in order, identifying the tense of each verb.

- 13 Reread the prompt from Activity 12 aloud. Say *In Activity 12, we read about a teen climbing a mountain. The paragraph told the story about what was done to prepare for the climb, how they climbed a specific mountain, and how they felt when they reached the top. Now, think about your own important achievement. Talk about what you did before, and what happened when you achieved it. Use all of the narrative tenses.*

If time allows, have students write their paragraphs in class. Otherwise, assign Activity 13 for homework. Have students read their stories in small groups. Students can invent a story if they don't have a specific achievement that they'd like to discuss with the class.

Apply 14 15 16

- 14 **Learn new words** Say *We've heard the story of how Barrington Irving learned to fly. Now, we're going to listen to learn about his historic flight. Look at the map.* Hold up your book and point to the map on p. 83. Say *This map shows Barrington's flight around the world. When he completed this flight, he was the youngest person to fly around the world alone.* Play **TR: 65**.
- Call on students to read the text that accompanies the photo of Barrington and the map that shows his route. Then, play **TR: 66** and have students repeat the words and sentences they hear. Review the meaning of each new word.

- 15 Read the directions aloud. Review the meanings of the words in the box. Then say *Look first at the questions. Match each word from the box to the question that it best completes.* Once students have completed each question, have them respond as though they were Barrington. If necessary, model answering the first question in the first-person for students. After students have completed all of the responses, call on different pairs to role-play the interviewer and Barrington for each question and answer set.

- 16 You may want to assign this activity for homework. Students can go online to learn about explorers, or they may prefer to choose an explorer that they've learned about in this program. Allow time for students to give short presentations on the explorer they researched. Remind students to include all four narrative tenses in their response.

Extend

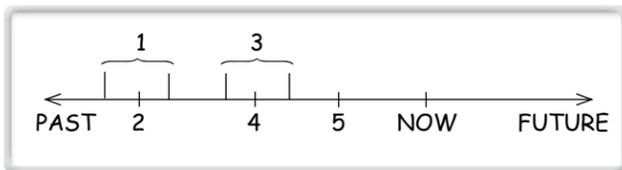
- Give pairs of students a set of five or six index cards. Have them write a sentence on each card to tell a story. Students can create a new story, or they can rewrite the sentences they used for Activity 12 onto the cards. Remind students to include each of the narrative tenses in their stories.
- Once students have written their stories, have them mix the cards up into a pile. Have pairs exchange their pile of cards with another pair.
- Give students time to arrange the story on their cards in the correct order. Once the stories are in order, the pair who wrote the story should check for accuracy.

Wrap Up

- Choose a short comic strip that tells a story. Try to find a comic strip without words. If there are words, cross them out. Make enough copies of the comic strip so that there is one copy for each pair of students.
- Give students two minutes to write a brief story about the comic strip using each of the narrative tenses. Encourage students to be creative in their stories. Then call on pairs to share their stories with the class.

- Explain** Say *Listen to the story: I had been thinking about becoming a pilot for a long time. I had even researched flying schools. Then, one day, I was talking to my cousin and he told me I could install flight simulation software on my mobile device. So, I did—and I learned to fly without leaving my house!*

- Create a timeline on the board and label it from left to right: *past*, *now*, and *future*. Repeat the story, writing the events on the timeline: *1. I had been thinking about becoming a pilot for a long time.* Mark two points in the most distant past on the timeline, and connect them with a wavy line to show continuous action. Label this with the number 1. Then say *2. I had even researched flying schools.* Point out that the simple past is used for a single action in the story. Make a single line under the area for number 1, and label it with the number 2. Say *This shows that the action researched flying schools happened sometime while I had been thinking about becoming a pilot.* Continue: *3. Then, one day, I was talking to my cousin . . . 4. he told me I could install flight simulation software on my mobile device. 5. So, I did—and I learned to fly without leaving my house!* Mark the timeline as follows:



- Place students in pairs and have them number the events in the yellow box in a similar way, and mark them on a timeline. Their responses may vary, but check for the distinction between single actions and continuous actions. Discuss their work as a whole class.

Formative Assessment

- Can students
- use narrative tenses to understand and tell stories?
- Ask students to tell how Barrington Irving became a pilot.
- identify and use new words related to Barrington Irving's record-setting flight around the globe?
- Say *Describe Barrington's solo flight around the world. Why was it historic?*

**Workbook** For additional practice, assign Workbook pp. 48–49.

**Online Workbook** Grammar 1

# THE Explorer GENE

## Are we born to explore?

Of all the animals on Earth, none are so driven to explore as humans. Other animals will go in search of food or water. But humans can be motivated simply by the possibility of discovery. So what is it exactly that caused us to spread out across the globe 60,000 years ago, instead of just staying in Africa?

Perhaps it's in our DNA. In 1999, Dr. Chuansheng Chen led a team of scientists who were studying a gene known as *DRD4-7R*. This gene is found in about twenty percent of all humans. It's been associated with higher rates of risk-taking, exploration, and interest in new ideas. Dr. Chen found that *DRD4-7R* is more common in societies that move

around a lot than those who don't. For example, studies in Africa show that the gene is much more common in nomadic tribes than in tribes that prefer to stay in one place. Several other researchers have studied this topic and found additional evidence to support Dr. Chen's claim.

Journalist and National Geographic Fellow Paul Salopek is walking from where humans began in Ethiopia, Africa, to the southern tip of South America, following our ancestors' ancient journey.

**17 Before you read, discuss in pairs.** Based on the title and the photo, what do you think you'll learn in this reading?

**18 Learn new words.** Find these words in the reading. What do you think they mean? Look at how they're pronounced in a dictionary. Say them aloud. Then listen and repeat. **TR: 67**

associated   gene   to motivate   trait

**19 While you read, think about a person you know who might have the explorer gene.** **TR: 68**

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## Warm Up

- **Build background** Say *So far in this unit, we've learned about people exploring the caves, oceans, skies, and even the edge of space. We've also talked about whether or not we would want to explore these places.* Gesture toward students and ask *How many of you would like to explore caves? Please raise your hands.* Ask the question again for *the ocean and outer space.*
- Have students take out a sheet of paper. Say *Some of you raised your hand to show that you'd like to explore these places; others did not. Think about your own personality. What personality traits do you have that affect your desire to explore? For example, I want to explore because I'm curious, so I'll write curious on my paper.* Give students several moments to write as many adjectives as they can that relate to wanting—or not wanting—to explore.
- Have pairs of students who want to explore work together to compare their list of personality traits. Have pairs who don't want to do the same. After a few moments, call on students to share their

But can a single gene be responsible for a trait as complex as the desire to explore? Dr. Kenneth Kidd doesn't think so. He thinks *DRD4-7R* might increase curiosity, but other equally important sets of genes give us intelligent minds and skilled hands. We then use our minds and hands to create things. He believes that not just one gene, but groups of genes work together to create complex behaviors like exploration.

The context we live in also plays a role in our desire to explore. For example, during the European Age of Exploration, explorers became rich and famous for their discoveries. This drove others to try to increase their wealth through exploration. In this case, their exploration was more likely motivated by money than by genes.

Maybe the desire to explore comes from something inside us, such as the *DRD4-7R* gene. Or maybe it has more to do with what's happening in the world around us. Maybe both. Whatever the reason, it seems we (or at least some of us) will keep exploring the mountains, the sea, the stars, and beyond, because that's just what humans do.



**20 After you read, work in pairs to answer the questions.**

1. What makes humans explore? How are we different from other animals?
2. What traits is the *DRD4-7R* gene associated with?
3. What percent of humans have this gene?
4. What is Dr. Kenneth Kidd's opinion regarding *DRD4-7R*'s connection to exploration?
5. What else might cause humans to explore?

**21 Work in pairs.** Describe the person that you thought of in Activity 19. Give examples to explain why you think this person has the gene.

**22 Discuss in groups.**

1. Do you believe a gene causes humans to explore? Or do you think it has more to do with other factors? Explain.
2. Do you think you have the *DRD4-7R* gene? Explain, with examples. What other beliefs and behaviors might be caused by something in your genes?
3. Are humans exploring more now than in the past? Will we ever stop exploring? Explain.

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responses. Make a list of common traits shared by students who do want to explore. Do the same for students who don't want to explore.

## Before You Read 17 18

- **17** Have students open their books to pp. 84–85. Say *We've talked about our personality traits and how they affect our desire to explore. Now, we're going to read The Explorer Gene. Genes are parts of the cells in our bodies that determine what we're like. Genes affect our appearance. They can also affect our behavior. Think about this as you answer the question.* Have students discuss their predictions in pairs. Then, discuss their ideas as a class.
- **18 Learn new words** Say *We're going to look at some new words that will help us to understand the reading.* Say the first word aloud: *associated*. Have students repeat the word. Then have them scan the reading to look for the word.

## Reading Strategy

**Make a personal connection** When students connect a reading with their own experiences, they are able to engage with the text more, and the result is increased comprehension. To help students make a personal connection, have them consider the following:

- what or who the text makes them think of
- how the text relates to their lives
- which of their own experiences are similar to what's being described in the text
- how their values and beliefs are evident in the text

## Vocabulary Strategy

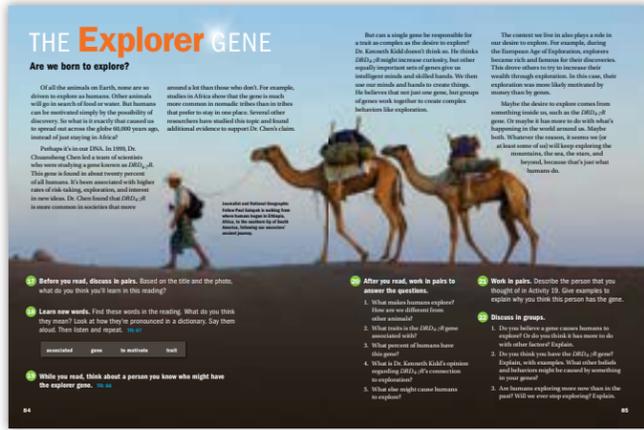
**Pronunciation** When students are learning new words, it's important that they find out how to pronounce them correctly. By looking up a word's pronunciation in the dictionary, students may realize that they're familiar with the word, even if they didn't recognize it in writing. Students may think that just knowing the meaning of new vocabulary is sufficient. Remind them that it's equally important to say the word correctly in order to use it effectively.

## About the Photo

National Geographic Fellow Paul Salopek is shown here on his *Out-of-Eden* walk, which is taking place over the course of seven years, from 2013 to 2020. During this time, Salopek will be walking 21,000 miles with the goal of tracing the migration of our human ancestors. His journey began in Ethiopia and will end at the southern tip of South America. You and your students can go online to find updates on his journey. Every 160 km (100 mi.), Salopek stops to blog about his experience. He is also sharing the experience in real time for classroom use. Visit [www.outofedenwalk.nationalgeographic.com](http://www.outofedenwalk.nationalgeographic.com) to learn more.

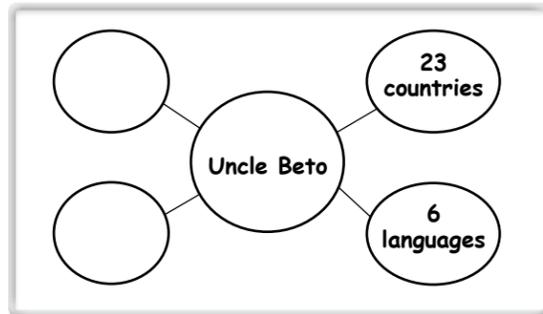
## Related Word

camel



After You Read 20 21 22

- **20** Pair students. Have them discuss their answers to the questions. Remind students to look for information and examples from the text to support their answers. Review their responses as a class.
- **21 Model** Give students a copy of the Word web organizer. Model completing it by talking about someone you know who may have the explorer gene. Say *Write the name of the person you know who may have the explorer gene in the center of your web. For example, my (Uncle Beto) may have the gene. I'm going to write (his) name in the center of the web.* Write the name. Then continue by saying *I think he has the gene because (he has traveled to 23 countries).* Pause to write this information on the web. Then continue by saying *He also (has learned six languages).* Again, stop to write the corresponding information on the web. Continue this until you have completed the web with at least four pieces of information.



- Allow time for students to complete their own webs. Point out that they can draw additional circles as necessary. Then, have them use the examples on their web in a discussion with their partner.
- **22** Have students form groups of three or four to answer the activity questions. In their discussions, remind students to support their answers with evidence from the text and their own experiences.

Extend

- Have students write a five-question survey about exploration and the idea of an explorer gene. Students can ask about exploration goals, experiences, or the validity of the theory that  $DRD_{4-7}R$  is actually responsible for making people explore.

- **Vocabulary strategy** Write the word associated on the board. Have students look the word up in a dictionary and then try to pronounce it. Then model pronouncing the word correctly. Say *When we learn a new word, it's important to learn its pronunciation. When you identify how a word is pronounced, you may realize that you're already familiar with it. For example, you've probably heard the word associated in activities and discussions that we've done.* Emphasize the /sh/ sound as you repeat the word associated. Say *You know that the letter c followed by i makes a soft /s/ sound. But, this isn't the case for the word associated. If you don't learn to pronounce the /sh/ sound in associated, you may have trouble identifying this word correctly.*

- Have students find the remaining words in the text, and then use a dictionary to look up each word's pronunciation. Review correct pronunciation with them. Then play **TR: 67**. Have students listen and repeat each word and sentence.

While You Read 19

- **19** Say *Now we're going to read about the explorer gene.* Play **TR: 68** and have students follow along.
- Say *Let's reread the text. This time, think about someone you know who may have the explorer gene. Do you have a friend or family member who likes to travel? Who is it? Where has this person traveled?* Have students work in small groups to reread the text. Then, have each student name a person they know who might have the explorer gene. If students cannot think of anyone they know personally, they might mention a movie or literary character.

- Have students survey five to ten classmates, and summarize the results. Review them as a class, focusing on similar goals, experiences, and attitudes.
- **Worksheet** If time allows, assign **Worksheet 4.5.4** in class. Remind students to review the new words presented on p. 84. Have students complete the worksheet individually, and then compare their responses with a partner.

Wrap Up

- Make a list of ten people that all students are familiar with. These people could be teachers or administrators in the school, celebrities, athletes, or people introduced in the readings and activities in this book.
- Say *Today we read about the possibility of an explorer gene. Remember that about 20 percent of people may have this gene. Twenty percent of the people on this list equals two people. Think about which two people are most likely to have the explorer gene. Write their names and at least two reasons why you think this.*
- Give students several moments to make their choices and write their responses. Then, call on students to share their ideas with the class. Try to get a class consensus on which two people have the gene, and discuss why.

Teaching Tip

Don't be afraid to change your classroom's arrangement based on what you're doing in class. You may want to arrange the desks or tables in rows for direct instruction or quiet reading. For a debate or game, it may be better to arrange students' seats in two groups, facing one another. Desks should be joined together for pair-work and group-work activities. Get students into the routine of arranging desks in a way that complements learning, and returning desks to their original position at the end of the class. If everyone is involved in creating the arrangement, it will happen quickly and effortlessly.

Answer Key

Comprehension 20

1. Humans are driven to explore beyond just looking for food and water.
2. higher rates of risk-taking, exploration, and interest in new ideas
3. 20 percent
4. He doesn't believe one gene can be responsible for a trait as complex as the desire to explore.
5. context / what's happening in the world around us

Formative Assessment

- Can students
- read about a gene that may cause people to explore?  
Ask *What is the gene  $DRD_{4-7}R$  associated with?*
  - identify and use new words from the reading?  
Ask students to use *gene* and *trait* in a sentence.
  - make a personal connection to the reading?  
Say *Describe someone you know who might have the explorer gene.*

**Workbook** For additional practice, assign Workbook pp. 50–51.

**Online Workbook** Reading

## Objectives

- Students will
- identify why it's important to explore.
  - apply the message of the video to their personal lives.

**Academic Language** *quote, to reflect*

**Content Vocabulary** *to pursue*

**Resources** Video scene 5.1 (DVD/Website/CPT); Online Workbook; CPT: Video

**23** Before you watch, discuss in pairs. Why is it important to explore?

**24** Watch scene 5.1. While you watch, complete the quotes.

1. "It's part of \_\_\_\_\_ *human nature* \_\_\_\_\_ to be \_\_\_\_\_ *curious* \_\_\_\_\_ and to want to learn more about the world."
2. "It \_\_\_\_\_ *keeps life exciting* \_\_\_\_\_. I mean that's what exploring is about."
3. "We think we know \_\_\_\_\_ *this place* \_\_\_\_\_, but we don't. We think we know \_\_\_\_\_ *ourselves* \_\_\_\_\_, but we don't. We think we \_\_\_\_\_ *understand how things work* \_\_\_\_\_, but we don't."
4. "By knowing what's out there, we \_\_\_\_\_ *care about what's out there* \_\_\_\_\_."

Explorers camping near the Nyiragongo volcano, Democratic Republic of the Congo

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Before You Watch **23**

- Have students open their books to pp. 86–87. Say *Look at the photo. You can see several explorers. What are they exploring? (a volcano) What risks do they face? (getting burned, the volcano erupting) What do you think they might want to learn from exploring this place?* Listen to several students' ideas. Then ask *Would you explore a volcano? Why or why not?* Call on individual students to answer.
- **23** Say *We're going to watch a video called Why Is It Important to Explore? Before we watch, think about this question. Discuss it with your partner.* Remind students to use phrases for buying time as they discuss the question. Encourage pairs to come up with at least four reasons. Call on partners to share their ideas with the class.

While You Watch **24**

- **24** Say *Read the incomplete quotes in the box. You're going to hear National Geographic Explorers answering the question Why is it important to explore? Listen to their answers and fill in the quotes as you watch.* Allow time for students to review the quotes.
- Play **Video scene 5.1** one time, and have students complete the quotes. Play it again, this time pausing after each quote to allow students to complete any items they may have missed the first time, and to check their work. As they watch a second time, have students identify the explorer who says each quote. When the video ends, challenge students to discuss Cory Richards's and Lee Berger's quotes in connection with their work.

**25** After you watch, read and circle the correct letter.

1. Which of the following reasons for exploring is not mentioned in the video?
  - a. Exploring helps us engage more fully with our world.
  - b.** Exploring will make us famous.
  - c. Exploring is part of human nature.
2. Why is it important to care about what's out there?
  - a. So that we can stop asking questions
  - b.** So that we can engage with our world and act with love
  - c. Because very few people do
3. What do we use to help us explore?
  - a. Information about the people who came before us
  - b. Information about new species of animals
  - c.** The high-tech tools of science
4. Why is technology important for exploration?
  - a. Because without technology, it's impossible to discover any new animal species.
  - b.** Because it lets us explore places that are otherwise inaccessible.
  - c. Because technology is so important for conservation.

**26** Work in pairs. Review your answer for Activity 23. Compare it with what you heard in the video. Discuss your comparisons with your partner.

**27** Work in groups. You're in charge of a school-wide campaign to promote exploration. Create a poster or an advertisement on the benefits of exploring. Present your work to the class.

**28** Choose an activity.

1. **Work independently.** Research one of the explorers from the video to learn more about his/her work. Share what you learned with the class.
2. **Work in pairs.** Make your own video, similar to this one. Interview other students and ask them, "What can we learn from exploring our region?"
3. **Work in groups.** Research a recent discovery of a new species. Find out who the explorers were, where they went, and what led them to the discovery.

87

After You Watch **25 26 27 28**

- **25** Read each question and answer option aloud for students. Pause after each item to allow students to circle the correct letter. Explain that although more than one option may be true, students should think about the video's message to respond. After students finish, have them check their answers in small groups.
- **26** Call on a student to read the instructions aloud. Have students work with the same partner that they had for Activity 23. Have pairs compare their discussion with what they heard in the video. When they finish, have them discuss their comparison with another pair.
- **27** Call on a student to read the instructions aloud. Say *As you plan your poster and list the benefits, think about different types of exploration—exploration of our school, our town, and the world.*

- If possible, have students actually execute a school-wide campaign. Get permission for students to copy and hang their posters around the school building. Arrange for students to talk about the benefits of global and local exploration over the loudspeaker or in front of other classes.
- **28** Make a list of the explorers featured in the video, and have students who choose the first option select an explorer from the list to profile. Guide students to online resources where they can learn about that person's work. Encourage students who choose this activity to focus on explorers that they haven't yet learned about.
- Research recently discovered species and make a list for students who choose the third option. Have students include a photo of the species as they share with the class.

## About the Photo

The photo shows scientists studying the Nyiragongo volcano, one of the most active volcanoes on the planet. The Nyiragongo is located near the city of Goma, in the Democratic Republic of the Congo. Goma has an estimated population of one million people, all of whom are threatened by a possible eruption of the volcano. Nyiragongo erupted in 1977, shooting lava down its sides at a speed of around 100 kph (60 mph). Nyiragongo erupted again in 2002, forcing around 350,000 people from their homes and destroying parts of Goma.

## Formative Assessment

Can students

- identify why it's important to explore?  
Ask *What are two reasons given in the video on why it's important to explore?*
- apply the message of the video to their personal lives?  
Ask *Where will you explore next? Why?*

Online Workbook Video

## Objective

Students will

- use *the* correctly when talking about places.

**Grammar** Geographic use of the

**Academic Language** *timeline*

**Content Vocabulary** *canoe, geographic, to guide*

**Resources** Online Workbook/

Workbook pp. 52–53; Worksheet 4.5.5 (Teacher's Resource CD-ROM/Website); TR 69 (Audio CD/Website/CPT); CPT: Grammar 2

**Materials** a world map, index cards, a paper bag, a timer

## GRAMMAR TR: 69

## Geographic use of the

I'm going to **the Himalayas** to climb **Mt. Everest**.

**The Yangtze** is the longest river in **Asia**. **Lake Balkal** is the largest lake in **Asia**.

**The equator** passes through **Isabella Island**, the largest of **the Galápagos Islands**.

Explorer Ferdinand Magellan was born in **Portugal**, but died in **the Philippines**.

Explorer Gertrude Bell wrote a book about **Syria** after her travels to **the Middle East**.

- 29 **Read.** Fill in the timeline of female explorers by adding *the* when necessary.

<p><b>1805</b></p> <p>Native American Sacagawea guided Lewis and Clark through <u>the</u> Oregon Territory of <u>the</u> United States.</p> 	<p><b>1908</b></p> <p>Mountaineer Annie Smith Peck was the first person to climb _____ Huascarán, a 6,768 m (22,204 ft.) mountain in _____ Peru.</p> 	<p><b>1953</b></p> <p>Eugenie Clark wrote a book about studying sharks in <u>the</u> South Pacific Ocean and <u>the</u> Sea of Cortez, near _____ Mexico.</p> 
<p><b>1894</b></p> <p>Mary Kingsley traveled to _____ Sierra Leone, then _____ Gabon and up <u>the</u> Ogowe River by canoe, encountering hippos, crocodiles, and gorillas.</p> 	<p><b>1932</b></p> <p>Amelia Earhart flew solo across <u>the</u> Atlantic Ocean from _____ Canada to _____ Ireland.</p> 	

- 30 **Work in pairs.** Cut out the cards and place them face-down. Take turns trying to match the information with the explorer. When you make a match, describe the explorer's work, using the places on the card.

Go to p. 167.



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## Warm Up

- **Build background** Write a list of places on the board: *India, Seoul, Amazon River, Philippines, Antarctica, United States, Andes, and Costa Rica.*
- Say *Which of these places would you like to visit? Where would you like to explore?* Note whether students are using *the* appropriately before each of the geographic terms. If not, change the question to model correct usage. Ask *Would you like to explore Costa Rica? How about the United States?* Then say *As we talked about exploring different places, we used the before some, but not others. In today's lesson, we're going to learn when to add the before different place names.*

## Present

- **Explain** Have students turn to p. 88. Direct attention to the yellow grammar box. Play TR: 69. Have students underline *the* as they hear it. Then, repeat and

discuss each sentence. For example, read aloud: *I'm going to the Himalayas to climb Mt. Everest.* Say *In this sentence, we see the before Himalayas, but not before Mt. Everest. What type of geographical feature is the Himalayas?* (a mountain range) Say *That's right! It's a mountain range. So, we add the before the name of a mountain range.* Make a T-chart on the board. Label one column *the*. Put a dash or symbol (⊖) at the top of the other column to indicate *nothing*. Write *mountain range* under *the*. Then say *We did not add the before Mt. Everest. What type of geographical feature is Mt. Everest?* (a mountain) Say *Yes! It's a mountain. When we are talking about a single mountain, we do not add the.* Write *single mountain* in the other column.

- Repeat this instruction for the remaining sentences. Have students copy the chart in their notebooks. Point out exceptions to the rules: *the United States, the Netherlands, and the Philippines* are countries that do take *the*.

164 Unit 5

## Grammar in Depth

In English, the article *the* appears before some geographical names or features, but not all. *The* is used with the names of mountain ranges (the Himalayas), rivers (the Nile), oceans or seas (the Mediterranean), groups of islands (the Galápagos), regions (the Middle East), and points of the globe (the North Pole). *The* does not appear before most countries, cities, streets, individual mountains, continents, and islands. When *the* does appear, it is generally not capitalized.

## Teaching Tip

Always be prepared for your lessons. Even if the subject matter seems easy or familiar to you, be sure to review the text and your notes from previous lessons. Use the Internet to find new and different methods for teaching the subject. You might even want to join an online teachers' forum to ask others if they have ideas on how to teach a certain topic. Anticipate students' reaction to the lesson. For example, think about what questions students have had in previous lessons you've taught on the topic, and plan answers to these questions. If students have struggled with the topic in the past, find a way to present the topic more clearly.

## Practice 29

- 29 Have students scan the timeline. Say *We're going to learn about female explorers. Do you know any of these names?*
- **Model** Say *Let's look at the sentence about Sacagawea. What are the two geographical features mentioned?* (a region, a country) *Look at the chart we made. Do we need to use the before the name of a region?* (yes) *That's right! Let's write the in the first blank.* Repeat with *United States*, note it does not follow the rule for countries.
- Have students complete the remaining items independently, using the T-chart as a reference. Then, call on students to identify the types of geographical features in the sentence.

## Apply 30

- 30 Have students go to p. 167 and remove the page. Then, have students cut the page in half so that they get a list of the explorer's names. Have students place the other half of the paper face-down. One by one, read the names aloud and call on students to talk about each explorer's contributions briefly.
- After you've reviewed all of the explorers, have students find a partner. Have students cut out one set of cards, mix them into a single pile, and place them face-down in rows. Students will take turns turning two cards over at a time. The goal is to match the explorer's name to his or her accomplishments.
- Once students make a match, remind them to scan the information card and identify place names that need *the*. Then, they will describe the explorer's work using the words on the card. The player with the most matches at the end of the game wins.

## Extend

- Divide the class into two teams for a geography bee. Write at least 25 place names on separate index cards and put them in a bag. One student is the moderator with access to a world map. One team member selects a card and makes a correct sentence about the geography of that place. (*Puerto Rico is an island in the Caribbean.*) The moderator confirms the answer using the map. Teams can earn two points per turn: one for accurate use of *the* and another for correct geography.
- Distribute **Worksheet 4.5.5** to provide additional practice with the geographic use of *the*.

## Wrap Up

- Using the materials from the geography bee, have a speed-drill to practice correct use of *the*. One student comes to the front of the class and pulls a card from the bag. The student reads the place name with or without *the* as appropriate.
- Say *Now, we'll see how many correct answers (student) can get in 15 seconds.* Keep score. Return all cards to the bag, and play with a different student.

## Formative Assessment

Can students

- use *the* correctly when talking about places?

Write the following places on the board and have students identify which ones require *the*: *Nile River, Australia, Yellow Sea, Bahamas, Andes, and Dubai.*

**Workbook** For additional practice, assign Workbook pp. 52–53.

**Online Workbook** Grammar 2

**Objectives**

- Students will
- identify elements of a compare-and-contrast essay.
  - use expressions that connect ideas.
  - analyze a model compare-and-contrast essay.
  - write an essay that compares and contrasts exploring in the field and exploring virtually.

**Academic Language** *to compare, to contrast*

**Content Vocabulary** *blog post, journal*

**Resources** Online Workbook/Workbook p. 54; Process Writing Worksheets 1–5; Genre Writing Worksheet: Compare/Contrast Essay; Graphic Organizer: Venn diagram (Teacher’s Resource CD-ROM/Website); CPT: Writing

**WRITING**

When we compare and contrast two people, things, or ideas, we use phrases such as the following:

<i>Compare:</i>	<b>in the same way</b>	<b>likewise</b>	<b>similarly</b>
<i>Contrast:</i>	<b>by comparison</b>	<b>in contrast</b>	<b>on one hand . . . on the other hand</b>

**31 Read the model.** Work in pairs to identify the parts of the writing. How does the writer compare and contrast exploration past and present? Underline the phrases.

Exploration has changed a lot over time. In the past, only adventurers who were willing to take risks were considered explorers. In contrast, anyone can be an explorer today thanks to modern technology.

In the past, when explorers traveled the world, people back home had to wait for months to hear about their adventures. Explorers kept journals and wrote letters about their experiences. They would only be able to tell others what they saw after they returned. By the end of the nineteenth century, explorers were also able to take photos in the same way that they do today. However, they were unable to see the photos right away. It often took a long time for them to get photos printed.

By comparison, today’s explorers can travel around the globe and can send back live, real-time images. Thanks to high-tech devices and the Internet, anyone can interact with them. When a discovery is made, we can see photos on social media and read blog posts the same day. We may not be there, but we still take part in the adventure. Similarly, thanks to high-tech cameras and 3D scanners, archeologists and other scientists can now study objects without ever touching or removing them from their sites. This way, people can learn about these things without the risk of harming or breaking them.

There are similarities between exploration in the past and the present. For example, explorers are driven by curiosity and the desire for knowledge about the world. Likewise, people want to share what they discover with others, both in writing and with photos. So, even though the methods may be different, our reasons for exploring have stayed the same over time.

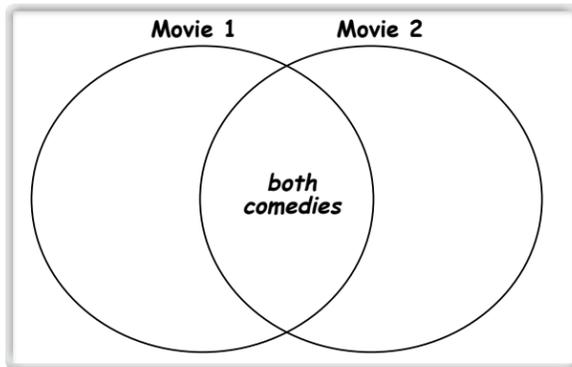
**32 Work in pairs.** How is the way we explore different now compared to the past?

**33 Write.** Write an essay that compares and contrasts exploring out in the field with exploring virtually.



**Warm Up**

- **Activate prior knowledge** Say *In this lesson, we’re going to write a compare-and-contrast essay. Let’s review what it means to compare, and what it means to contrast.* Call a student to name a popular movie. Then, call on a different student to name a different movie. Write the names of the two movies on the board.
- Once the two movies are written on the board, draw a Venn diagram beneath them. Say *Let’s first compare the two movies. Remember, when we compare, we think about what the things have in common. What is the same about them?* Students may say that an actor stars in both movies, or that they are both the same genre. Write their similarities in the overlapping area of the Venn diagram.



- Next say *Now, let’s look at how to contrast the two movies. When we contrast, we say what’s different.* Have students provide information about what makes each movie unique, and write the information in the corresponding outer circle on the Venn diagram.

**Writing Support**

**Usage** Point out to students that when they learn phrases that function as a unit, they do not need to make any changes to these phrases based on the rest of the sentence. For example, no matter what follows *On the one hand . . . on the other hand*, that phrase will not change. These types of language chunks function as a idea and do not change even if the words within them can change when used individually (*i.e.*, hand, hands, hand’s).

- Give pairs of students a copy of the Venn diagram graphic organizer, and a category, such as food, sports, etc. Have them compare and contrast two things in that category. After a few moments, discuss their responses as a class.

**Present**

- Have students open their books to p. 89. Direct them to the green box at the top of the page. Read aloud the text and the phrases that are useful for comparisons. Say *You just had a discussion in which you compared and contrasted two things. Let’s use the new words to talk about your comparison.*
- Write the three terms on the board: *in the same way, likewise, similarly.* Then reference the Venn diagram from the Warm Up activity. Point to a comparison in the circles’ overlap. Model using the new phrases by saying *(First movie) makes you laugh in the same way as (second movie) does. (First movie) has great actors. Likewise, (second movie) also has excellent actors.* Call on several students to share some of the comparisons from their Venn diagrams using these new terms. Then repeat the entire process to introduce and practice the three expressions for contrasting.

**Read the Model 31 32**

- Say *In a moment we’re going to read a model of a compare-and-contrast essay. First, let’s look at the photo.* Direct students to the photo. Ask *What is this person doing with the tablet?* (taking a photo) *What is this person exploring?* (a tomb, an ancient place)
- **31** Read the directions aloud. Say *In this essay, the writer is comparing exploration past and present. After looking at the photo, you can probably think of one difference. Can you predict other ways the writer might compare and contrast exploration past and present?* Call on several students to respond. Then say *Now let’s read the model. Remember to look for and underline phrases for comparing and contrasting as you read.* Read the model aloud once. Then, call on several students to reread each paragraph of the essay. Have students pause after each paragraph. Check that students underlined the correct words or phrases.
- **32** Give students another copy of the Venn diagram graphic organizer, or have them draw their own. Have students write *Past* above one section, *Present* above the other. Say *Read the essay again silently. Write down what made exploration in the past different in the Past section. Do the same for the Present section.* Allow students several minutes to reread the essay. After students have listed the differences mentioned in the essay, have them add any others that they know from their own experience.

- **Worksheet** If your students need a reminder of the elements of a compare-and-contrast essay, you may want to hand out the **Compare/Contrast Genre Writing Worksheet** and review it together.

**Workbook** For scaffolded writing support, assign Workbook p. 54.

**Online Workbook** Writing

**WRITING**  
When we compare and contrast two people, things, or ideas, we use phrases such as the following:

Compare: in the same way    likewise    similarly  
Contrast: by comparison    in contrast    on one hand . . . on the other hand

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There are similarities between exploration in the past and the present. For example, explorers are driven by curiosity and the desire for knowledge about the world. Likewise, people want to share what they discover with others, both in writing and with photos. So, even though the methods may be different, our reasons for exploring have stayed the same over time.

**32 Work in pairs.** How is the way we explore different now compared to the past?

**33 Write.** Write an essay that compares and contrasts exploring out in the field with exploring virtually.

**Plan 33**

- **33** Say *Think about the explorers you learned about in this book. How do they explore?* (climbing, exploring caves, diving into the ocean) Make a list of responses, and then ask *What have you learned about virtual exploration? What tools can help people explore virtually?* Again, list students' responses. Then, point to each of the tools on the list, and ask *How is using this different from doing this?* Point to the type of exploration the explorers do as you end the question. Call on several students to provide responses.
- Have students take notes on the discussion and organize them into a Venn diagram. Then, have

	1	2	3	4
<b>Writing Rubric</b> Use this rubric to assess students' writing. You can add other aspects of their writing you'd like to assess at the bottom of the rubric.				
<b>Writing</b> Ideas are clear and well-organized, and student clearly compares and contrasts two topics.				
<b>Grammar</b> Student uses narrative tenses and demonstrates understanding of the geographic use of <i>the</i> .				
<b>Vocabulary</b> Student uses a variety of word choices, including words used in this unit.				
4 = Excellent 3 = Good 2 = Needs improvement 1 = Redo				

students add any additional ideas they have. Remind students to consider things such as what drives exploration and what people discover by exploring as areas to compare.

- **Worksheets** If your students need a reminder of any of the steps of process writing, hand out **Process Writing Worksheets 1–5** and review them together.
- **Workbook** Refer students to Workbook p. 54 to help them organize and plan their writing.

**Write 33**

- **33** After students have finished their prewriting, have them work on their first drafts. If you don't have enough time for students to complete the first draft in class, assign it as homework.

**Revise**

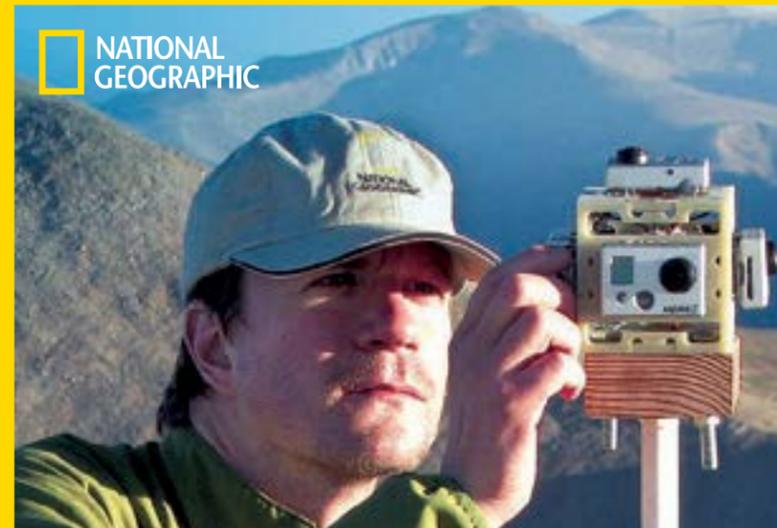
- After students finish their first drafts, have them review their writing for clarity and organization. Have students consider the following: *Can I identify the two topics that are being compared and contrasted? Are the differences between the two topics clear? Are similarities mentioned? Are terms used to signal comparison and contrast? Are the ideas connected in a logical way? What needs more work?*

**Edit and Proofread**

- Have students consider elements of style, such as sentence variety, parallelism, and word choice. Then have them proofread for mistakes in grammar, punctuation, capitalization, and spelling.

**Publish**

- Publishing includes handing in writing pieces to the teacher, sharing work with classmates, adding pieces to a class book, displaying pieces on a classroom wall or in a hallway, and posting on the Internet.



**NATIONAL GEOGRAPHIC**

# Learn by Doing

**“If you have curiosity, you have to be an explorer. You have to go out and find the answers yourself without waiting to get them from others.”**

—Corey Jaskolski  
National Geographic Explorer, Engineer/Inventor

1. **Watch scene 5.2.**
2. How do you learn best—by listening to your teacher or by doing something for yourself? What are the advantages of each type of learning? Talk about a time when you learned something new just by doing it.
3. When you go to a new place, what tools do you use to help you explore? What other tools could you use to learn about another place? Name two or three that you would like to have.

**Mission**

- Write the word *learn* on the board. Then ask *What are you learning in this class? In your other classes?* Discuss as a class, and make a list of students' responses. Ask *What are different ways that you can learn something new?* Call on several students to talk about how they learn. Now say *Open your books to page 90.* Have a student read aloud the mission. Say *Exploration is a way to learn by doing. Instead of only reading or listening to information, explorers go out and get information in different places.*
- Call on a student to read Corey Jaskolski's quote. Share a personal story with students about your own experiences with learning by doing. Say *Corey suggests that we go out and get answers. What things are you curious about? How can you get answers about these things yourself?* Call on several students to respond.
- **Activity 1** Say *Now let's watch a video about Corey Jaskolski.* Have students watch **Video scene 5.2.**

**Mission**

- Objectives**  
Students will
- identify how they learn best.
  - make connections between learning and exploring.
- Resources** Video scene 5.2 (DVD/Website/CPT); Worksheet 4.5.6 (Teacher's Resource CD-ROM/Website); Online Workbook: Meet the Explorer; CPT: Mission

**Be the Expert**

**Teaching Tip**

Learning by doing is fundamental in a language class. Students should be communicating in English for most of each class period. This could be conversational pair or group practice, songs, games, and other whole class interactions. Teacher-led instruction should provide basic information and support, but should not be the central focus of class time.

**Online Workbook** Meet the Explorer

- **Activity 2** Point out that students may have different learning styles for different skills. For example, they might learn English through conversation, but they may find individual practice is better for math. Write a list of school subjects and other activities (music, sports) and have students determine how they learn different skills. Then, have them discuss the question in pairs.
- **Activity 3** Have students consider the different tools that are found in their mobile gadgets, such as their smartphones or tablets, in their discussion. Point out that the tools students discuss will vary depending on the place they talk about exploring.
- **Worksheet** Assign **Worksheet 4.5.6.** Explain that students will use the worksheet to further discuss the connection between exploration and learning.

# Make an Impact

## Objective

Students will

- choose and complete a project related to exploration.

**Academic Language** *biography, feature article, to profile*

**Content Vocabulary** *itinerary*

**Resources** Assessment: Unit 5 Quiz; Workbook p. 55 and p. 94; Worksheet 4.5.7, Graphic Organizer: T-chart (Teacher's Resource CD-ROM/Website); CPT: Make an Impact and Review Games

**Materials** poster board (optional)

### A Plan an expedition.

- Research where you will explore and what you hope to find.
- Plan your expedition. Create an itinerary with photos and a map showing where you plan to explore. Add as much detail as possible.
- Present your plan to the class.

### B Profile a well-known explorer.

- Research an explorer from the past or present.
- Prepare a biography of the explorer. Include information on where he/she has explored, what he/she has discovered, and his/her methods and tools.
- Create a poster or a computer-based presentation to share what you learned.

### C Explore from home.

- Research different ways to explore without leaving your home.
- Identify advantages and disadvantages of virtual exploration.
- Write a feature article to describe ways for people to explore virtually. Use examples from your own experience.

**Assessment** Go to p. 259.

**Unit Review** Worksheet 4.5.7

**Workbook** Assign p. 55 and p. 94.

**Online Workbook** Now I Can



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## Prepare

- Activity A** Explain what an *itinerary* is and provide an example of an itinerary from a travel brochure or website. Remind students that their expedition should be focused on exploring: it's not a vacation. Students can choose to research history, archaeology, or a scientific discovery. Students can choose the format that they wish to use to present their work. Possible project formats include a computer-based presentation, a poster, a video, or a brochure.
- Activity B** Refer students to the explorers featured in Activity 29 on p. 88 for ideas on an explorer to profile. Point out that students do not need to feature an explorer from this unit. Remind students that biographies should include information about the person's life, background, and professional contributions.

- Activity C** Encourage students to spend time experimenting with a variety of virtual exploration options. Guide students to websites that allow for virtual tours of caves, museums, or outdoor areas. Provide students with a T-chart organizer to note the advantages and disadvantages as they work on virtual exploration. Students can then use the chart to organize their articles.

## Share

- Schedule time for students to present their final products to the class. If necessary, bring in a computer projector to show students' presentations.
- Modify** To provide structure, provide a list of possible excursions for Activity A and notable explorers for Activity B. Students who choose Activity C may instead decide to do a video feature. If they work in pairs, they can do a role-play between a reporter and a virtual explorer.

**TR: 57** **1** **Listen and read.** See Student Book pp. 78–79.

**TR: 58** **2** **Learn new words.** **curious** / Curious people make great discoveries. **drive** / The desire to learn new things drives people to keep exploring. **encounter** / Ocean explorers encounter a wide variety of life forms. **exciting** / It's exciting to be an explorer. **expert** / Corey Jaskolski is an expert camera builder. **high-tech** / High-tech tools help scientists explore without harming sites. **investigate** / New discoveries are made when we investigate unknown places. **knowledge** / Doctors must have a great deal of knowledge about the human body. **look into** / Scientists have looked into how humans evolve. **pioneer** / Astronauts are pioneers of outer space. **purpose** / What is the purpose of exploring the ocean floor? **remote** / We still haven't seen many remote parts of the ocean. **research** / Lee Berger researches early human beings.

**TR: 59** **5** Explorer Sylvia Earle is a deep-ocean pioneer with a long list of achievements. She has engaged in 7,000 hours of underwater study, and written nearly 200 scientific articles on her findings. In 1970, she and a team of women "aquanauts" were required to live underwater for weeks at a time to research marine life. The fact that so much of the ocean remains undiscovered has driven Sylvia's work. In fact, even though explorers have been studying the world's oceans for years, they've only seen about five percent of them! Sylvia's purpose in life has been to protect the sea, and she encourages others to do so as well.

**TR: 60** **5** **Learn new words.** **achievement** / Scientists are rewarded for their achievements with awards or honors. **encourage** / Exploring the Earth will encourage people to protect it. **engage in** / We learn about the world by engaging in exploration. **require** / Becoming an oceanographer requires a lot of training.

**TR: 61 Speaking Strategy** See Student Book p. 81.

**TR: 62** **7** **S1:** Where do you see yourself in 5 years?

**S2:** Hmm . . . that's tough. I'd like to be studying in South America, but I might need to get a job.

**S2:** What made you want to learn Cantonese?

**S1:** Well, it's hard to explain. I guess I've just always wanted to travel to Guangzhou.

**S1:** Why do you think humans explore?

**S2:** That's a good question. Let me think about that one for a minute.

**TR: 63 Grammar** See Student Book p. 82.

**TR: 64** **11** Barrington Irving is one of the youngest people ever to fly around the world, and the first African American to do so. How did he get his start? He had been preparing for a career in professional football, but his plans changed when he met a Jamaican pilot in his parents' bookstore. He became interested in becoming a pilot and started learning how to fly by using a forty-dollar flight video game. By graduation, he had been offered the chance to play football at several universities, but he turned them down. Instead, he focused on flying. He started washing airplanes to pay for flight school. After many hours of flight school and practice, his instructor said it was time to fly solo. Barrington wasn't sure if he was ready at first. He was nervous but he flew well and landed the plane with no problems. His hard work and determination had paid off!

**TR: 65** **14** In 2007, at the age of only twenty-three, Barrington Irving flew a plane around the world—a plane

that he had a manufacturer build with donated parts. People had told him that he couldn't do it. But when the day came for him to leave, five thousand supporters had come to the Miami Airport to wish him well.

Barrington's route included 27 stops in 13 countries. He flew for 97 days. He was in constant motion for hours at a time, through thunderstorms, monsoons, snowstorms, and sandstorms. At times, he sang to himself to stay awake. Ultimately, he made it home. Barrington had set a record as the youngest person to fly around the globe solo. He was really excited! Barrington was now a respected pilot. But he also wanted to educate others. He started an organization called Experience Aviation and had kids build a plane that he actually flew. His goal is to get more young people to see how math and science can bring them a better future.

**TR: 66** **14** **Learn new words.** **educate** / Barrington works to educate young people about flying. **globe** / There are still many places on the globe left to explore. **motion** / Strong winds can affect the motion of an airplane. **route** / Barrington's route took him through extreme weather. **set a record** / Barrington set a record as the youngest person to fly around the world.

**TR: 67** **18** **Learn new words.** **associated** / Exploration is often associated with discovery and risk-taking. **gene** / Scientists are researching how our genes affect us. **motivate** / Curiosity motivates humans to explore. **trait** / Members of a family often share the same traits.

**TR: 68** **19** **While you read.** See Student Book pp. 84–85.

**TR: 69 Grammar** See Student Book p. 88.