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READ THIS!

Fascinating Stories from the Content Areas

Daphne Mackey

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1

With

Laurie Blass

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Introduction

ABOUT THE SERIES

Read This! is a three-level reading series for high beginning, low intermediate, and intermediate-level English learners. The series is designed to enhance students' confidence and enjoyment of reading in English, build their reading skills, and develop their vocabulary.

The readings in the series are high interest and content-rich. They are all nonfiction and contain fascinating true information. The style of writing makes the information easily digestible, and the language is carefully controlled at each level to make the texts just challenging enough, but easily accessible.

Each book in *Read This!* consists of five thematically related units. Each unit is loosely connected to a different academic discipline that might be studied in an institution of higher education, such as business, engineering, psychology, health care, or mathematics. Each unit is divided into three chapters, and each chapter contains a reading accompanied by exercise material. Besides the main theme of the unit, each chapter is tied to a secondary academic content area so that students can experience an interdisciplinary approach to a topic.

Accompanying each reading is a variety of pre- and postreading activities. They are designed to provide a balance of reading comprehension, vocabulary, and reading skill development. Many activities also provide opportunities for student discussion and a chance for students to connect the topics of the readings to their own lives and experience. Each unit ends with a wrap-up that reviews ideas and vocabulary from all three chapters of the unit.

Vocabulary instruction is an important focus of *Read This!* Selected words from each reading are previewed, presented, practiced, and recycled. These words are drawn from the two academic disciplines that are brought together in each reading. In addition, selected words from the Academic Word List (AWL) are pulled out from each reading for instruction.

Each unit is designed to take 6–9 hours of class time, depending on how much out-of-class work is assigned by the teacher. The units can either be taught in the order they appear or out of sequence. It is also possible to teach the chapters within a unit out of order. However, by teaching the units and chapters in sequence, students will benefit fully from the presentation, practice, and recycling of the target vocabulary.

All the readings in the *Read This!* series have been recorded for those students whose language learning can be enhanced by listening to a text

as well as by reading it. However, since the goal of the series is to build students' readings skills, students should be told to read and study the texts without audio before they choose to listen to them.

The audio files can be found on the *Read This!* Web site at www.cambridge.org/readthis. Students can go to this site and listen to the audio recordings on their computers, or they can download the audio recordings onto their personal MP3 players to listen to them at any time.

An audio CD of the readings is also available in the back of each Teacher's Manual for those teachers who would like to bring the recorded readings into their classroom for students to hear. Also in the Teacher's Manual are photocopiable unit tests.

THE UNIT STRUCTURE

Unit Opener

The title, at the top of the first page of each unit, names the academic content area that unifies the three chapters in the unit. The title of each chapter also appears, along with a picture and a short blurb that hints at the content of the chapter reading. These elements are meant to intrigue readers and whet their appetites for what is to come. At the bottom of the page, the main academic content area of the unit is repeated, and the secondary academic content area for each chapter is given as well.

1 Topic Preview

The opening page of each chapter includes a picture and two tasks: Part A and Part B. Part A is usually a problem-solving task in which students are asked to bring some of their background knowledge or personal opinions to bear. Part B always consists of three discussion questions that draw students closer and closer to an idea of what the reading is about. In fact, the last question, *What do you think the reading is going to be about?* is always the same in every chapter: This is to help learners get into the habit of predicting what texts will be about before they read.

2 Vocabulary Preview

This section has students preview selected words that appear in the reading. It contains two tasks: Part A and Part B. Part A presents selected words for the students to study and learn. Part B has the students check their understanding of these words.

In Part A, the selected words are listed in three boxes. The box on the left contains words that relate to the main content area of the unit. The box on the right contains words that relate to the secondary content area of the reading. Between these two boxes are words from the reading that come

from the Academic Word List (AWL). Placing the AWL words between the two lists of content area words creates a visual representation of the fact that the content area words are specific to separate content areas, while the AWL words are general academic words that might appear in either content area.

Note that the part of speech of a word is given in the chart only if this word could also be a different part of speech. Also note that some words are accompanied by words in parentheses. This alerts students to some common collocations that can form with the word and that will appear in the reading.

The vocabulary in the Vocabulary Preview is recycled over and over. The words appear in the reading; in Section 5, Vocabulary Check; in the Unit Wrap-Ups; and in the unit tests.

3 Reading

This section contains the reading and one or two pieces of art that illustrate it. Some words from the reading are glossed at the bottom of the page. These are low-frequency words that students are not expected to know. Understanding these words might be important for understanding the reading; however, it would probably not be useful for students to incorporate the words into their active vocabulary.

The icon at the top of the page indicates that the reading is available as an MP3 file online. Students can access this by going to the *Read This!* Web site at www.cambridge.org/readthis.

4 Reading Check

This section is designed to check students' comprehension of the text. Part A checks their understanding of the main ideas. Part B asks students to retrieve more detailed information from the reading.

5 Vocabulary Check

In this section, students revisit the same vocabulary that they studied before they read the text and that they have since encountered in the reading. The Vocabulary Check contains two tasks: Part A and Part B. In Part A, students are asked to complete a text by choosing appropriate vocabulary words for the context. The text in Part A is essentially a summary of the most salient information in the reading. This activity both reinforces the target vocabulary for the chapter and the content of the reading.

Part B varies from chapter to chapter. Sometimes it has a game-like quality, where students have to unscramble a word or find the odd word out in a group of words. Sometimes the task helps students extend their understanding of the target words by working with other parts of speech derived from the words. Other times, the task tests students' knowledge of other words that the target words often co-occur with (their collocations).

6 Applying Reading Skills

An important strand of *Read This!* is reading skill development. Students are introduced to a variety of skills, such as finding main ideas and supporting details, inferencing, identifying cause and effect, and organizing information from a reading into a chart. Practicing these skills will help students gain a deeper understanding of the content of the reading and the author's purpose. The section opens with a brief explanation of the reading skill and why it is important. irLanguage.com

This section has two tasks: Part A and Part B. In Part A, students usually work with some kind of graphic organizer that helps them practice the skill and organize information. This work will prepare them to complete Part B.

7 Discussion

This section contains at least three questions that will promote engaging discussion and encourage students to connect the ideas and information in the readings to their own knowledge and experience. Many of the questions take students beyond the readings. There is also ample opportunity for students to express their opinions. This section helps students consolidate their understanding of the reading and use the target vocabulary from the chapter.

WRAP-UP

Each unit ends with a Wrap-Up, which gives students the chance to review vocabulary and ideas from the unit. It will also help them prepare for the unit test. (The photocopiable unit tests are to be found in the Teacher's Manual.) Teachers may want to pick and choose which parts of the Wrap-Up they decide to have students do, since to do all the activities for every unit might be overly time-consuming. The Wrap-Up section consists of the following:

Vocabulary Review. All the target vocabulary from the three chapters of the unit is presented in a chart. The chart is followed by an activity in which students match definitions to some of the words in the chart.

Vocabulary in Use. Students engage in mini-discussions in which they use some of the target language from the unit. Students will be able to draw on their personal experience and knowledge of the world.

Role Play. Students work with the concepts of the readings by participating in a structured and imaginative oral activity. The role plays require that the students have understood and digested the content of at least one of the readings in a chapter. One advantage of role plays is that they are self-leveling. In other words, the sophistication of the role play is determined by the level and oral proficiency of the students. Students will need help in

preparing for the role plays. They will also need time to prepare for them. It might be a good idea for the teacher to model the first role play with one of the stronger students in the class.

Writing. This section of the Wrap-Up provides the teacher with an opportunity to have students do some writing about the content of the unit. The setup of this section varies from unit to unit.

WebQuest. For those students, programs, or classrooms that have Internet access, students can log onto www.cambridge.org/readthis. They can then find the WebQuest for the unit that they have been studying. The WebQuest is essentially an Internet scavenger hunt in which students retrieve information from Web sites that they are sent to. In this way, students encounter the information from the chapters once more. The Web sites confirm what they have already read and then broaden their knowledge of the unit topics by leading them to additional information. The WebQuests may be done individually or in pairs. Students may either submit their answers to the teacher online or they can print out a completed answer sheet and hand it in to the teacher.

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Special thanks go to Averil Coxhead for permission to cite from the Academic Word List (AWL). For the most up-to-date information on the AWL, go to <http://www.victoria.ac.nz/lals/resources/academicwordlist>.

I am grateful to the reviewers, whose comments and suggestions were most helpful: John Bunting, Georgia State University; Mohammed Etedali, Kuwait; Devra Miller, San Mateo Unified High School District; Wendy Ramer, Broward Community College; Hsin Yi Shen, Taiwan; and Kerry Vrabel, Gateway Community College.

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Daphne Mackey



UNIT

1

Communication

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Chapter 1



Baby Talk

Before they can talk, babies have a lot to say.

Content areas:

- Communication
- Child Development

Chapter 2



Face Reading

People's faces often speak more clearly than their words.

Content areas:

- Communication
- Psychology

Chapter 3



A Language for Women Only

Long ago in China, some women had a special way to communicate.

Content areas:

- Communication
- Anthropology

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Baby Talk

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1 TOPIC PREVIEW

A People use sign language to say things without sound. Put a check (✓) next to the sentences that are true for you. Share your answers with your classmates.

- 1 ____ I know some people who can use sign language.
- 2 ____ I don't know any signs in sign language.
- 3 ____ I know how to make a few signs.
- 4 ____ I am good at sign language.
- 5 ____ I want to learn how to use sign language.

B Read the title of this chapter, look at the picture, and discuss the following questions.

- 1 How do people usually know when babies want something? Is it easy to understand what babies want?
- 2 What is happening in the picture?
- 3 What do you think the reading is going to be about?

2 VOCABULARY PREVIEW

- A** Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Communication	Academic Word List	Child Development
deaf hearing (<i>adj.</i>) sign (<i>v.</i>)	communicate normally research (<i>n.</i>)	develop grow infant intelligence test

The chart shows selected words from the reading related to communication, child development, and the Academic Word List (AWL). For more information about the AWL, see page 121.

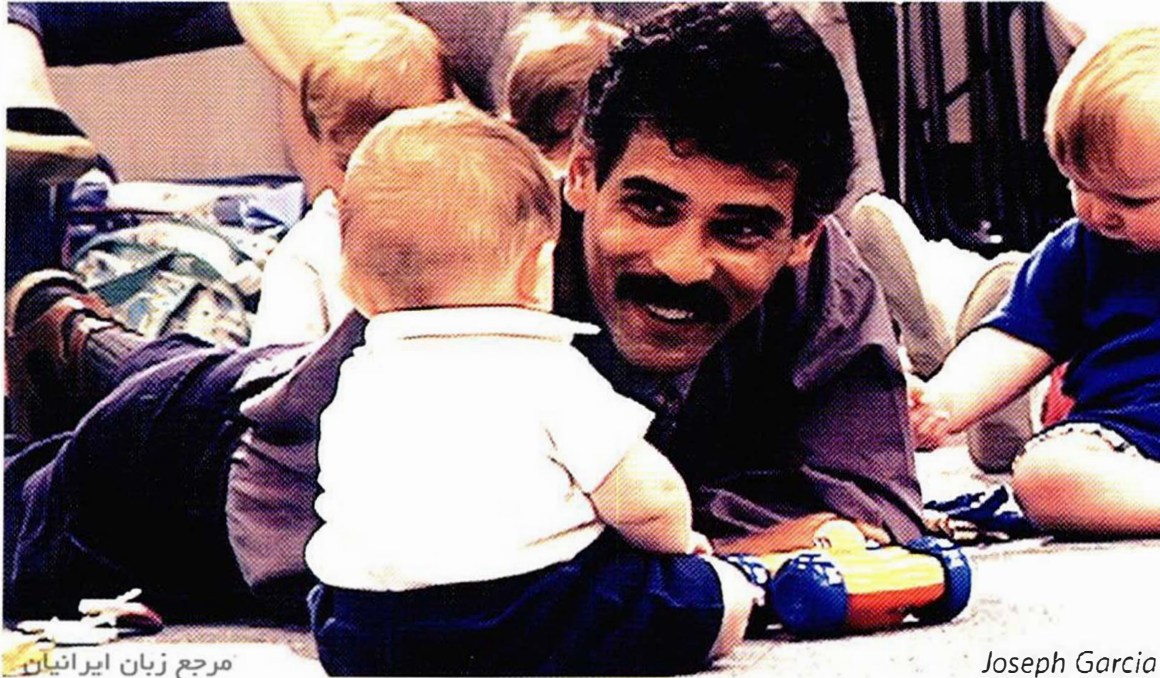
- B** Fill in the blanks with words from Part A.

- 1 She's not even one year old yet. She is still a/an _____.
- 2 She can't hear sounds or words. She is _____.
- 3 To be successful in school, you need to _____ good study habits.
- 4 To _____ the word *drink*, make the letter "c" with your right hand and move it toward your mouth.
- 5 Very young babies _____ sleep 14 to 16 hours a day, but some babies sleep even more.
- 6 How smart are you? You can take a/an _____ to find out.
- 7 When the children _____ older, they will leave home.
- 8 Both deaf and _____ people can learn sign language.
- 9 She speaks Spanish, and he speaks Japanese. It's difficult for them to _____.
- 10 The class wanted to know more about the history of sign language. They decided to do _____ on the Internet.



Preview the questions in Reading Check Part A on page 6. Then read the story.

Baby Talk



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Joseph Garcia

- 1 Babies normally start to talk when they are 13 to 15 months old. Ryan Jones is only eight months old, but he is already “talking” with his parents. When he is hungry, he opens and closes his hand. This means *milk*. He also knows the signs for his favorite toy and the word *more*.
- 2 Ryan is not deaf, and his parents are not deaf, but his mother and father are teaching him to sign. They say a word and make a sign at the same time. They repeat this again and again. When Ryan learns a new sign, his family is very excited. Ryan’s parents think that he will be a happier baby because he can communicate with them.
- 3 Ryan’s parents are teaching Ryan to sign because of a man named Joseph Garcia. Although Garcia was not from a deaf family, he decided to learn American Sign Language (ASL). First, he took courses in ASL. Then he got a job helping deaf people communicate with hearing people. In his work, he saw many deaf parents sign to their infants. He noticed that these babies were able to communicate much earlier than hearing

children. They talked with signs by the time they were eight months old. When they were one year old, they could use as many as 50 signs.

Garcia decided to try something new. He taught ASL to parents who were not deaf. The families started to teach signs to their infants when they were six or seven months old. These babies started using signs about two months later.

More and more parents took Garcia's ASL classes. Like Ryan's family, they were excited about signing with their babies. They wanted to give their babies a way to communicate before they could use spoken words.

Some people worry about signing to babies. They are afraid that these babies won't feel a need to talk. Maybe they will develop spoken language later than other babies. However, research does not show this. In fact, one study found just the opposite. Signing babies actually learned to speak earlier than other children. As they grow older, these children are more interested in books. They also score higher on intelligence tests.

There is still a big question for parents: Which are the best signs to teach their babies? Some parents make their own signs. Other parents want to teach ASL. It can be useful because many people understand it. There's no clear answer, but we do know this: All signing babies and their families are talking quite a lot!



4 READING CHECK

A Are these sentences true or false? Write *T* (true) or *F* (false).

- 1 ____ Ryan is deaf.
- 2 ____ Joseph Garcia can hear.
- 3 ____ All parents want to teach babies to sign.

B Circle the letter of the best answer. irLanguage.com

- 1 Which sentence is the main idea of the reading?
 - a Joseph Garcia is not from a deaf family.
 - b Parents who are deaf are teaching their babies to sign.
 - c Parents who can hear are teaching their babies to sign.
- 2 How many signs can Ryan make?
 - a three b fifteen c fifty
- 3 Why are Ryan's parents teaching him to sign?
 - a They want to understand him.
 - b They know Joseph Garcia.
 - c They are deaf.
- 4 When can babies start to use signs?
 - a at six months
 - b at eight or nine months
 - c at about one year
- 5 Which sentence is true about Joseph Garcia?
 - a Garcia taught ASL to infants.
 - b Garcia taught deaf parents how to sign to their infants.
 - c Garcia saw deaf parents use sign language with their infants.
- 6 What is the most important reason that hearing parents teach their babies to sign?
 - a The babies will be able to communicate with their parents.
 - b The babies will be able to speak earlier than other children.
 - c The babies will be more intelligent than other children when they grow up.
- 7 The research does not show that ____ .
 - a signing babies score well on intelligence tests when they are older
 - b signing babies don't learn to speak as early as other children
 - c signing babies are more interested in books as they grow older

5 VOCABULARY CHECK

A Retell the story. Fill in the blanks with the correct words from the box.

deaf	hearing	infants	intelligence tests
normally	research	sign	

- 1 Babies _____ start to talk when they are 13 months old.
- 2 Joseph Garcia learned ASL, and he first worked with _____ people.
- 3 Garcia saw deaf parents _____ to their babies.
- 4 Garcia began to teach ASL to _____ parents so they could teach their babies to communicate.
- 5 Some people worry about using sign language with _____ who can hear.
- 6 People did _____ to find out when signing babies learn to speak.
- 7 Studies show that children who can sign do better on _____.

B Fill in the blanks with the correct form of the word.

Verb	Noun
communicate	communication
develop	development
grow	growth

- 1 Sign language is a form of _____ with no sound.
- 2 How old are babies when they _____ language?
- 3 Signing babies are more interested in books as they _____ older.
- 4 They don't speak the same language, so they can't _____ well.
- 5 The _____ of language normally happens when children are between one and two years old.

6 APPLYING READING SKILLS

Organizing information into a chart can help you see the information in a reading in a new way. This can give you a deeper understanding of the reading.

A Are these sentences true or false? Write *T* (true) or *F* (false).

- 1 ____ Babies who learn to sign start to speak earlier than other babies.
- 2 ____ Babies who don't learn to sign score higher on intelligence tests than other children.
- 3 ____ Babies who learn to sign are able to communicate earlier than other babies.
- 4 ____ As they grow older, babies who learn to sign become more interested in books than other children.
- 5 ____ As they grow older, babies who learn to sign want to speak as much as other children.

B Use the answers in Part A to help you make a chart about differences between babies and children who learn to sign and other babies and children.

BABIES AND CHILDREN WHO LEARN TO SIGN

start to speak earlier

BABIES AND CHILDREN WHO DON'T LEARN TO SIGN

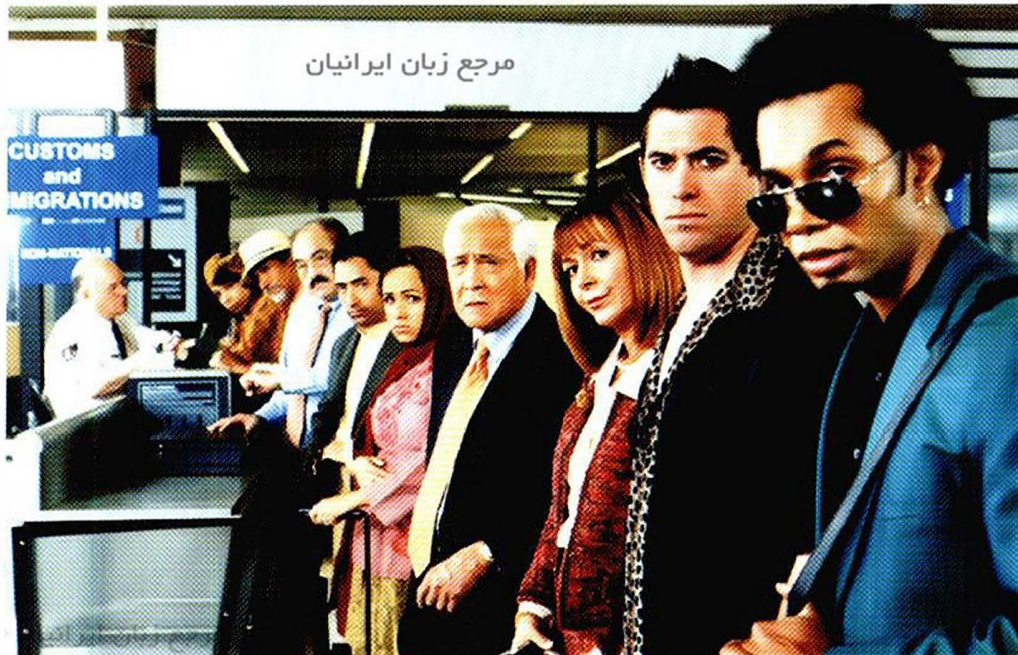
start to speak later

7 DISCUSSION

Discuss the following questions in pairs or groups.

- 1 Do you think it's a good idea to teach sign language to babies? Why or why not?
- 2 Do you think it's easy to teach signs to a baby? Explain your answer.
- 3 Do you think it's easy or difficult to learn to sign as an adult? Why?
- 4 Do you think there will be more "signing babies" in the future? Why or why not?

Face Reading



1 TOPIC PREVIEW

A Some feelings are easy to read on a person's face. Others are difficult. Put a check (✓) next to feelings you can easily see on a face. Share your answers with your classmates.

- 1 _____ happiness
- 2 _____ fear
- 3 _____ sadness
- 4 _____ worry
- 5 _____ (your idea)

B Read the title of this chapter, look at the picture, and discuss the following questions.

- 1 Where are the people in the picture? Choose one person. Look at his or her face. Describe what you think the person is thinking or feeling.
- 2 Do you think people's faces show feelings in the same way all over the world? Explain your answer.
- 3 What do you think the reading is going to be about?

2 VOCABULARY PREVIEW

- A** Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Communication

(pay) **attention** (to)
expression
lie (v.)
(tell the) **truth**

Academic Word List

expert
partner
security

Psychology

behavior
(show) **emotion**
experiment (n.)

The chart shows selected words from the reading related to communication, psychology, and the Academic Word List (AWL). For more information about the AWL, see page 121.

- B** Write the word from Part A next to its definition. irLanguage.com

- 1 A strong feeling: _____
- 2 The act of listening or looking at something carefully:

- 3 A person you work closely with: _____
- 4 Say something that is false: _____
- 5 A test you do to learn something: _____
- 6 A person who knows a lot about a subject: _____
- 7 Safety from a dangerous situation: _____
- 8 A look on a person's face that shows his or her feelings or thoughts:

- 9 The things a person does; the way he or she acts: _____
- 10 The way things really are: _____

Preview the questions in Reading Check Part A on page 13. Then read the story.

Face Reading



A security worker has special training in reading faces.

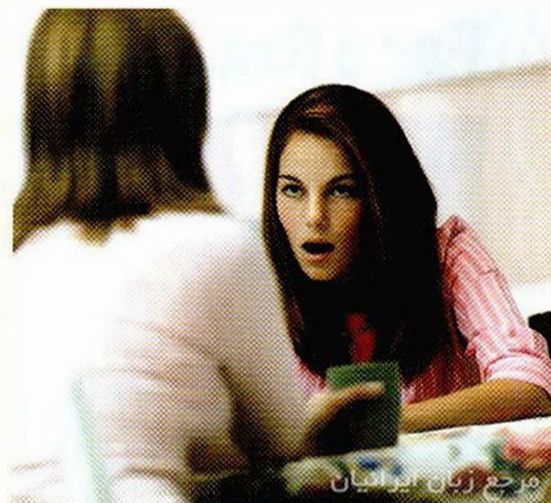
Ann Hill works for airport security. One morning at work, she speaks into her radio. “Look at the woman in the black coat,” she says. Her partner answers, “Right. Let’s go ask her some questions.”

The woman in the black coat is in line at the checkpoint for airport security. This is the place where people stop for an examination of their papers and possessions. The woman looks like all the other passengers, but Ann Hill notices some small differences in the expressions on the woman’s face. Her eyebrows go up and move together. Her eyelids rise. Her lips pull toward her ears. All this happens quickly, but it’s enough for Ann Hill. The facial expressions tell Hill that the woman is hiding something.

Like many other security workers, Hill has special training in reading faces. She looks for microexpressions. These are very small changes on a person’s face. They show the person’s thoughts or feelings. Microexpressions can often tell you more about people’s feelings than their behavior can.

Everyone can read some emotions on people’s faces. We can see surprise when eyebrows go up. We can see happiness when the mouth and eyes change. A psychology professor named Paul

Ekman asked himself a question: Do people from different cultures read faces in the same way? Ekman did research in different parts of the world to find the answer. He found that everyone understands many facial expressions in the same way. He also found that, with the 43 face muscles,¹ people can make 10,000 different microexpressions. These expressions can show emotions, such as happiness, sadness, anger, fear, surprise, and dislike.



5 Ekman wanted to know something else. Can a face show that a person is not telling the truth? Ekman did some experiments. In one experiment, he used a group of nurses. He asked them to watch a movie. Then he divided the nurses into two groups. He asked the first group to describe the movie accurately. Then he asked the second group to lie about the movie. Ekman filmed both groups.

6 In the next part of the experiment, Ekman asked other people to watch his films. He asked them, "Which nurses are lying?" "Which nurses are telling the truth?" Most people did badly on the test, but a few people did well. These people did not listen to the nurses' words. They paid attention to the expressions on their faces.

7 After many years of studying microexpressions, Ekman could tell when a person was lying. He could also tell when someone was hiding something. Then he trained other people to recognize microexpressions. Ann Hill had this kind of training, and she became an expert.

8 Hill and her partner asked the woman in the black coat about the purpose of her trip. When she answered, her eyes filled with tears. Was Hill right about her? Yes, the woman was hiding something. Her mother was very ill, and she was going to visit her. The emotion she was hiding was sadness.

¹ *muscle*: a part of the body that tightens and relaxes to help us move

4 READING CHECK

A Match the person to the action.

- | | |
|---------------------------|--------------------------------------|
| 1 Paul Ekman _____ | a tries to hide an emotion |
| 2 Ann Hill _____ | b works at an airport |
| 3 the woman in line _____ | c did research on facial expressions |

B Circle the letter of the best answer.

- 1 Ann Hill thinks the woman in the black coat _____.
a is lying
b is hiding something
c is surprised
- 2 The woman's _____ do not move.
a lips
b ears
c eyebrows
- 3 Which sentence does *not* describe a microexpression?
a It's very small.
b It stays on the face for a long time.
c It can show an emotion or thoughts.
- 4 In his research, Ekman found that _____.
a people's faces almost never show emotions
b people always hide their true feelings when they are in public
c people around the world understand facial expressions in the same way
- 5 Ekman found that people can make _____ different microexpressions.
a 6
b 43
c 10,000
- 6 Ekman's experiment showed that _____.
a lying isn't easy for nurses
b watching facial expressions is a good way to tell when people are lying
c listening carefully is a good way to tell when people are lying
- 7 Ekman's classes teach people _____.
a how to lie
b how to read faces
c how to make microexpressions

5 VOCABULARY CHECK

A Retell the story. Fill in the blanks with the correct words from the box.

attention	behavior	emotions	experiment	expert
expressions	lie	partner	security	truth

- 1 Paul Ekman is a/an _____ in face reading.
- 2 First, he did research to find out: "Does everyone read facial _____ in the same way?"
- 3 Next, Ekman studied the facial movements that show _____.
- 4 Ekman decided to do a/an _____.
- 5 He showed a movie to a group of nurses. He asked half of them to _____ about the movie.
- 6 He asked the other half of the nurses to tell the _____ about the movie.
- 7 Only people who paid _____ to the nurses' faces could tell who was lying.
- 8 Ekman says, "Facial expressions can tell you more about people's feelings than their _____ can."
- 9 Ekman uses his knowledge to train others, such as people who work in airport _____.
- 10 Ann Hill and her _____ had training in face reading.

B Some nouns and verbs often go together. Circle the verbs that often come before the nouns in bold. Sometimes, more than one answer is possible.

- | | | | | |
|---|------|--------|-----------|----------------------|
| 1 | try | pay | stay | attention |
| 2 | do | try | face | an experiment |
| 3 | make | do | tell | the truth |
| 4 | show | find | hide | an emotion |
| 5 | have | create | work with | a partner |

6 APPLYING READING SKILLS

Asking and answering "Why?" questions about information in a reading can help you develop critical thinking and reading skills.

- A** Look back at the reading to find the answers to these "Why?" questions. Compare your answers with a partner.

Why did Ann Hill and her partner want to ask the woman in line some questions



Why did Paul Ekman do research in different parts of the world



Why did Ekman do experiments with nurses and other groups of people



- B** Practice asking "Why?" questions. Write two more "Why?" questions about the reading. Ask and answer the questions with a partner.

1 Why _____ ?

2 Why _____ ?

7 DISCUSSION

Discuss the following questions in pairs or groups.

- 1 Do you think face reading is a good way for security workers to look for problems? Why or why not?
- 2 Face reading can help people in other jobs besides security. Think of some examples.
- 3 Can your friends tell when you are trying to hide something or when you're not telling the truth? If so, how?

A Language for Women Only



1 TOPIC PREVIEW

A Today, most people learn to read and write, but in the past that wasn't true. Imagine that you don't know how to read or write. Put a check (✓) next to the activity that you will miss the most. Share your answers with your classmates.

- 1 ____ reading books
- 2 ____ writing in a journal
- 3 ____ reading the news
- 4 ____ writing to your friends
- 5 ____ (your idea)

B Read the title of this chapter, look at the picture, and discuss the following questions.

- 1 Do you know any people who have their own language that no one else can understand? Explain your answer.
- 2 Look at the writing in the picture. What language do you think it is?
- 3 What do you think the reading is going to be about?

2 VOCABULARY PREVIEW

- A** Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Communication	Academic Word List	Anthropology
message secret (n.) stand for system	area create symbol	custom museum village

The chart shows selected words from the reading related to communication, anthropology, and the Academic Word List (AWL). For more information about the AWL, see page 121.

- B** Fill in the blanks with words from Part A.

- 1 Sssshhh! Don't tell anyone. It's a/an _____.
- 2 “=” is a/an _____ for the word *equal*.
- 3 She wasn't home. He wrote a/an _____ and left it on the door.
- 4 In many countries of the world, it is the _____ to eat cake on a person's birthday.
- 5 They moved from a big city. Now they live in a small _____.
- 6 A chart uses boxes and lines to show information. It's easy to _____ a chart on the computer.
- 7 That _____ of the country is good for skiing because they get a lot of snow there.
- 8 What does “\$” _____?
- 9 When you learn a new language, you study rules of grammar. Sometimes it's not easy to understand how the grammatical _____ works.
- 10 They wanted to see art from all over the world. They went to a/an _____.

Preview the questions in Reading Check Part A on page 20. Then read the story.

A Language for Women Only



- 1 After her wedding, the young woman went to live in her husband's village. Life was lonely and difficult. Her mother-in-law made her work hard all day. Her friends were far away. However, the young woman had a secret that helped her feel better. On the third day after she arrived in the village, she waited for her husband to fall asleep. Then she took a small book from under her pillow. She began to read, and the words made her smile. What was in the little book? Why was it a secret?
- 2 Long ago in China, only men learned to read and write. Women in one area of the country were not happy with this. In remote¹ parts of Hunan Province, these women created their own secret writing system. They made written symbols to stand for sounds and words. They called this language *Nushu*.
- 3 In the past, a woman did not choose her husband. It was the custom for her family to choose him for her. When she married, she normally left her village and went to live with her husband's family. Before she left, her female friends and family wrote to her in a small book. They wrote about their friendship, their memories, and their hopes for her. At the end of the book, they

¹ remote: far away from any cities

left pages for her to write about her new life. The woman opened the book on the third day of her marriage. Her husband could not read it because the writing was all in Nushu.

Men probably knew about Nushu, but they did not think it was important. To women, it was very important. In fact, when women died, their families often buried them with their Nushu third-day books.

How and why did Nushu start? No one is sure. Some people think a lonely woman in an emperor's court² created it to send messages to her sisters back home. Others think Nushu comes from a very old language. Four thousand years ago, people spoke a variety of languages in China. Then the emperor said people could only use Mandarin. A man who wrote in another language could lose his life, but women were not so important. Maybe they continued to use the old language.

In the 1920s, many women in China began to go to school. They learned to read and write Mandarin, and they did not need Nushu. In 1982, a teacher went to study the culture of

Jiangyong, Hunan Province. There, he learned about Nushu and wrote about his research. This was very exciting because there were no other languages in the world that were only for women.

In 2004, Yang Huanyi, the last woman who secretly used Nushu, died. Today, there is still a lot of interest in this language. In fact, tourists from all over the world go to Hunan Province to see examples of the secret writing in a museum. Some women even go to a special school to study Nushu. This secret writing is not a secret anymore!



Yana Huanvi

² emperor's court: the group of people who lived with and helped the ruler of the land

4 READING CHECK

A Circle the letter of the best answer.

- 1 Who used Nushu?
 - a men
 - b women
 - c everyone
- 2 Where did people use Nushu?
 - a in the cities
 - b in remote areas
 - c all over China
- 3 How often do people use Nushu for secret communication today?
 - a often
 - b sometimes
 - c never

B Are these sentences true or false? Write *T* (true) or *F* (false).

- 1 ____ Long ago in China, only men learned to read and write.
- 2 ____ Women lived with their parents after they got married.
- 3 ____ Women in big cities in China created a system of communication.
- 4 ____ Women spoke Nushu to each other.
- 5 ____ A third-day book was for married women.
- 6 ____ A woman could write in her third-day book.
- 7 ____ Men were able to read Nushu.
- 8 ____ Researchers know exactly how Nushu started.
- 9 ____ After women began to go to school, Nushu wasn't very important.
- 10 ____ No one is interested in Nushu anymore.

5 VOCABULARY CHECK

A Retell the story. Fill in the blanks with the correct words from the box.

areas	created	custom	messages	museum
secret	stand for	symbols	system	village

- 1 Women in remote _____ of China used Nushu writing to communicate with each other.
- 2 Women never told men about Nushu. It was a/an _____.
- 3 In written English, letters _____ sounds, but Nushu doesn't have letters.
- 4 Nushu used special _____ in place of sounds and words.
- 5 Long ago in China, it was the _____ for a woman's parents to choose her husband for her.
- 6 Before a woman's marriage, her female friends _____ a third-day book of Nushu writing.
- 7 When a woman moved away from her own _____ to her new husband's home, she took the Nushu book with her.
- 8 On the third day after her marriage, the woman opened the Nushu book and read all the _____ from her friends.
- 9 Maybe men knew about the women's secret _____ of communication, but they did not think it was very important.
- 10 Today, you can go to a/an _____ in Jiangyong, Hunan Province, to learn about the history of Nushu.

B Which word does *not* belong in each row? Cross it out.

- | | | | | |
|---|---------|-----------|---------------|----------|
| 1 | area | village | museum | province |
| 2 | lonely | difficult | exciting | hard |
| 3 | write | message | communicate | research |
| 4 | emperor | wife | husband | village |
| 5 | family | friend | mother-in-law | husband |

6 APPLYING READING SKILLS

A reading often tells why something happens (a cause) and what happens as a result (an effect). **Finding causes and effects** in a reading will help you understand the reading better.

A Draw an arrow (→) from each cause to its effect.

CAUSE	EFFECT
1 Only men learned to read and write.	a She went to live in her husband's village.
2 A young woman got married.	b Women developed a secret system of writing.
3 Nushu was very important to women.	c Families often buried women with their third-day books.

B Practice finding causes and effects. Look back at the reading, and find one effect for each cause in the chart.

CAUSE	EFFECT
1 Only women learned Nushu.	_____
2 Women began to go to school.	_____
3 Nushu is the only language for women only.	_____

7 DISCUSSION

Discuss the following questions in pairs or groups.

- 1 Why was Nushu so important to women in the past?
- 2 Did you ever use a secret language with your family or friends? If so, describe the language. Explain when and why you used it.
- 3 What are other forms of secret communication? Who uses them and why?

UNIT 1 WRAP-UP

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VOCABULARY REVIEW

Chapter 1	Chapter 2	Chapter 3
Communication deaf • hearing (<i>adj.</i>) • sign (<i>v.</i>)	Communication (pay) attention (<i>to</i>) • expression • lie (<i>v.</i>) • (tell the) truth	Communication message • secret (<i>n.</i>) • stand for • system
Academic Word List communicate • normally • research (<i>n.</i>)	Academic Word List expert • partner • security	Academic Word List area • create • symbol
Child Development develop • grow • infant • intelligence test	Psychology behavior • (show) emotion • experiment (<i>n.</i>)	Anthropology custom • museum • village

Find words in the chart above that match the definitions. Answers to 1-4 are from Chapter 1. Answers to 5-8 are from Chapter 2. Answers to 9-12 are from Chapter 3.

- 1 A very young baby: _____
- 2 Usually: _____
- 3 Able to notice sounds with your ears: _____
- 4 A study of a subject to learn more about it: _____
- 5 A strong feeling: _____
- 6 Safety from danger: _____
- 7 A look on a person's face: _____
- 8 The way a person acts: _____
- 9 A place where people can learn about history, art, or science:

- 10 To represent; to be a short form of something: _____
- 11 A region; a part of a place: _____
- 12 The way something is organized: _____

VOCABULARY IN USE

Work with a partner or small group, and discuss the questions below.

- 1 In addition to English class, when do you work with a **partner**?
- 2 What are some skills you want to **develop**? Study skills? Cooking skills? Other?
- 3 Is life easier for **deaf** people now than it was 50 years ago? Why or why not?
- 4 What are some **customs** in your family for special celebrations?
- 5 Do you think it's better to live in a small **village** or a big city? Why?
- 6 Can you think of an international **symbol** (a symbol you can see all over the world)?
- 7 Is it all right to **lie** sometimes? If so, when?
- 8 Some people are good at keeping **secrets**. Are you? Explain.

ROLE PLAY

Work with a partner. Choose one of the people below from the stories. Student A is a newspaper reporter. Student B is one of the people below. Prepare questions. Ask and answer the questions. Then change roles.

- **A hearing parent teaching sign language to a baby**
- **Paul Ekman**
- **A woman who works at the Nushu Museum**

WRITING

Write a newspaper story about one of the people above. Use notes from the role play or your own ideas. As you write, answer the following questions.

- Who is the person?
- What subject does the person know a lot about? Why?
- Why is this information interesting or important?

WEBQUEST

Find more information about the topics in this unit by going on the Internet. Go to www.cambridge.org/readthis and follow the instructions for doing a WebQuest. Search for facts. Have fun. Good luck!

UNIT

2

Technology

www.irLanguage.com

Chapter 4



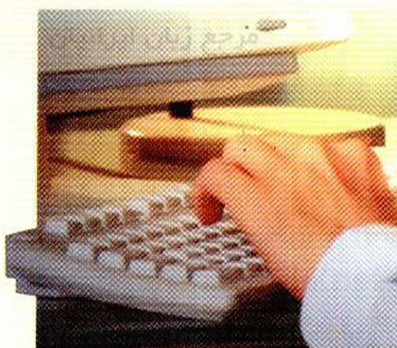
Write a Best Seller ... on Your Cell Phone?

Some people are using cell phones to write very successful books.

Content areas:

- Technology
- Literature

Chapter 5



Who Was That Man @ the Computer?

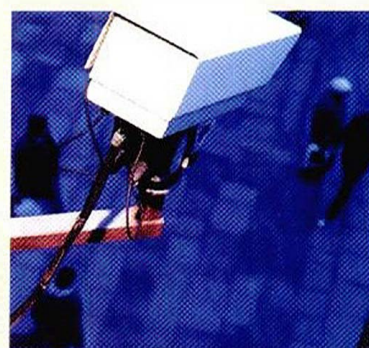
Millions of people use one man's invention, but almost nobody knows his name.

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Content areas:

- Technology
- Computer Science

Chapter 6



I Saw It on the Internet

Sometimes we put information about ourselves on the Internet; but sometimes people put information about us!

Content areas:

- Technology
- Law

Write a Best Seller ... on Your Cell Phone?



1 TOPIC PREVIEW

A What do people use their cell phones for? Put the answers in order from 1 (most often) to 5 (least often). Share your answers with your classmates.

- 1 ____ send text messages
- 2 ____ check e-mail
- 3 ____ make phone calls
- 4 ____ take pictures
- 5 ____ (your idea)

B Read the title of this chapter, look at the picture, and discuss the following questions.

- 1 What do you like to write most: letters, short stories, text messages, poems, compositions for your English class, or something else?
- 2 What is a *best seller*? Name some best sellers you know. What makes them so popular?
- 3 What do you think the reading is going to be about?

2 VOCABULARY PREVIEW

- A** Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Technology	Academic Word List	Literature
download online post (comments) Web site	participate publisher style	action character novel

The chart shows selected words from the reading related to technology, literature, and the Academic Word List (AWL). For more information about the AWL, see page 121.

- B** Fill in the blanks with words from Part A.

- 1 She wrote a story. Then she took it to a place that makes books. She took it to a/an _____.
- 2 He does all his research on the Internet. He's _____ all the time.
- 3 A business usually puts information about itself on the Internet. This information is on the company's _____.
- 4 A young boy is the most important person in the story. He's the main _____.
- 5 The movie was exciting. A lot of things happened quickly. There was a lot of _____.
- 6 They play basketball, baseball, and soccer at school. They _____ in all these sports.
- 7 Rock music sounds different from other kinds of music. It has its own special _____.
- 8 The book isn't about real people or events. It's a/an _____.
- 9 When you find some information on the Internet, you can save it on your computer. In other words, you can _____ the information.
- 10 Sometimes she has an opinion about a news story on the Internet. She likes to _____ comments.

MP3 3 READING

Preview the questions in Reading Check Part A on page 30. Then read the story.

Write a Best Seller . . . on Your Cell Phone?



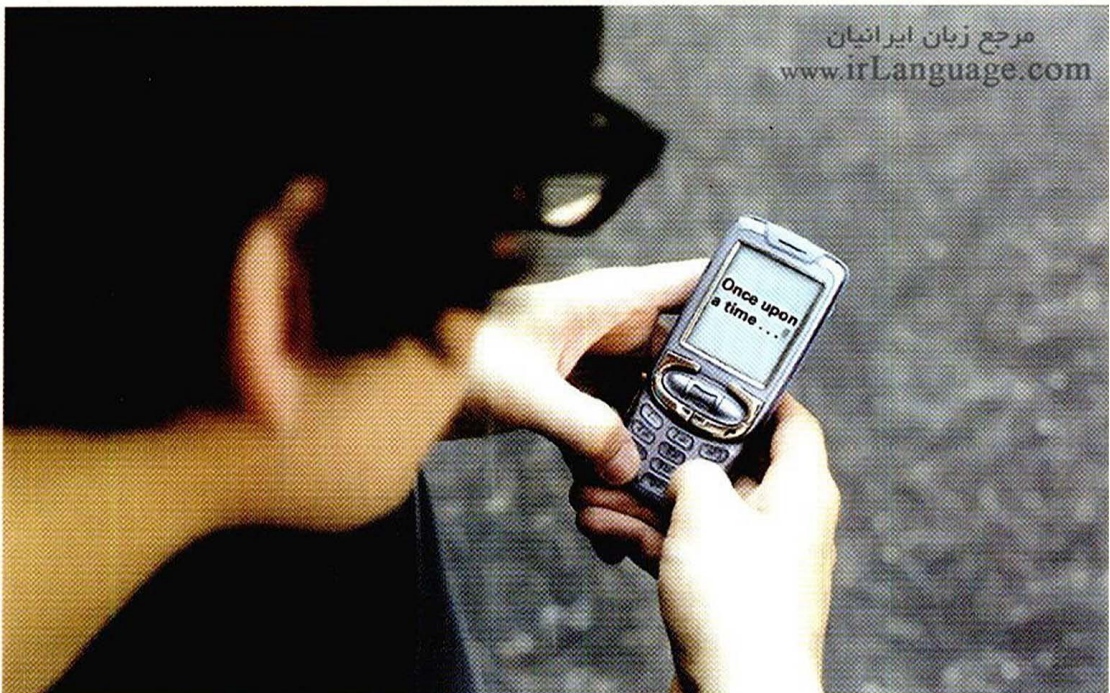
Rin

- 1 Do you want to write a novel? All you need is a cell phone. You can write when you're on the bus or subway, or standing in line at a store. Then you can put your novel on the Internet.
- 2 Rin, a young woman in Japan, did just this. She started writing on her cell phone in high school. When she was a senior in high school, she wrote a novel called *If You*. She put the novel on a Web site. People downloaded it and read it on their cell phones. The novel became so popular that a publisher made it into a book. *If You* sold almost half a million copies in bookstores.
- 3 In Japan, in 2000, an Internet company made a Web site for people to share the novels they wrote on their cell phones. Soon, millions of people in Japan downloaded other people's cell phone novels from the Web site onto their own cell phones. In this way, 20 million people read a cell phone novel called *Love Sky*. It was so popular that it became a printed book and then a movie. By 2007, half of the top ten best-selling books in Japan were cell phone novels first.

Cell phone readers can also participate in the writing. Writers usually put their novels online chapter by chapter. Then readers can post comments and suggest ideas. This helps the writers as they develop their novels. Some people who read a novel on their cell phones also buy the book. They like to see the ideas they gave the writer in print.

Cell phone novels have a special style. The action moves fast. It is usually more important than the story or the characters. Chapters and conversations are short. People speak in very short sentences. This style is popular with young people who grew up reading *manga*¹ or comic books.

Many people believe that a Japanese woman wrote the world's first novel, *The Tale of Genji*, one thousand years ago. Now a new kind of novel is coming from Japan to the rest of the world. The idea is becoming popular in other countries. For example, now people are writing cell phone novels in South Korea, China, and the United States. So, get those thumbs ready. Maybe you will write the world's next best-selling cell phone novel!



¹ *manga*: Japanese comic books

4 READING CHECK

A Are these sentences true or false? Write *T* (true) or *F* (false).

- 1 ____ No one can read a book on a cell phone.
- 2 ____ Readers help write cell phone novels.
- 3 ____ The style of a cell phone novel is the same as a printed novel.

B Circle the letter of the best answer.

- 1 A publisher made *If You* into a printed book because ____ .
a so many people liked it b a teenager wrote it c Rin was famous
- 2 How did people first read *If You*?
a on their cell phones b in a bookstore c as a printed book
- 3 On the Web site that started in 2000, people could ____ .
a print out books b buy novels c share their writing
- 4 How many of the top ten best sellers started as cell phone novels in Japan in 2007?
a two b five c ten
- 5 Cell phone readers participate in the writing because ____ .
a they download the novels
b they can see their ideas in print
c they give ideas as the writers are working on the novels
- 6 Which sentence does *not* describe a cell phone novel?
a The characters are more important than the story.
b It is like a comic book in some ways.
c Chapters and conversations are usually short.
- 7 What is most important in a cell phone novel?
a the action
b the characters
c the conversations
- 8 Which of these sentences is *not* true?
a Anyone can write a cell phone novel.
b A man wrote *The Tale of Genji*.
c Now cell phone novels are becoming popular in other countries.

5 VOCABULARY CHECK

A Retell the story. Fill in the blanks with the correct words from the box.

action	characters	download	novel	online
participate	post	publishers	style	Web site

- 1 There is a new type of _____ that people are writing on cell phones.
- 2 Cell phone writers can put their chapters on a/an _____.
- 3 People can _____ the chapters of a novel to read on their cell phones.
- 4 When people read part of a cell phone novel, they can _____ comments on the Web site.
- 5 Cell phone readers often like to _____ in the writing of cell phone novels.
- 6 Cell phone novels have their own _____.
- 7 In a cell phone novel, the _____ is more important than the conversations or the _____.
- 8 Many cell phone novels are not only _____. They're in bookstores, too.
- 9 Now many _____ make cell phone novels into printed books.

B Use words from Part A to complete this review.

Subway Rider is a cell phone _____ you won't want to miss! The story is very exciting with a lot of _____ and funny _____. The best thing is that it's not finished yet. Go to the writer's _____ and _____ the first four chapters. Read these chapters and then _____ your comments. That way, you can _____ in the writing of the novel.

6 APPLYING READING SKILLS

Understanding the order of events in a reading means that you know what happens first, second, third, and so on. When a reading explains a process, it is a good idea to make a list of the steps or a simple flowchart.

- A** The reading explains the process of writing a cell phone novel. The writer does some steps in the process, and the reader does other steps. Put all the steps in the process in the right order. Write the letter of each step in the flowchart.

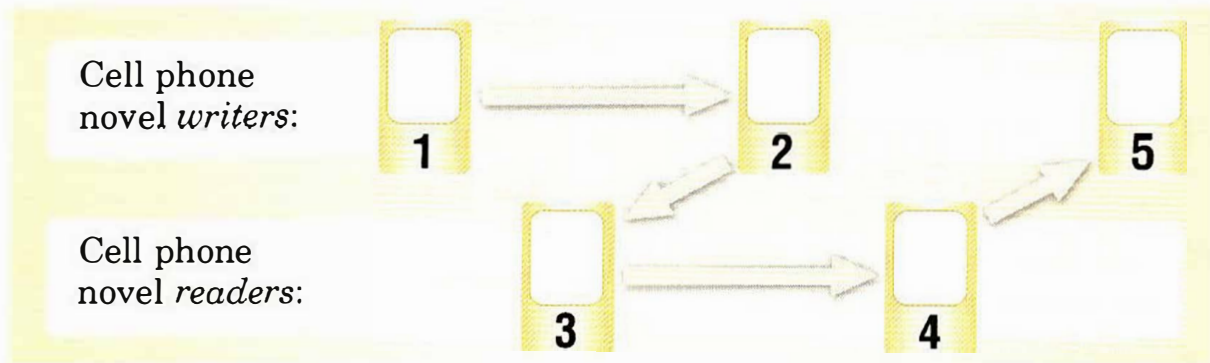
a post ideas on the Internet

d put their writing on the Internet

b download the writing and read it

e finish writing the novel

c write part of a novel



- B** Explain how Rin became a famous writer by putting the sentences in order from 1 to 6.

___ Her cell phone novel became very popular.

___ *If You* sold almost half a million copies in bookstores.

___ She put the novel on a Web site.

___ People downloaded the novel and read it on their cell phones.

___ Rin wrote a novel on her cell phone.

___ A publisher made it into a printed book.

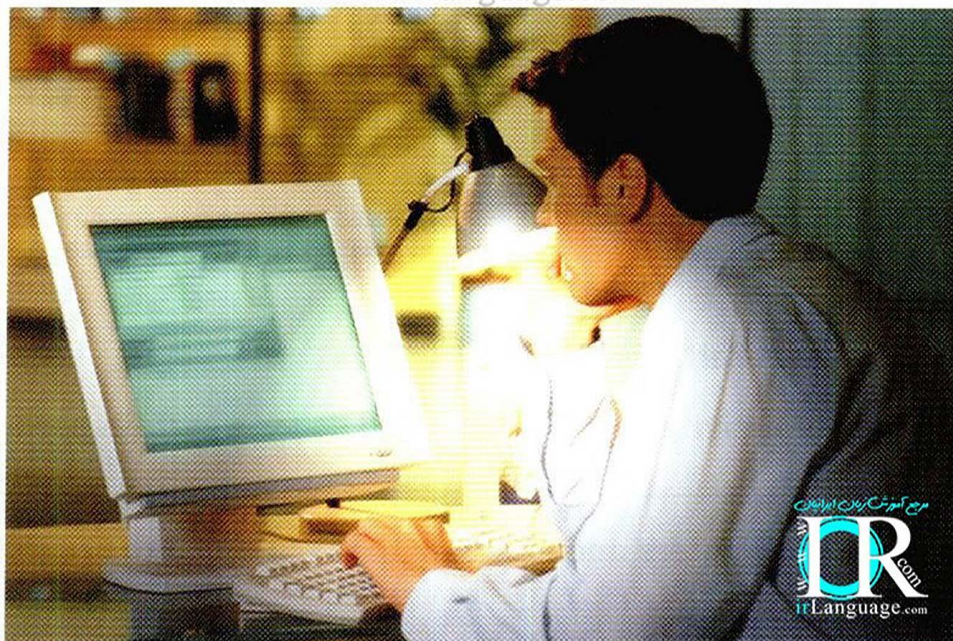
7 DISCUSSION

Discuss the following questions in pairs or groups. irLanguage.com

- 1 Why do you think cell phone novels became so popular in Japan?
- 2 When you are on a train, bus, or plane for a long time, how do you spend your time?
- 3 Do you download things to read on your cell phone or computer? Explain.

Who Was That Man @ the Computer?

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1 TOPIC PREVIEW

A Put a check (✓) next to the ways you communicate with your friends and family. Which one do you use the most? Share your answers with your classmates.

- 1 ____ telephone calls
- 2 ____ text messages
- 3 ____ e-mail
- 4 ____ posts on a Web site
- 5 ____ (your idea)

B Read the title of this chapter, look at the picture, and discuss the following questions.

- 1 What does “@” mean in the title?
- 2 Do you think e-mail is more important for people at work or at school? Explain.
- 3 What do you think the reading is going to be about?

2 VOCABULARY PREVIEW

- A** Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Technology	Academic Word List	Computer Science
inventor monitor (n.) solve (a problem)	achievement file (n.) network project	(send / check) e-mail keyboard spam

The chart shows selected words from the reading related to technology, computer science, and the Academic Word List (AWL). For more information about the AWL, see page 121.

- B** Write the word from Part A next to its definition.

- 1 Some work or activity that you plan and do for a certain period of time:

- 2 Something with letters and numbers that you touch to use a computer:

- 3 Something important or difficult that you did well:

- 4 Someone who creates something new: _____
- 5 The part of a computer that shows words or pictures:

- 6 Information on a computer that you keep in one place, under one name:

- 7 A message that you send over the computer: _____
- 8 A group of computers that connect to each other: _____
- 9 Unwanted mail on the computer, usually advertisements:

- 10 Find an answer to something that is difficult: _____

Preview the questions in Reading Check Part A on page 37. Then read the story.

Who Was That Man @ the Computer?



Part of a computer system in 1971

The year is 1971. Ray Tomlinson is sitting in his office in Cambridge, Massachusetts. He types a few letters on a keyboard. Then he moves to a second computer in the room and reads the monitor. “Yes!” He just sent the first electronic¹ message from one computer to a different computer through a network.

What did this first e-mail, say? Tomlinson doesn’t remember. Maybe it was just a string of letters, like “q w e r t y u i o p.” He does remember the second message. He sent it to his co-workers. This second e-mail message told people how to send e-mail on the computer network.

Before 1971, there was no e-mail. In those days, people didn’t have small computers on their desks. They only had keyboards and monitors. These were all connected to a big computer. People could only send messages to other people on the same computer. They could send files to other computers through the network, but they couldn’t “talk.”

¹ *electronic*: done with a computer

4 To solve this problem, Tomlinson needed a way to direct messages to the right person on the right computer on any network. He chose the @ (“at”) symbol. He used @ to separate a person’s name from the name of the computer the person was using. The @ symbol was a good choice. This symbol was not in anyone’s name. Few people used it. In fact, typewriter companies thought about taking it off the keyboard. Now @ is used 2 million times every second!



5 No one really paid any attention to Tomlinson’s achievement. In the 1970s, only about 500 people used e-mail. They only used it to do projects at work. Then, in the 1980s, the first personal computers arrived. They were small and not very expensive. For the first time, people could have computers at home. Then came the Internet. Soon e-mail became a popular way to communicate. Today, over one billion people use it. Office workers spend almost an hour a day on e-mail. Some people check their e-mail 30 to 40 times an hour.

6 Tomlinson is sorry about one thing – spam. Spam is e-mail that no one wants. Most of it is advertising that tries to sell something. As much as 70 percent of each day’s 180 billion e-mail messages is spam. As the number of e-mail users grows, spam is becoming more and more of a problem.

7 Unlike many other inventors, Tomlinson is not famous. He never made any money from e-mail. Most people don’t even know his name. However, thanks to this unknown hero, people all over the world can communicate with each other in seconds.

4 READING CHECK

A Circle the letter of the best answer.

- 1 Ray Tomlinson ____ very famous.
a is
b is not
- 2 ____ people used e-mail in the 1970s.
a Many
b Not many
- 3 Spam is a ____ percentage of everyday e-mail.
a large
b small

B Are these sentences true or false? Write *T* (true) or *F* (false).

- 1 ____ Ray Tomlinson sent the first e-mail to a computer in another office.
- 2 ____ He sent the first message from one computer to another on the same network.
- 3 ____ In the 1960s, Tomlinson and others used e-mail for work.
- 4 ____ Before 1971, people could send files, but not messages, to other computers.
- 5 ____ Before e-mail, not many people used the @ symbol.
- 6 ____ The @ symbol was not on typewriter keyboards in 1971.
- 7 ____ People were very excited about the first e-mail message.
- 8 ____ People used e-mail to communicate with friends in the 1970s.
- 9 ____ E-mail became popular when people started to use the Internet.
- 10 ____ Tomlinson became rich because he helped people communicate quickly on computers.

5 VOCABULARY CHECK

A Retell the story. Fill in the blanks with the correct words from the box.

achievement	e-mail	files	inventor	keyboards
monitors	network	project	solve	spam

Most people don't know Ray Tomlinson's name, but he was an important _____¹. Everyone uses _____², which was his important invention. Tomlinson was working at a time when computers were very large. People only had _____³ and _____⁴ at their desks. The computer was often in a different room. Before 1971, people could send messages to people if they shared the same computer. It was only possible for them to send _____⁵ to other computers – not messages.

Tomlinson figured out how to _____⁶ the problem. He used the @ symbol to direct a message to the right person on the right computer on any _____⁷. This was helpful because people could now work on the same _____⁸ from a different computer in a different city. Very few people used e-mail at that time, so no one paid very much attention to Tomlinson's _____⁹. There is one thing Tomlinson doesn't like about e-mail nowadays. He doesn't like to get _____¹⁰!

B Unscramble the words to complete the sentences.

- 1 Congratulations! Winning that race is a big _____.
(eamvthencei)
- 2 All the computers in the classroom are on one _____.
(wenrokt)
- 3 Do you know who the _____ of the lightbulb was?
(nrntiveo)
- 4 To use a computer, you need to type on a _____.
(bayorekd)
- 5 He spent two weeks on a science _____ for school. (jotepcr)

6 APPLYING READING SKILLS

Scanning for details means looking quickly at a reading to find specific information. When you scan, you need to think about what the information will look like. For example, are you looking for a number, a date, or the name of a person or place?

- A** Check (✓) the box for the type of information you are looking for: a name, a number, a date, etc. Then find the information in the reading, and underline it.

	NAME OF A PERSON	NAME OF A PLACE	A NUMBER	A DATE / YEAR
1980s				
Tomlinson				
180 billion				
Cambridge				
500				
1971				

- B** Practice scanning. Scan the reading "Write a Best Seller . . . on Your Cell Phone?" on pages 28-29, and find the following:

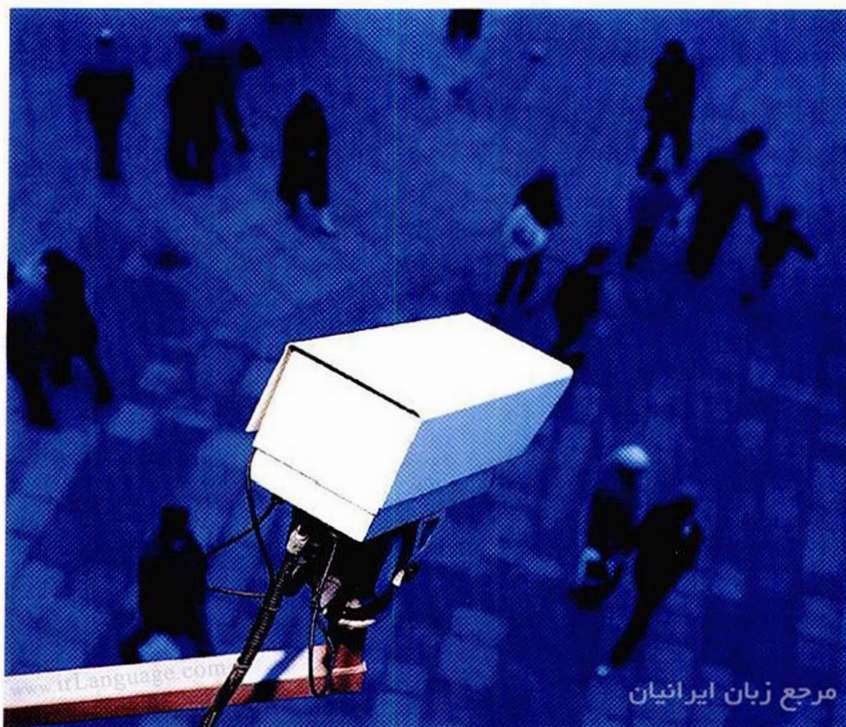
- 1 The name of a person who wrote a best-selling cell phone novel
- 2 The name of the best-selling cell phone novel that this person wrote
- 3 The number of people who read *Love Sky* on their cell phones
- 4 The year half of Japan's top ten best sellers began as cell phone novels
- 5 The name of the first novel
- 6 The names of three countries where people are writing cell phone novels

7 DISCUSSION

Discuss the following questions in pairs or groups.

- 1 Is e-mail important to everyone? Why or why not?
- 2 Could you live without e-mail? Explain your answer.
- 3 Is spam a problem for you? Why or why not?

I Saw It on the Internet



1 TOPIC PREVIEW

A Put a check (✓) next to things you share with other people on the Internet. Share your answers with your classmates.

- 1 ____ photos
- 2 ____ videos
- 3 ____ opinions
- 4 ____ news about yourself
- 5 ____ (your idea)

B Read the title of this chapter, look at the picture, and discuss the following questions.

- 1 What kinds of things can you find on YouTube or other video-sharing sites?
- 2 Some people think there are certain things on video-sharing sites that should not be there. Do you agree or disagree?
- 3 What do you think the reading is going to be about?

2 VOCABULARY PREVIEW

- A** Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Technology	Academic Word List	Law
text (v.) track (v.) upload	focus (on) (v.) tape (v.)	legal permission privacy (have) a right (to) sue

The chart shows selected words from the reading related to technology, law, and the Academic Word List (AWL). For more information about the AWL, see page 121.

- B** Fill in the blanks with words from Part A.

- You can't use words or pictures from a book without _____ from the publisher.
- They closed the door so that they could have some _____ for their conversation.
- She wants to _____ on the sunflowers in her photo of the garden.
- After you take photos, it's easy to _____ them to your computer.
- He didn't have his cell phone with him, so he couldn't _____ his friend.
- After the accident, they talked to a lawyer, but they decided not to _____ the driver of the other car.
- Every child has _____ to an education.
- The company started to _____ the money it spends on telephone calls.
- She took her video camera to the theater, but the guards didn't let her _____ the concert.
- You go to law school to get a/an _____ education.

Preview the questions in Reading Check Part A on page 44. Then read the story.

I Saw It on the Internet



- 1 Sean L.¹ wanted to give his wife a big surprise. He went online and bought a diamond ring for her. Two hours later, his wife texted him, "Who's the ring for?" Sean was very surprised. He was angry, too. How did she know about the ring? She wasn't the only one. In fact, all of his Facebook friends received the same news: Sean L. bought a gold diamond ring from overstock.com.
- 2 In Shanghai, China, a young couple said good-bye in a subway station. They kissed for a long time. They didn't see anyone, but someone saw them. Their private kisses became very public. Soon, millions of people all over the world also saw them kissing – on the Internet.
- 3 Alison C., 15, was out with a group of people in Dallas, Texas. One member of the group took a picture of her. A few months later, her photo appeared in an advertisement in Australia.
- 4 How did these private acts become public?
- 5 Sean was a member of Facebook. Facebook is a Web site where people can meet other people and communicate with their friends

¹ Sean L.: Sometimes writers use only the first initial of a person's name to protect the person's privacy.

and family. Facebook used a program called Beacon to track Sean's online purchases. Then Beacon posted the news for his Facebook friends.

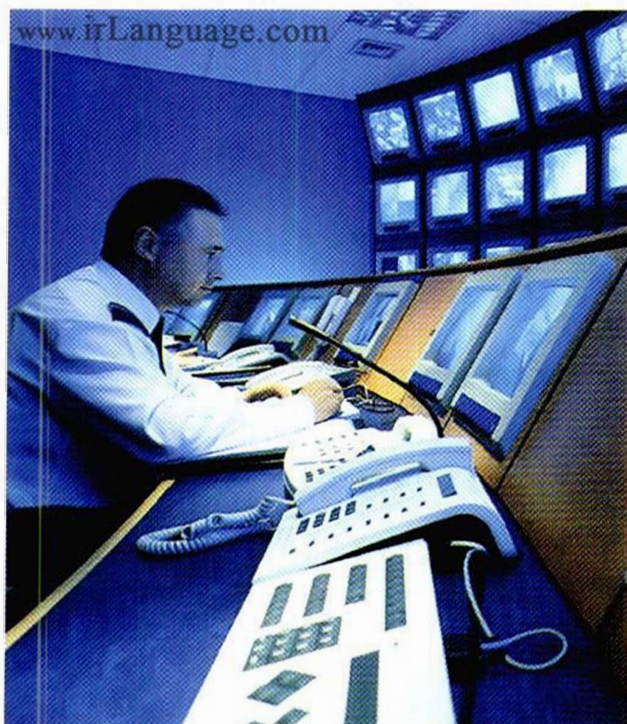
In Shanghai, a security video camera was taping the subway station. Guards were watching the monitor, and they focused on the couple. Then one of the guards uploaded the video to a video-sharing site.

In Dallas, the person who took Alison's photo uploaded his pictures on Flickr. Flickr is a photo-sharing site with more than a billion photos. A company in Australia saw the photo of Alison and used it in an advertisement. No one told Alison or asked her permission. How did she find out? On Flickr, of course. That's where she saw a photo of the ad.

Is there anything you can do when you lose your privacy on the Internet? Some people complain. For example, over 50,000 Facebook users complained about Beacon. They said, "Facebook is posting our private information without our permission." Facebook stopped using Beacon in this way.

In many countries, people have a legal right to privacy. When they lose their privacy, they can sue. Sean joined other Facebook users to sue Facebook. The Chinese couple sued the Shanghai subway. Alison's family sued the advertising company.

The Chinese subway company acted quickly. It fired the guards, apologized publicly, and offered the couple compensation.² The couple accepted the money. The other two cases are going to take more time. Sean and Alison may win in the end, but it's already too late. They lost their privacy with just one quick click.



² compensation: money to repay someone for a loss

4 READING CHECK

A Match the people to the events.

- | | |
|------------------------------|----------------------------------|
| 1 a couple in Shanghai _____ | a a person took a photo |
| 2 Alison C. _____ | b a group of people made a video |
| 3 Sean L. _____ | c a program tracked a purchase |

B Circle the letter of the best answer.

- 1 How did Sean's wife find out about the ring?
a Sean told her.
b She read it online.
c Sean's friends told her.
- 2 Which sentence is *not* true about the couple in the subway station?
a They were kissing.
b They didn't see anyone.
c No one saw them.
- 3 Who took a photo of Alison?
a a person she didn't know
b a person in Australia
c a person in her group
- 4 What is Beacon?
a a Web site
b an online store
c a tracking program
- 5 Why did many people see the couple kissing in the subway?
a The guards were watching the video.
b A guard put the video on the Internet.
c A lot of people were watching the security cameras.
- 6 What did Alison find out on Flickr?
a She could upload her photos there.
b Her photo was in an Australian advertisement.
c No one asked her permission to use her photo.
- 7 What can people do when they lose their privacy?
a They can advertise.
b They can sue.
c They can ask for permission.

5 VOCABULARY CHECK

A Retell the story. Fill in the blanks with the correct words from the box.

focused	legal	permission	privacy	right
sue	taped	texted	tracked	uploaded

In three recent cases, people lost their _____ when their private actions became public on the Internet. Sean L. bought a ring online for his wife. Two hours later, his wife _____ him to ask about the ring. She learned about it because a company _____ his purchase and reported it to his friends on Facebook.

In Shanghai, a security video camera _____ a subway station. Guards were watching the monitor, and they _____ on a couple who were kissing. One guard _____ the video to the Internet. The private kisses became very public.

An Australian company used a photo of Alison C. They didn't get her _____ to use the photo in an ad.

All of these people took _____ action. When they lost their privacy, they decided to _____. Sometimes people need to do this to keep their _____ to privacy.

B Some nouns and verbs often go together. Circle the nouns that often follow the verbs in bold. Sometimes, more than one answer is possible. irLanguage.com

- | | | | | |
|---|------------------|-----------|------------|----------------|
| 1 | to track | purchases | steps | costs |
| 2 | to upload | photos | a video | camera |
| 3 | to sue | action | legal | a company |
| 4 | to text | a phone | a friend | a photo |
| 5 | to tape | a movie | a computer | a conversation |

6 APPLYING READING SKILLS

Organizing information into a chart can help you see similarities and differences in the information in a reading.

A Complete the chart. Write the information below in the correct columns.

a photo the advertising company a purchase
Facebook A tracking system posted it on Facebook.
Someone found it on Flickr and used it in an advertisement.

	SEAN L.	ALISON C.
What was private?		
How did it become public?		
Who did they sue?		

B Find information in the reading to make a chart about the couple in Shanghai.

	THE COUPLE IN SHANGHAI
What was private?	
How did it become public?	
Who did they sue?	

7 DISCUSSION

Discuss the following questions in pairs or groups.

- 1 You're the judge! Do Sean and Alison have a right to privacy? Do the companies need to pay them money or apologize? Explain your answer.
- 2 Do you know anybody who lost their privacy on the Internet? If so, explain the situation.
- 3 When you buy something on the Internet or post photos, comments, or videos, do you worry about your privacy? Why or why not?

UNIT 2 WRAP-UP

VOCABULARY REVIEW

Chapter 4	Chapter 5	Chapter 6
Technology download • online • post (comments) • Web site	Technology inventor • monitor (n.) • solve (a problem)	Technology text (v.) • track (v.) • upload
Academic Word List participate • publisher • style	Academic Word List achievement • file (n.) • network • project	Academic Word List focus (on) (v.) • tape (v.)
Literature action • character • novel	Computer Science (send / check) e-mail • keyboard • spam	Law legal • permission • privacy • (have) a right (to) • sue

Find words in the chart above that match the definitions. Answers to 1–4 are from Chapter 4. Answers to 5–8 are from Chapter 5. Answers to 9–12 are from Chapter 6.

- 1 A person in a novel, play, movie, or television show: _____
- 2 Things that happen, for example, in a book or movie: _____
- 3 A place on the Internet: _____
- 4 A company or person that makes books or magazines:

- 5 An activity that you work on for a period of time: _____
- 6 Unwanted e-mail; usually e-mail advertisements: _____
- 7 Someone who creates something new: _____
- 8 Something important or difficult that you finished: _____
- 9 To follow someone's activities, often using technology:

- 10 To take someone to court; to take legal action: _____
- 11 To put in the center; to pay the most attention to: _____
- 12 Agreement that something you do is OK: _____

VOCABULARY IN USE

Work with a partner or small group, and discuss the questions below.

- 1 How often do you go **online**?
- 2 How often do you check **e-mail**? How often do you **text** people?
- 3 What kinds of things do you **upload**? What do you usually **download**?
- 4 Do you like to read comments that people **post** on Web sites? Do you ever post comments yourself?
- 5 When is it **legal** to use someone's photo in an advertisement?
- 6 Do you **tape** anything, or is taping old technology?
- 7 Do you have a favorite **novel**? What is it, and why do you like it?
- 8 Which activities do you like to **participate** in? Online chats? Sports? Others?

ROLE PLAY

Work with a partner. Student A is a newspaper reporter. Student B is one of the people below. Prepare questions. Ask and answer the questions. Then change roles.

- **The writer of a cell phone novel**
- **Ray Tomlinson**
- **Sean L.**

WRITING

Write a newspaper story about one of the people above. Use notes from the role play or your own ideas. As you write, answer the following questions.

- Who is the person?
- Why is this person in the news?
- Why is this information interesting or important?

WEBQUEST

Find more information about the topics in this unit by going on the Internet. Go to www.cambridge.org/readthis and follow the instructions for doing a WebQuest. Search for facts. Have fun. Good luck!

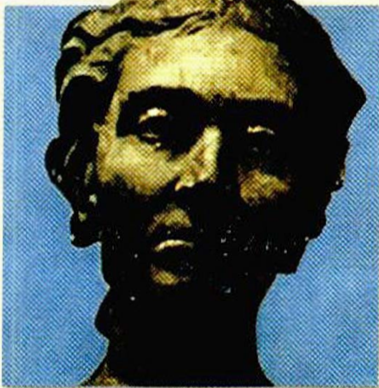
UNIT

3

Mathematics

www.irLanguage.com

Chapter 7



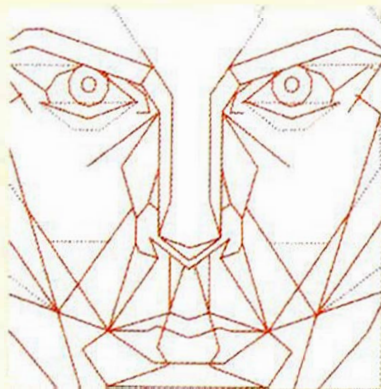
A Life with Numbers

Centuries ago in France, a woman decided to do what she loved – study mathematics.

Content areas:

- Mathematics
- Sociology

Chapter 8



The Geometry of Beauty

A surgeon finds a relationship between math and beauty.

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Content areas:

- Mathematics
- Cosmetology

Chapter 9



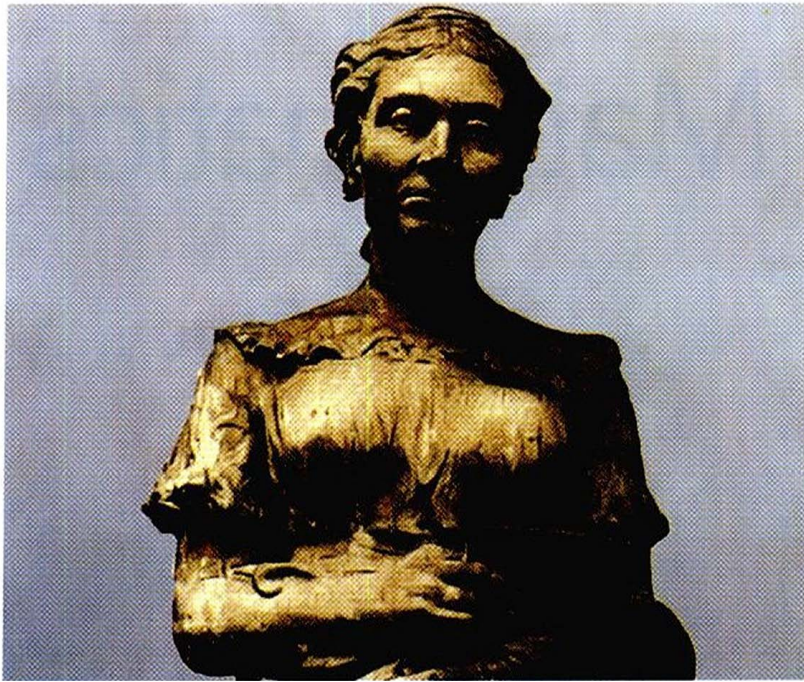
Math and Music: What's the Connection?

Researchers look at the connections between two very different subjects of study.

Content areas:

- Mathematics
- Music

A Life with Numbers



1 TOPIC PREVIEW

A In the eighteenth century in Europe, men and women usually studied different subjects in school. Write *M* if you think only men studied the subject. Write *W* if you think only women studied it. Write *MW* if you think both men and women studied it. Share your answers with your classmates.

___ Art and Music

___ Cooking

___ Languages

___ Literature

___ Mathematics

___ Science

B Read the title of this chapter, look at the picture, and discuss the following questions.

- 1 The woman in the picture is Sophie Germain. When do you think she lived? Why do you think so?
- 2 What do you use numbers for in your daily life?
- 3 What do you think the reading is going to be about?

2 VOCABULARY PREVIEW

- A** Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Mathematics	Academic Word List	Sociology
algebra calculus geometry mathematician	challenge (n.) contribution respond (to)	discrimination middle class prejudice

The chart shows selected words from the reading related to mathematics, sociology, and the Academic Word List (AWL). For more information about the AWL, see page 121.

- B** Fill in the blanks with words from Part A.

- 1 The student didn't know how to _____ to the teacher's question.
- 2 You study lines (=), circles (○), squares (□), and triangles (△) in the kind of math called _____.
- 3 A/an _____ is a person who studies the science of numbers.
- 4 When a woman does the same job as a man, and she gets less money, it is an example of _____.
- 5 Learning another language is often a/an _____. There are many new words and grammatical rules to remember.
- 6 _____ is a very high and difficult level of mathematics.
- 7 They all helped cook dinner. His _____ was the chocolate cake.
- 8 He didn't like his new boss, but he didn't know anything about her. He couldn't explain his strong feeling of _____.
- 9 They are not rich or poor. They have an average amount of money. They belong to the _____.
- 10 _____ is a mathematical word that comes from the Arabic language. You use it to solve problems such as $\frac{72}{x} = 8$.

Preview the questions in Reading Check Part A on page 54. Then read the story.

A Life with Numbers



Sophie Germain at age 14

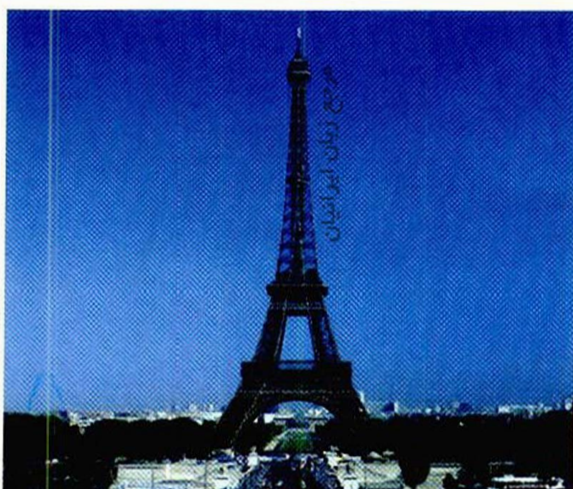
- 1 Imagine telling Einstein to stop studying physics. Imagine telling Picasso to stop painting. Could they stop doing the things they loved? This is what people tried to do to Sophie Germain.
- 2 Sophie's love was mathematics. She fell in love with it when she was only 13 years old. She found a book about Archimedes¹ and his love of geometry in her father's library. Then she read all the books about math she could find and decided to become a mathematician.
- 3 There were two problems. First, Sophie was born in eighteenth-century France. Second, Sophie was a girl from a middle-class family. It was very unusual for girls from the middle class to study math in the early eighteenth century in France.
- 4 Sophie's parents wanted her to be like other girls. When she studied math, they tried to stop her. Sophie didn't want to stop. She studied secretly at night, by candlelight, when her parents slept. Sophie's parents found out, and they took away her candles. That didn't stop Sophie. She found more candles. Finally, her parents decided to let Sophie study. It was too hard to stop her!

¹ Archimedes: A Greek mathematician and scientist who died in 212 BCE

When Sophie was 18 years old, a school for mathematicians opened in Paris. Sophie couldn't take classes there because it was for men only. However, she didn't let this discrimination against women stop her. She started writing letters to math professors at the school. She asked them questions, and she wrote about her ideas. However, she didn't sign her own name on the letters. She used a man's name, *Monsieur LeBlanc*,² a student at the school at one time. This idea worked, and the professors responded to her letters. After a while, one professor asked to meet the brilliant Monsieur LeBlanc. Imagine his surprise! Monsieur LeBlanc was a woman. The professor didn't tell anyone. He kept Sophie's secret.

Sophie continued to write to other mathematicians. She always signed her letters *Monsieur LeBlanc*. She met some of these experts, but they usually stopped helping her after a short time. Was it because she was a woman? No one is sure. However, we do know one thing: There was strong prejudice against educated women in Sophie's time. This created a difficult challenge, but it didn't stop her.

Sophie continued to study. She taught herself other kinds of math, such as algebra and calculus. She is famous for her excellent work on a difficult math problem³ that was a challenge for many other mathematicians.



Sophie is also famous for her studies of metal as a building material. Years later, engineers used her ideas to build skyscrapers, such as the Eiffel Tower in Paris, Sophie's hometown.

Today, on the base of the Eiffel Tower, there are 72 names of brilliant French scientists and mathematicians. These people all made great contributions to the world. However, there's one important name that's missing: Sophie Germain.

² *Monsieur*: French word for "Mr."

³ Fermat's Last Theorem

4 READING CHECK

A Match the people to the actions.

- | | |
|-------------------------|---|
| 1 Sophie's parents ____ | a responded to Sophie's letters |
| 2 math professors ____ | b used Sophie's ideas to build skyscrapers |
| 3 engineers ____ | c tried to stop Sophie from studying math |

B Circle the letter of the best answer.

- 1 What country is Sophie Germain from?
a England **b** France **c** the United States
- 2 Sophie lived in the ____ .
a 1700s **b** 1800s **c** 1600s
- 3 Sophie first became interested in mathematics when she ____ .
a learned to read **b** talked to her father **c** read about a mathematician
- 4 Why was it a problem for Sophie to study mathematics?
a Girls from the middle class didn't usually study mathematics in her time.
b Her parents didn't have enough money.
c Her parents didn't have enough candles.
- 5 When did Sophie study?
a at night
b all the time
c after school
- 6 How did Sophie get help from the professors at the school for mathematics?
a She visited the professors in their offices.
b She wrote the professors letters.
c She took the professors' classes.
- 7 Why did the professors respond to Sophie's letters?
a She became a mathematics expert.
b She wore men's clothing.
c She used a man's name.
- 8 Sophie is famous for ____ .
a building the Eiffel Tower
b studying algebra and calculus
c working on a difficult math problem

5 VOCABULARY CHECK

A Retell the story. Fill in the blanks with the correct words from the box.

algebra	calculus	challenges
contribution	geometry	mathematician
middle class	prejudice	responded

When Sophie Germain was very young, she read about Archimedes, the famous _____, and his love of _____. Sophie decided to study math, too, but there were many difficult _____. For example, in Sophie's time, it was unusual for girls from the _____ to go to school. When a new school for mathematicians opened, women couldn't go there. Sophie wrote to the professors at the school instead, and some of the professors _____ to her letters. Sophie continued to study different kinds of math, such as _____ and _____. She used her knowledge of mathematics to study metal, too. This work was an important _____ to the building of the Eiffel Tower in Paris. Sophie's name is not on the Eiffel Tower with the other scientists and mathematicians. Maybe this is because of the _____ against women at the time.

B Fill in the blanks with the correct form of the word.

Verb	Noun
contribute	contribution
discriminate	discrimination
respond	response

- 1 The dinner cost \$80. Everyone needs to _____ \$20.
- 2 He asked her to marry him, but she didn't _____.
- 3 The company doesn't give jobs to women. That's _____.
- 4 Picasso made a great _____ to modern art.
- 5 She wrote him a letter, but she didn't get a _____.

6 APPLYING READING SKILLS

Asking and answering "Why?" questions about information in a reading can help you develop critical thinking and reading skills.

- A** Look back at the reading to find the answers to these "Why?" questions. Compare your answers with a partner.

Why was it so difficult for Sophie Germain to study mathematics



Why did Sophie's parents try to make her stop studying mathematics



Why did Sophie sign her letters *Monsieur LeBlanc*



- B** Practice using "Why?" questions. Write two or more "Why?" questions about the reading. Then ask and answer the questions with a partner.

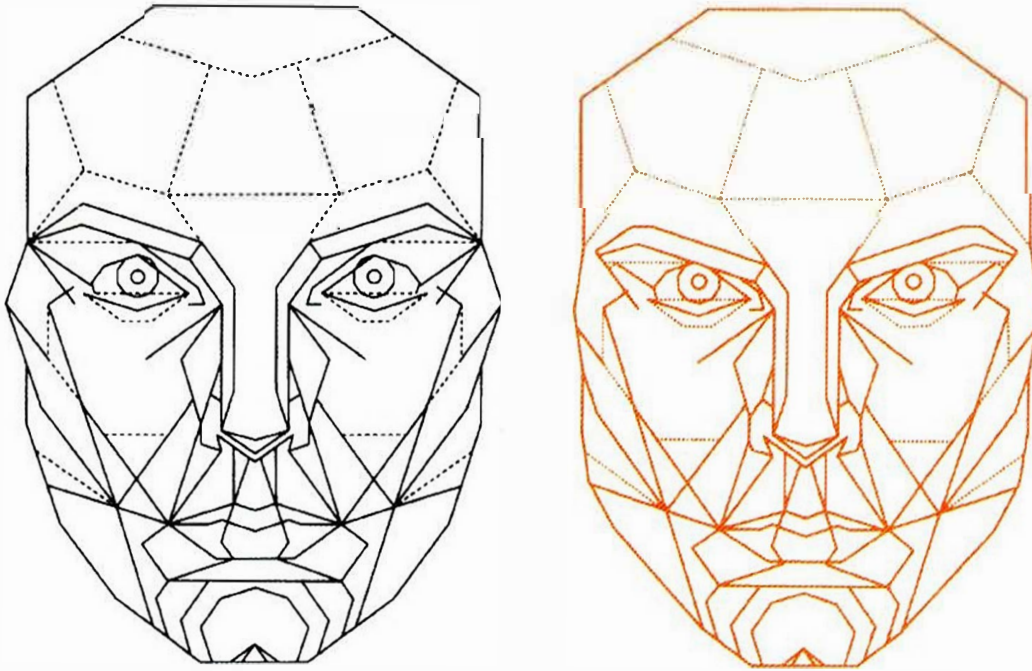
- 1 Why _____ ?
_____ ?
- 2 Why _____ ?
_____ ?

7 DISCUSSION

Discuss the following questions in pairs or groups.

- 1 In many countries today, more men than women study math and engineering. Why do you think this is true?
- 2 What professions use mathematics? Make a list.
- 3 The reading discusses discrimination against women. What are some other kinds of discrimination?

The Geometry of Beauty



1 TOPIC PREVIEW

A What makes a face beautiful? Put a check (✓) next to the two things you think are most important. Then add your own idea. Share your answers with your classmates.

- 1 ____ the skin
- 2 ____ the mouth
- 3 ____ the eyebrows
- 4 ____ the eyes
- 5 _____ (your idea)

B Read the title of this chapter, look at the picture, and discuss the following questions.

- 1 What do you study in geometry?
- 2 What do you think is the connection between the picture and the chapter title?
- 3 What do you think the reading is going to be about?

2 VOCABULARY PREVIEW

- A** Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Mathematics	Academic Word List	Cosmetology
height shape width	feature function (v.) guideline ratio	cosmetic surgeon handsome plastic surgery

The chart shows selected words from the reading related to mathematics, cosmetology, and the Academic Word List (AWL). For more information about the AWL, see page 121.

- B** Write the word from Part A next to its definition.

- 1 A doctor who does a medical operation to make a part of the body more beautiful: _____
- 2 A part of something, such as a nose on a face: _____
- 3 The distance across something, from one side to the other:

- 4 The distance from the top to the bottom of something:

- 5 A relationship between two numbers or amounts. For example, in a group of ten men and five women, the _____ of men to women is two to one.
- 6 A square (□) or a triangle (△) is an example of this:

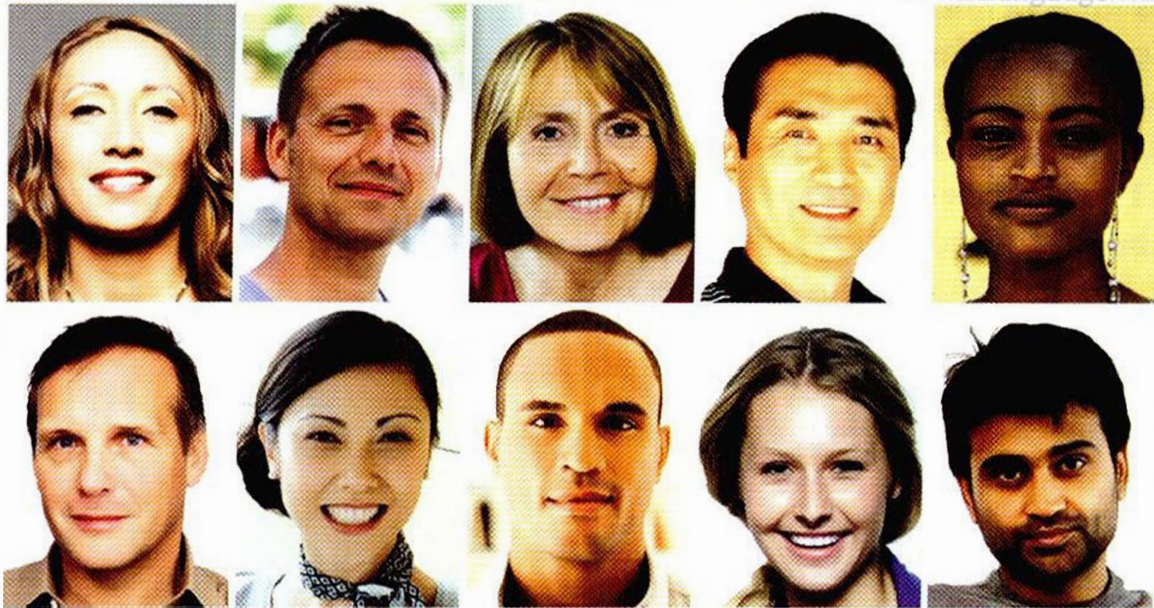
- 7 Good-looking; attractive (usually used to describe men):

- 8 Work in a certain way, usually for a special purpose:

- 9 Information that shows you how to do something: _____
- 10 A medical operation to fix a part of the body: _____

Preview the questions in Reading Check Part A on page 61. Then read the story.

The Geometry of Beauty



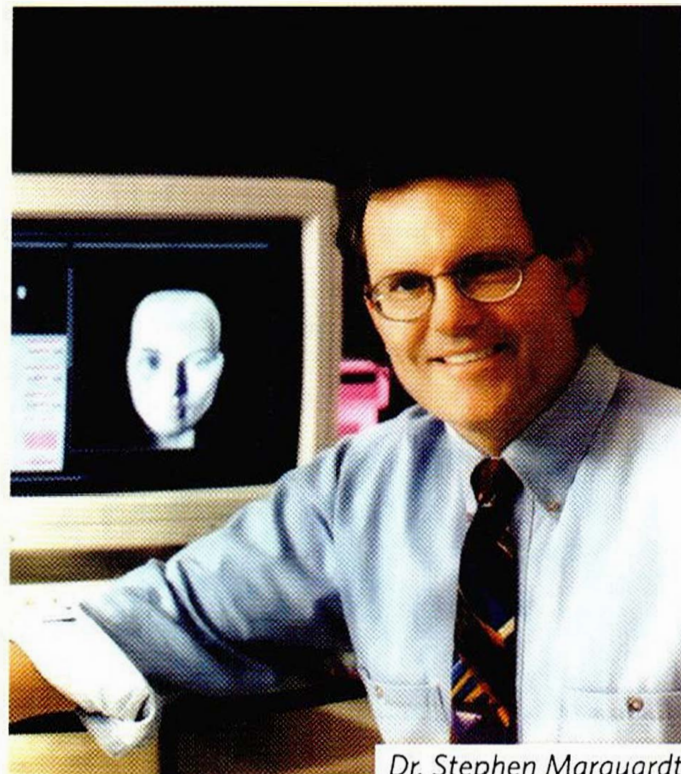
What makes a face beautiful? Is it the size and shape of the mouth, nose, and eyes? Is it the shape of the face? Is beauty different for men and women, or for people from different cultures? We all know a beautiful face when we see one. What creates that physical beauty? Dr. Stephen Marquardt has an answer. He says that beauty is mathematical. 1

Dr. Marquardt is a surgeon from California. His patients are people with deformed¹ faces. Some of his patients can't eat or breathe easily because their noses or mouths don't function normally. Dr. Marquardt does plastic surgery to correct these problems. 2

Some patients' problems were very difficult to fix. Dr. Marquardt needed some guidelines to help him be successful. So, he started to do research. He wanted to know why some faces are beautiful. What did he find? He found that beauty is not a mystery at all. It's just a simple ratio. The ratio that defines beauty is 1:1.618 (1 to 1.618). 3

¹ deformed: not having the usual form

4 The ratio 1:1.618 shows the relationship between different features on a beautiful face. For example, when a face is beautiful, the mouth is 1.618 times wider than the nose. The width of the nose is 1.618 times the width of the tip² of the nose. The ratio is even true for teeth: The width of the two front teeth is 1.618 times wider than the height of one of the teeth. What about the measurements of other features, such as the chin and the mouth, or the eyes and the nose? The ratio never changes. It's always the same for all the features on a beautiful or handsome face.



Dr. Stephen Marquardt

- 5 Dr. Marquardt used the ratio to make a mask. The mask has many lines and geometric shapes. When the doctor put the mask over pictures of beautiful faces, the faces all fit the mask perfectly. Then he put the mask on less beautiful faces. These faces didn't fit the mask.
- 6 Is beauty the same all over the world? Yes! When the mask is put over pictures of people from many different places, the ratio still works! Beautiful faces from Africa, Asia, Europe, and North and South America all fit the same mask.
- 7 Other surgeons learned about Dr. Marquardt's important findings. Plastic surgeons can use the ratio to repair deformed faces and help people live healthier lives. Cosmetic surgeons can also use it to help make people more beautiful.
- 8 Would you like to try Dr. Marquardt's mask? Does your face have the geometry of beauty? You can find out. The mask is online.

² tip: the point at the end of the nose

4 READING CHECK

A Circle the letter of the best answer.

- 1 Dr. Marquardt uses geometry to help him ____ .
a fix faces
b solve math problems
c paint beautiful faces
- 2 Dr. Marquardt's beauty ratio works for people from ____ .
a Africa and Asia
b Europe and the Americas
c all over the world
- 3 Dr. Marquardt's face mask shows the relationships between ____ .
a some features
b the eyes, nose, and mouth
c all of the features

B Are these sentences true or false? Write *T* (true) or *F* (false).

- 1 ____ Dr. Marquardt is a mathematician.
- 2 ____ Dr. Marquardt works on people's faces and bodies.
- 3 ____ Dr. Marquardt used a ratio to create a mask.
- 4 ____ Dr. Marquardt believes that his mask defines beauty.
- 5 ____ Dr. Marquardt's mask shows the relationship between the face and other parts of the body.
- 6 ____ Dr. Marquardt's work helps some people live healthier lives.
- 7 ____ Other surgeons are using the ratio 1:1.618 to help make people more beautiful.
- 8 ____ Only Dr. Marquardt's patients can try the mask on their faces to see how it fits.
- 9 ____ The mask shows that the idea of beauty is the same all over the world.
- 10 ____ Dr. Marquardt's work shows that to understand beauty you need to study math.

5 VOCABULARY CHECK

A Retell the story. Fill in the blanks with the correct words from the box.

features	function	guidelines
handsome	height	plastic surgery
ratio	shapes	width

Dr. Marquardt fixes deformed faces. These faces don't look normal, and some of the _____ on these faces don't _____ correctly. To fix these faces, he does _____ on them.

Dr. Marquardt decided to study beautiful faces to help him. He asked himself, "Are the sizes of the parts of the face important?" To answer this, he measured the _____ and _____ of different parts of the face, such as the nose and the eyes. He found that the relationships between all the parts of a beautiful or _____ face fit a _____ of 1:1.618.

Dr. Marquardt used this information to make a mask. The mask has many lines and geometric _____. The mask gives surgeons _____ to help them in their work.

B Circle all the words that belong to each category in bold on the left.

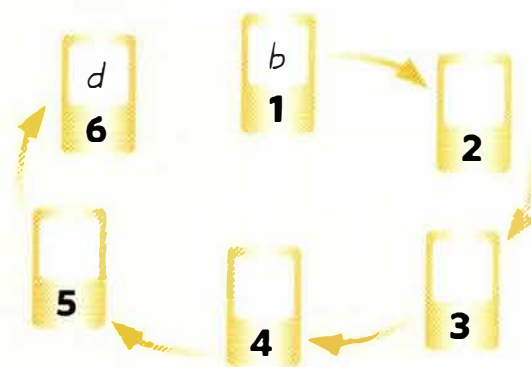
- | | | | | |
|-----------------------------|-----------|----------|----------|---------|
| 1 features of a face | mouth | nose | emotions | eyes |
| 2 types of surgeons | physical | cosmetic | plastic | feature |
| 3 shapes | circle | square | triangle | width |
| 4 measurement words | function | height | width | size |
| 5 mathematics | guideline | geometry | shape | ratio |

6 APPLYING READING SKILLS

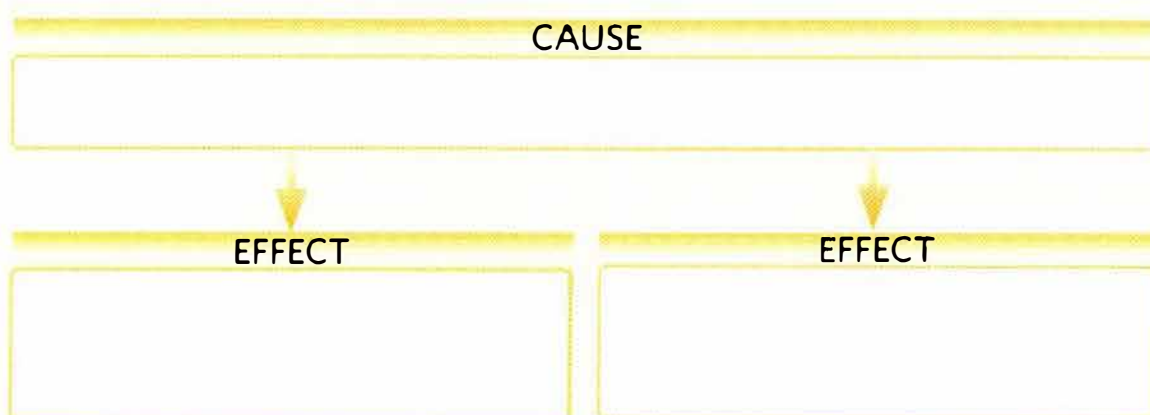
Readings often include causes and effects. **Finding causes and effects** will help your understanding of a reading. Sometimes you can find a chain of causes and effects. In other words, one event causes another event that causes another event, and so on.

- A** Read the list of events. Find the chain of causes and effects. Write the letter of each event in the diagram. The first cause and the last effect are done for you.

- a** He studied beautiful faces.
- b** Dr. Marquardt's patients' faces don't look normal.
- c** He found that the ratio 1:1.618 defines beauty.
- d** He created a mask using the ratio.
- e** He decided he needed "beauty" guidelines to help him in his surgery.
- f** He does surgery to repair the faces.



- B** Practice finding causes and effects. Look back at paragraph 7 of the reading. Find one cause and its two effects, and write them in the diagram.



7 DISCUSSION

Discuss the following questions in pairs or groups.

- 1 In addition to plastic and cosmetic surgery, what are some ways that doctors use mathematics in their work?
- 2 What is your idea of beauty? Does it include other things besides the beauty of the human face? Explain your answer.
- 3 Some people think that in the world today, there is too much focus on what a person looks like. Do you agree or disagree? Why?

Math and Music: What's the Connection?



1 TOPIC PREVIEW

A Put a check (✓) next to the sentences that are true for you. Share your answers with your classmates.

- 1 ____ I love music.
- 2 ____ I love mathematics.
- 3 ____ Mathematics is easy for me.
- 4 ____ Mathematics is difficult for me.
- 5 ____ I study both music and mathematics.

B Read the title of this chapter, look at the picture, and discuss the following questions.

- 1 Who is the man in the picture? What is he doing? Why is he famous?
- 2 Do you think it is important for all children to study music? Why or why not? Did you study music?
- 3 What do you think the reading is going to be about?

2 VOCABULARY PREVIEW

- A** Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Mathematics

divided (into)
equal (*adj.*)
fraction
pattern

Academic Word List

coincidence
sequence
similarity

Music

beat (*n.*)
musical instrument
musical note

The chart shows selected words from the reading related to mathematics, music, and the Academic Word List (AWL). For more information about the AWL, see page 121.

- B** Fill in the blanks with words from Part A. irLanguage.com

- 1 The pizza is _____ into six pieces.
- 2 They are both wearing the exact same shirt today. Is that a/an _____, or did they plan to do that?
- 3 “9” is the next number in this _____ : 1, 3, 5, 7 . . .
- 4 *One-quarter* and *0.25* are two ways to write the _____ “ $\frac{1}{4}$.”
- 5 The piano isn’t the only _____ she plays. She also plays the violin.
- 6 We danced to the _____ of the music.
- 7 She sings very well, but she can’t reach the highest _____ in the song.
- 8 Can you see a/an _____ in these numbers:
222422242224?
- 9 The father and son both like to read, but that’s only one _____ between them. They both like to swim and to cook, too.
- 10 He cut the cake into five _____ parts so that everyone’s piece was the same size.

Preview the questions in Reading Check Part A on page 68. Then read the story.

Math and Music: What's the Connection?



- 1 Eight middle school students recently won a math competition in Los Angeles, California. The winners share a skill with California's most successful engineers. Can you guess what it is? According to a 1989 study, the best engineers in the Silicon Valley¹ play musical instruments. This is true for the math students, too. Is this a coincidence? Some scientists don't think so. They think there are good reasons.
- 2 Think about the similarities between math and music. First, they both use sequences and patterns. In this sequence of numbers: 5, 8, 11, 14, 17, . . . , do you see the pattern? In other words, can you guess what number goes next?
- 3 Now think of some music you like to listen to. Every piece of music is a sequence of musical notes. When you listen to the music, do you hear any parts repeat? The repeating parts form a pattern in the sequence of notes.

¹ *Silicon Valley*: an area in northern California where many people work in the computer industry and other technology industries

What's special about the organization of music? It's mathematical! Every piece of music is divided into small equal parts called measures. Each measure has a certain number of beats. A beat can be a whole beat or a part of a beat, such as one half of a beat, one quarter of a beat, or one eighth of a beat. The parts of a beat are like mathematical fractions.

Scientists studied the similarities between math and music. They learned that both musicians and mathematicians think about patterns and sequences at the same time. This gave the scientists an idea: "Maybe studying music can help people understand math." They did research to learn more.

One researcher looked at seven-year-old children. The children took piano lessons and also studied fractions. Surprisingly, they understood the fractions! This was unusual. Schoolchildren in the United States normally can't understand fractions until they are eleven years old. Maybe the piano lessons helped the children think like mathematicians.

The U.S. Department of Education did another study. More than 25,000 middle school and high school students took a math test. Half of the students played a musical instrument and half

did not. The musicians did much better on the test. Other researchers looked at the SAT² scores of high school juniors and seniors. Some students studied music, and others did not. Again, the study showed that the students who studied music scored almost 45 points higher on the math section of the test.

Scientists continue to study the connections between math and music. They certainly don't have all the answers, but they do have a suggestion: To improve your work in math, try studying music.



² SAT: a test that students need to take in the United States before they can enter college

4 READING CHECK

A Are these sentences true or false? Write *T* (true) or *F* (false).

- 1 ____ Good math students often play musical instruments.
- 2 ____ The organization of music is mathematical.
- 3 ____ Studying math makes people more musical.

B Circle the letter of the best answer. irLanguage.com

- 1 The students who won the math competition all ____ .
a want to be engineers
b play a musical instrument
c live in Silicon Valley
- 2 Math and music are similar in ____ way.
a more than one **b** one **c** no
- 3 In math, numbers repeat, and in music ____ repeat.
a numbers **b** sounds **c** fractions
- 4 Each musical measure has a certain number of ____ .
a beats **b** fractions **c** widths
- 5 What did scientists want to find out?
a Can studying piano help people take tests?
b Can studying fractions help people learn music?
c Can studying music help people learn math?
- 6 Scientists were surprised that seven-year-old children were able to ____ .
a learn how to play the piano
b read music
c understand fractions
- 7 The students who studied music got ____ scores on a math test than the other students.
a higher
b the same
c lower
- 8 Scientists ____ that studying music helps students learn math.
a are sure
b believe
c don't think

5 VOCABULARY CHECK

A Retell the story. Fill in the blanks with the correct words from the box.

beats	coincidence	divided	equal
fractions	musical instruments	musical notes	patterns
sequence	similarities		

Scientists noticed that both good math students and many engineers play _____. Is there a reason, or is it just an interesting _____? Scientists decided to study the _____ between music and math.

First, they saw that every piece of music is a/an _____ of _____ (for example, C, D, E, F, G). Music is also _____ into _____ parts called measures. Each measure has a certain number of _____. They can be whole, or they can be parts of the whole, such as $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$. In this way, they are like _____. Most music also has repeating parts, or _____.

B Some words are often used with certain prepositions. Fill in the blanks with prepositions from the box. You can look back at the reading for help.

between into of to

- 1 One piece of a pie is just a fraction _____ the whole pie.
- 2 1, 2, 3, 4, 5 is a sequence _____ numbers.
- 3 There are many similarities _____ music and mathematics.
- 4 The song is divided _____ two parts: one part for women to sing and one part for men to sing.
- 5 Six plus seven is equal _____ thirteen.

6 APPLYING READING SKILLS

Finding main ideas is a key reading skill. Each paragraph in a reading usually has a main idea. When you can find each main idea, it shows that you understand the most important parts of a reading.

A Look back at the reading, and find the correct paragraph for each main idea.

MAIN IDEA	PARAGRAPH
The organization of music is mathematical.	Paragraph ____
Musical teenagers do well on math tests.	Paragraph ____
Piano lessons help children with fractions.	Paragraph ____
Scientists had an idea for research.	Paragraph ____

B Circle the letter of the best main idea for each paragraph.

1 Paragraph 1

- a Middle school students want to be engineers.
- b Good math students and many engineers play musical instruments.

2 Paragraph 2

- a There are similarities between music and math.
- b There are similarities between sequences and patterns.

3 Paragraph 3

- a Some music has a pattern.
- b There are patterns and sequences in music.

4 Paragraph 8

- a Scientists have advice for math students.
- b There are many connections between math and music.

7 DISCUSSION

Discuss the following questions in pairs or groups.

- 1 Why is it important for children to study mathematics?
- 2 Can you play a musical instrument? If so, are you also good at math?
- 3 Talk about someone you know who is good at math. Is that person also a good musician? What other skills does he or she have?

UNIT 3 WRAP-UP

VOCABULARY REVIEW

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Chapter 7	Chapter 8	Chapter 9
Mathematics	Mathematics	Mathematics
algebra • calculus • geometry • mathematician	height • shape • width	divided (into) • equal (adj.) • fraction • pattern
Academic Word List	Academic Word List	Academic Word List
challenge (n.) • contribution • respond (to)	feature • function (v.) • guideline • ratio	coincidence • sequence • similarity
Sociology	Cosmetology	Music
discrimination • middle class • prejudice	cosmetic surgeon • handsome • plastic surgery	beat (n.) • musical instrument • musical note

Find words in the chart above that match the definitions. Answers to 1-4 are from Chapter 7. Answers to 5-8 are from Chapter 8. Answers to 9-12 are from Chapter 9.

- 1 A person who is very skilled in the study of numbers: _____
- 2 To give an answer to a question: _____
- 3 The kind of mathematics that is about lines and shapes: _____
- 4 A group of people who are not very rich or very poor: _____
- 5 A word meaning “beautiful,” often used to describe a man: _____
- 6 How high or tall something or someone is: _____
- 7 An operation to correct a problem in a part of the body: _____
- 8 A rule or a piece of advice about how to do something: _____
- 9 The same in amount or size: _____
- 10 Each of the different sounds in a song or a piece of music: _____
- 11 A number that is less than 1, for example, $\frac{1}{2}$ or $\frac{1}{4}$: _____
- 12 The order of things or events: _____

VOCABULARY IN USE

Work with a partner or small group, and discuss the questions below.

- 1 When you meet a new person, which facial **feature** do you usually notice first?
- 2 Do you think it's useful to study **algebra**? Why or why not?
- 3 What are some **similarities** between you and your partner(s)? For example, think about clothing, personality, or likes and dislikes.
- 4 What **musical instruments** do you like to listen to?
- 5 What kinds of music are good for dancing because of the **beat**?
- 6 What are some **challenges** for you in learning English? What about other subjects?
- 7 Do you think there is **discrimination** against older people today? Why or why not?
- 8 What **contribution** can you make to your school, workplace, or community?

ROLE PLAY

Work with a partner. Choose one of the people below from the stories. Student A is a newspaper reporter. Student B role-plays the person. Prepare questions. Ask and answer the questions. Then change roles.

- **Sophie Germain's mother**
- **Dr. Marquardt**
- **An excellent math student**

WRITING

Write about mathematics and you. Answer the following questions.

- Is mathematics important in your life? Why or why not?
- What kinds of math did you enjoy studying the most? The least?
- Would you like to learn any other kind of math? If so, what kind and why?

WEBQUEST

Find more information about the topics in this unit by going on the Internet. Go to www.cambridge.org/readthis and follow the instructions for doing a WebQuest. Search for facts. Have fun. Good luck!

UNIT 4

Business

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Chapter 10



Accidental Inventions

Can a multimillion-dollar business idea begin as an accident?

Content areas:

- Business
- Science

Chapter 11



Names for Sale

Buying and selling Web site names is big business.

Content areas:

- Business
- Information Technology

Chapter 12



The Queen of Trash

A successful businesswoman made billions of dollars from trash.

Content areas:

- Business
- Environmental Studies

Accidental Inventions



1 TOPIC PREVIEW

A Read the list of five inventions from the last 150 years. Which do you think is the most important and why? Number your choices in order from 1 to 5. Share your answers with your classmates.

- _____ the computer
- _____ the television
- _____ the telephone
- _____ the refrigerator
- _____ the car

B Read the title of this chapter, look at the picture, and discuss the following questions.

- 1 What are some other inventions from the last 150 years? Why do you think they are important?
- 2 What does *accidental* mean? Which inventions in the picture do you think were accidental?
- 3 What do you think the reading is going to be about?

2 VOCABULARY PREVIEW

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- A** Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Business	Academic Word List	Science
brand manufacturer market (v.) product	enormous global	discover laboratory melt radar

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The chart shows selected words from the reading related to business, science, and the Academic Word List (AWL). For more information about the AWL, see page 121.

- B** Write the word from Part A next to its definition.

- 1 Very, very large: _____
- 2 Change to a liquid: _____
- 3 A company that makes large amounts of things: _____
- 4 Something that people make in order to sell it: _____
- 5 A system for tracking things, such as airplanes or ships:

- 6 A type of product that a particular company makes:

- 7 Including the whole world: _____
- 8 Find something for the first time: _____
- 9 Try to sell something: _____
- 10 A room or building where scientists work: _____

Preview the questions in Reading Check Part A on page 78. Then read the story.

Accidental Inventions



Dr. John Pemberton

- 1 Did you know that many inventions began as accidents? Some of these accidents even became big business ideas. They gave us products that people all over the world use every day.
- 2 In 1886 in the United States, a pharmacist¹ named Dr. John Pemberton tried to invent a medicine. Pemberton wanted a cure for headaches. He mixed several ingredients together. No one knows exactly what he did. The mixture was a mystery, but it tasted delicious!
- 3 Pemberton took the mixture to a drugstore. The drugstore sold the medicine as a drink for a few cents a glass. Pemberton and a partner started a company to make and sell the drink. However, the business didn't make much money. Then a smart businessman named Asa Candler bought the company. Candler made the business much more successful. The company grew, and it sold the drink around the world.
- 4 What happened to the mysterious headache cure? It's now a global product. It's one of the most famous brands in the world: Coca-Cola®. The Coca-Cola Company markets the drink in 200 countries. It sells more than 1.6 billion drinks every day.
- 5 An accident with a candy bar became another business idea in the United States. It happened in 1946. Percy Spencer, an

¹ pharmacist: a person who prepares and sells medicines

engineer, put a candy bar in his jacket pocket. Then he went to work. That day, he was testing a magnetron in his company's laboratory. The company used magnetrons to make radar systems. A magnetron is a device² that produces microwaves. These are short waves of energy that cause things to heat up.

Spencer stood near the magnetron. He turned it on. Suddenly, something very strange happened. The candy bar in his pocket melted! Spencer thought, "Maybe I could try this with other foods." First, he put little pieces of dried corn near the magnetron. Soft, white, puffy popcorn flew all around the room. Then he put an egg next to the magnetron. It heated up quickly and exploded. Spencer got hot yellow egg yolk all over his face! Some of Spencer's experiments were messy, but he discovered a new way to cook. What did he invent? The microwave oven.

The early microwave ovens were enormous. They were about 5½ feet (1.7 meters) tall, and they weighed over 750 pounds (340 kilograms). They cost about \$5,000 each. They were only good for restaurant use. Today, manufacturers make small, lightweight microwave ovens that are much cheaper than the early ones. These days, over 80 percent of homes in the developed world have a microwave oven.

Coca-Cola® and the microwave oven were lucky accidents. There are other examples, too. Did you know that the invention of plastic was an accident? The Post-it® note is another example. Now people use millions of these small sticky pieces of paper in offices and homes around the world.

Will other accidents bring us successful business ideas in the future? Who knows? Maybe a lucky scientific accident is happening somewhere in the world right now!



Percy Spencer

² device: an object that people make for a special use

4 READING CHECK

A Match the person to the action.

- | | |
|------------------|---|
| 1 Pemberton ____ | a He discovered a new way to cook. |
| 2 Candler ____ | b He wanted a cure for headaches. |
| 3 Spencer ____ | c He made Coca-Cola® a successful company. |

B Circle the letter of the best answer.

- 1 Dr. John Pemberton was ____ .
a an engineer **b** a pharmacist **c** a drugstore owner
- 2 Who bought Pemberton's company?
a a drugstore owner **b** Asa Candler **c** John Pemberton's partner
- 3 What happened to Pemberton's invention?
a It's now a famous drink.
b It's now a famous headache cure.
c No one knows what happened to it.
- 4 What was Percy Spencer doing one day at work in 1946?
a He was testing radar.
b He was testing airplanes.
c He was testing a magnetron.
- 5 What happened to Spencer's candy bar?
a It melted.
b It exploded.
c It flew around the lab.
- 6 What did Spencer do after he saw the melted candy bar? irLanguage.com
a He sold the machine to a restaurant.
b He did experiments with other foods.
c He made lunch.
- 7 How were early microwave ovens different from today's microwave ovens?
a They were bigger.
b They cost less.
c Restaurants didn't use them.
- 8 What was another accidental invention?
a candy bars
b popped corn
c plastic

6 APPLYING READING SKILLS

Understanding the order of events in a reading means that you know what happens first, second, third, and so on. A good idea is to make a list of the events in order, and number the first event 1, the second event 2, and so on.

A Complete the list to show the history of Coca-Cola®. Write the events in the correct order from 1 to 5.

- Pemberton started a business.

1 *Pemberton invented a headache cure.*

- Today, Coca-Cola® markets the drink around the world.

2

- Candler bought the business and made it successful.

3

- Pemberton invented a headache cure.

4

- Pemberton took his cure to a drugstore.

5

B Read these events in the history of the microwave oven. Write them in the correct order on a separate piece of paper.

a Spencer tested a magnetron.

b Spencer discovered a new way to cook.

c Spencer experimented with other foods.

d Spencer went to work with a candy bar in his pocket.

e The candy bar melted.

7 DISCUSSION

Discuss the following questions in pairs or groups.

- 1 Why do you think Coca-Cola® and the microwave oven became successful products?
- 2 What kind of people are inventors? For example, why did Spencer do more experiments with food after his chocolate bar melted?
- 3 What new product do you want to invent? Describe it. What will you name it?

Names for Sale



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1 TOPIC PREVIEW

A The name of a Web site functions as an address for the site. Look at this list of Web site names. Put a check (✓) next to the best names. Why do you think they are good names? Share your answers with your classmates.

- _____ pizza.com
- _____ nufrenz.com
- _____ 123cd.com
- _____ cars.com
- _____ shop4everythinghere.com

B Read the title of this chapter, look at the picture, and discuss the following questions.

- 1 What are your favorite Web sites? Why do you like them?
- 2 What kinds of things do people buy and sell on the Internet?
- 3 What do you think the reading is going to be about?

2 VOCABULARY PREVIEW

- A** Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Business	Academic Word List	Information Technology
fee investor profit (n.) real estate value (n.)	predict register (v.)	click (on) (v.) domain name search engine

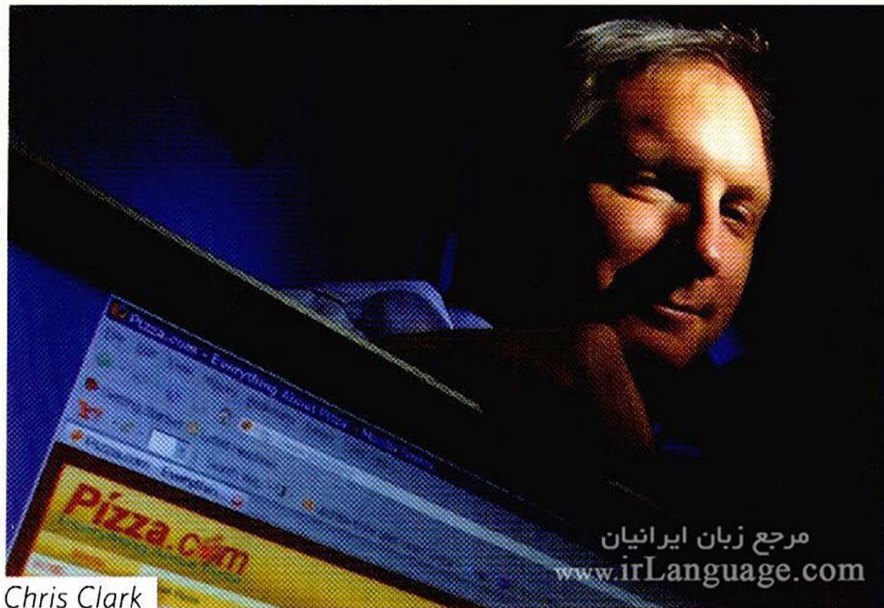
The chart shows selected words from the reading related to business, information technology, and the Academic Word List (AWL). For more information about the AWL, see page 121.

- B** Fill in the blanks with words from Part A.

- 1 Not many people are buying houses this year. It's not a good time to sell _____.
- 2 You have to pay a small _____ to keep a Web site.
- 3 Google is a popular _____. It helps you find information on the Internet.
- 4 The _____ gave him money to develop his business.
- 5 The _____ of land in that town is high. People pay a lot of money for it.
- 6 Type a topic in the search box, and _____ on "Search."
- 7 When you _____ a Web site name, you list it on the Internet.
- 8 Raul bought a house for \$200,000. Then he sold it for \$350,000. He made a/an _____ of \$150,000!
- 9 It's not easy to _____ the weather, but sometimes clouds can help us guess.
- 10 A/an _____ is the name of a Web site.

Preview the questions in Reading Check Part A on page 85. Then read the story.

Names for Sale



Chris Clark

What is a name worth? A lot of money, when it's a Web domain name like pizza.com. Chris Clark created the name pizza.com in 1994. He didn't plan to sell pizza. He didn't even have a Web site! For the next 14 years, Clark paid only \$20 a year to keep the Web site name. Then in 2008, someone bought the name pizza.com from him for \$2.6 million.

Anyone can create a domain name and pay a fee to register it. Some smart investors, like Chris Clark, try to predict domain names that will be valuable in the future. Then they sell the names. Some of these investors make millions of dollars.

Who are these investors, and how do they do it? Many of them are regular people like you and me. They buy domain names, even when they have no use for them. Then they keep the names until their value goes up. Some investors use the names to build Web sites. They sell advertising on the sites to make some money. However, they can make much more money when someone wants to buy the domain names.

Domain names are like real estate. Investors buy them like houses or land. They hope to sell them for a profit in the future. In fact, buying and selling domain names is big business. People

buy and sell 90,000 names a day. Some experts say that worldwide sales of domain names could be about \$4 billion a year in the near future.

5 People are paying millions of dollars for good names. Names with .com are especially valuable. For example, CreditCards.com sold for \$2.75 million. Toys.com sold for \$5.1 million. Another domain name, Diamond.com, sold for \$7.5 million, and Business.com sold for \$350 million. People want names like these for their businesses.



6 There are millions of domain names on the Internet already. That makes it hard to create new good names. Here are some rules:

- Good names use short, common words. They are words that people often use in search engines, such as *cars*, *shoes*, or *books*. Words like these are easy to remember.
- Domain names with letters and words are worth more than domain names with numbers. For example, *booksforyou* is better than *books4you*.
- Correct spelling is better than incorrect spelling. For example, *shoes.com* is better than *shooz.com*.

7 Are you good at guessing domain names that people will want to buy? Do you have a few dollars for the registration fee? Start by thinking of a name. Use your favorite search engine, type the name in the search box, and click on "Search." Is the name already on the Internet? If not, maybe you can make millions of dollars on Internet real estate just like Chris Clark did.

4 READING CHECK

A Are these sentences true or false? Write *T* (true) or *F* (false).

- 1 ____ Chris Clark made a lot of money selling pizza.
- 2 ____ People are making a lot of money buying and selling domain names.
- 3 ____ All domain names are worth about the same amount of money.

B Circle the letter of the best answer.

- 1 Chris Clark ____ .
a sold pizza.com b sold pizza c bought pizza.com
- 2 Most Web site investors are ____ .
a Internet experts b rich people c regular people
- 3 About how much money are people paying for good domain names?
a billions of dollars
b millions of dollars
c hundreds of dollars
- 4 Buying and selling domain names is like ____ .
a buying and selling advertising
b buying and selling diamonds
c buying and selling real estate
- 5 According to the reading, what domain name made the most money?
a CreditCards.com
b Diamond.com
c Business.com
- 6 Why is it hard to create new domain names?
a You need to have a lot of money.
b You need to be good at using the Internet.
c There are already millions of names on the Internet.
- 7 Which sentence is *not* true about good domain names?
a They are easy to remember.
b They are easy to type.
c They are easy to create.
- 8 According to the reading, which is the best domain name?
a shoes4you.com
b shoes.com
c shooz.com

5 VOCABULARY CHECK

A Retell the story. Fill in the blanks with the correct words from the box.

click	domain names	fee	investors	predict
profit	real estate	register	search engine	value

Many people make a lot of money when they buy and sell
_____. These people are _____. First,
they try to _____, or guess, a name that will be worth a
lot of money in the future. Then they pay a small _____
to _____ the name on the Internet. When the
_____ of the domain name goes up, an investor can sell it
for a big _____. It's like buying and selling houses or land,
so many people say domain names are like _____.

The best domain names are short, common words that people often
use when they are using Google or another _____
to get information. Try to think of a good domain name. Then check
for it on the Internet. Just type the name into the search box, and
_____ on "Search." Maybe you can make some money!

B Some nouns and verbs often go together. Circle the verbs that often come
before the nouns in bold. Sometimes, more than one answer is possible.

- | | | | | |
|---|------|------|------|------------------------|
| 1 | say | pay | sell | a fee |
| 2 | make | do | buy | a profit |
| 3 | do | ask | use | a search engine |
| 4 | make | buy | sell | real estate |
| 5 | have | lose | try | value |

6 APPLYING READING SKILLS

Finding main ideas and supporting details (information that explains the main ideas more fully) will help you have a better understanding of a reading.

- A** Match the main ideas of the reading with the supporting details. Write the letter of each detail in the appropriate box.

MAIN IDEA	SUPPORTING DETAILS
1 Chris Clark made a lot of money from a domain name. 	a People buy and sell 90,000 names a day. b Chris Clark paid only \$20 a year to keep the name pizza.com. c Someone bought pizza.com for \$2.6 million. d Some experts say that worldwide sales of domain names could be about \$4 billion a year in the near future.
2 Buying and selling domain names is big business. 	

- B** Find two supporting details for each of these main ideas in the reading.

- 1 Names with .com are especially valuable.

a _____

b _____

- 2 There are some rules for creating good domain names.

a _____

b _____

7 DISCUSSION

Discuss the following questions in pairs or groups.

- 1 Why does the writer say that domain names are like real estate?
- 2 Do you think buying and selling domain names is a good way to make money today? Why or why not?
- 3 Think of a good domain name. Follow the rules in the reading. Explain why the name could be valuable in the future.

The Queen of Trash



1 TOPIC PREVIEW

A What do you do with paper trash? Put a check (✓) next to all the things you do. Share your answers with your classmates.

- 1 ____ I burn it.
- 2 ____ I bury it.
- 3 ____ I throw it away.
- 4 ____ I make things with it.
- 5 ____ _____ (your idea)

B Read the title of this chapter, look at the picture, and discuss the following questions.

- 1 Who do you think the woman in the picture is?
- 2 People call this woman the Queen of Trash. Can you guess why?
- 3 What do you think the reading is going to be about?

2 VOCABULARY PREVIEW

- A** Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Business	Academic Word List	Environmental Studies
accountant (make a) deal employee factory	export (v.) strategy	collect (garbage) dump packaging recycle

The chart shows selected words from the reading related to business, environmental studies, and the Academic Word List (AWL). For more information about the AWL, see page 121.

- B** Fill in the blanks with words from Part A.

- 1 Sometimes new CDs are difficult to open. This is because of the plastic _____.
- 2 The company uses old plastic and glass to make new products. They _____ it. That way, there is less trash.
- 3 He works for the company. He is a/an _____.
- 4 Olivia keeps records of a company's money. She's a/an _____.
- 5 He put all his trash in bags. He's going to take it to the _____.
- 6 The students just finished their tests. The teacher is going to _____ them.
- 7 The company is working on a plan to sell their new product in Europe next year. They want to succeed, so they need a good _____.
- 8 The company manufactures sneakers in a big building outside of town. In fact, they make all their shoes at this _____.
- 9 They are trying to agree on the best price for the car. Then they will sign the papers. They are making a/an _____.
- 10 The company makes products in China, and they ship them to other countries. For example, they _____ hats to Brazil.

Preview the questions in Reading Check Part A on page 92. Then read the story.

The Queen of Trash



- 1 Cheung Yan is one of the most successful businesswomen in the world. She made billions of dollars. How did she do it? Does she sell computers? Does she sell diamonds? Does she sell real estate? No. She sells trash. In fact, many people call her the Queen of Trash.
- 2 Cheung was born in China in 1957. Her family wasn't rich. When Cheung was a young woman, she worked as an accountant. She saved some money, and she moved to Hong Kong. There, she became interested in the paper trash business. She and two partners started a company with a small amount of money. The company collected paper trash and sold it to paper mills.¹
- 3 Then Cheung had an idea. China had a shortage of paper. Cheung knew just where to get paper for China. In 1990, she and

¹ paper mill: a place with machines that make paper

her husband moved to Los Angeles. There they found paper – tons of it. They drove their van to garbage dumps around Los Angeles. They collected the paper trash. Then they exported the trash to China. What did Chinese factories do with Cheung's paper trash? They recycled it and made cardboard, a thick, stiff paper. Then they made the cardboard into packing boxes. They used the boxes to pack "Made in China" products, such as toys, electronics, and clothing. They sent these products to the United States and Europe.

In 1996, Cheung moved back to China. She started her own paper-making company called Nine Dragons Paper. Today, Cheung buys paper trash in the United States and Europe. She sends it to her factory in China. Then she makes it into materials for packaging. Big companies like Sony use her packaging. When people in the United States and Europe receive their "Made in China" products, they throw the packing boxes away as trash. Cheung gets the boxes and recycles them again into packaging.

What kind of person is Cheung?

She's a little mysterious. She almost never gives interviews. Other businesspeople say she's good at making deals. She develops good strategies for her business. She works very hard, and she expects her employees to work hard, too.

The Queen of Trash is a hard-working businesswoman. She started her own company, and she made it grow. What will her future be? She hopes she will be successful for many years. Cheung knows one important thing: There will always be paper trash that she can recycle again and again.

玖龍紙業(控股) NINE DRAGONS PAPER



Cheuna Yan

4 READING CHECK

A Are these sentences true or false? Write *T* (true) or *F* (false).

- 1 ____ Cheung Yan is a successful businessman.
- 2 ____ Cheung Yan made a lot of money selling real estate.
- 3 ____ Cheung Yan started a paper-making company in China.

B Circle the letter of the best answer.

- 1 Cheung Yan sells ____ .
a real estate **b** trash **c** diamonds
- 2 When Cheung was young, she worked as ____ .
a a real estate seller **b** a paper exporter **c** an accountant
- 3 Why did Cheung Yan decide to export paper to China?
a China had a paper shortage.
b China had a lot of paper trash.
c China had a lot of paper factories.
- 4 Where did Cheung Yan and her husband find paper to export?
a at factories
b in dumps
c in vans
- 5 What did Chinese factories do with Cheung Yan's paper?
a They made toys with it.
b They made clothing with it.
c They made boxes with it.
- 6 Where is Cheung's own paper-making company?
a in Europe
b in China
c in the United States
- 7 Who uses Cheung's packaging?
a Nine Dragons Paper
b Sony
c the "Made in China" Company
- 8 Which sentence about Cheung Yan is true?
a She doesn't have good business ideas.
b She's mysterious and hardworking.
c She likes to give interviews.

5 VOCABULARY CHECK

A Retell the story. Fill in the blanks with the correct words from the box.

accountant	collected	deals	dumps	employees
exported	factories	packaging	recycled	strategies

Cheung Yan was born in China, and she worked as a/an _____ when she was young. Later, she started a paper trash company. Her company _____ paper trash and sold it to paper mills.

When China had a paper shortage, Cheung and her husband moved to Los Angeles to get paper. They drove to garbage _____ around the city to collect the paper. Then they _____ it to China.

Chinese _____ bought Cheung's paper. They _____ it and made cardboard boxes. Cheung decided to start her own company in China. Today, she buys paper from the United States and Europe. Her company makes it into _____.

Cheung Yan develops good _____ to make her company successful. She works hard, and her _____ work hard, too. She also knows how to make good _____ with other companies. She hopes she will be successful for many years.

B Unscramble the words to complete the sentences.

- 1 You can find a lot of paper trash in garbage _____.
(mdups)
- 2 Some people _____ paper trash and use it to make things. (loclcte)
- 3 You can _____ old plastic bottles. (lecryec)
- 4 A good company tells its _____ to recycle paper.
(seelyoepm)
- 5 Some companies make _____ from old paper. (ggapkainc)

6 APPLYING READING SKILLS

Your reading speed is the number of words you can read per minute.
Increasing your reading speed will make it easier to do all the reading for your classes. Timing yourself when you read will help you read faster.

- A** Reread "The Queen of Trash" on pages 90–91, and time yourself. Write your starting time, your finishing time, and the number of minutes it took you to read. Then calculate your reading speed.

Story title: "The Queen of Trash" (402 words)

Starting time: _____

Finishing time: _____

Total reading time: _____ minutes

*Reading speed: _____ words per minute



*To calculate your reading speed, divide the number of words in the text (402) by your total reading time (the number of minutes you needed to read the text).

- B** Now reread either "Accidental Inventions" (494 words) on pages 76–77 or "Names for Sale" (459 words) on pages 83–84. Time yourself. Write the title of the story and your times below. Then calculate your reading speed.

Story title: _____ (_____ words)

Starting time: _____

Finishing time: _____

Total reading time: _____ minutes

Reading speed: _____ words per minute

7 DISCUSSION

Discuss the following questions in pairs or groups.

- 1 Cheung Yan's company, Nine Dragons Paper, makes packaging from recycled paper. What else can you make with recycled paper?
- 2 Do you think that Cheung Yan's paper business will be successful in the future? Why or why not?
- 3 What kind of person is Cheung Yan? Why is she successful? Compare your personality with Cheung Yan's.

UNIT 4 WRAP-UP

VOCABULARY REVIEW

Chapter 10	Chapter 11	Chapter 12
Business	Business	Business
brand • manufacturer • market (v.) • product	fee • investor • profit (n.) • real estate • value (n.)	accountant • (make a) deal • employee • factory
Academic Word List	Academic Word List	Academic Word List
enormous • global	predict • register (v.)	export (v.) • strategy
Science	Information Technology	Environmental Studies
discover • laboratory • melt • radar	click (on) (v.) • domain name • search engine	collect • (garbage) dump • packaging • recycle

Find words in the chart above that match the definitions. Answers to 1–4 are from Chapter 10. Answers to 5–8 are from Chapter 11. Answers to 9–12 are from Chapter 12.

- 1 Something that you make and sell: _____
- 2 Very big: _____
- 3 To turn into a liquid: _____
- 4 A room used for scientific research: _____
- 5 To put a name on an official list: _____
- 6 A Web site name: _____
- 7 Money that you get from selling something for more than you paid for it:

- 8 A person who gives money to help start or grow a business:

- 9 To send to another country: _____
- 10 A person who works for a company or an organization:

- 11 A place where people throw things that they don't want anymore:

- 12 A plan: _____

VOCABULARY IN USE

Work with a partner or small group, and discuss the questions below.

- 1 Why do you think the Coca-Cola® **brand** is famous all over the world?
- 2 What are some other **global** brands? Do you buy them?
- 3 Did you ever **discover** how to do something in a new way (for example, a new way to study, exercise, or dance)?
- 4 Would you like to visit a **factory**? If so, what kind of factory? Why?
- 5 What is the best way to **market** a new product to someone your age?
- 6 How can manufacturers improve the **packaging** of products? Give examples.
- 7 What do you **recycle**? What things are difficult to recycle?
- 8 Do you like to shop online using a **search engine**? Why or why not?

ROLE PLAY

Work with a partner. Student A is a newspaper reporter. Student B is one of the people below. Prepare questions. Ask and answer the questions. Then change roles.

- **Dr. John Pemberton**
- **Chris Clark**
- **Cheung Yan**

WRITING

Answer the following questions. Give your own ideas and use examples from the stories.

- What kind of person is successful in business?
- How important are luck, intelligence, family, personality, and the location of the business?

WEBQUEST

Find more information about the topics in this unit by going on the Internet. Go to www.cambridge.org/readthis and follow the instructions for doing a WebQuest. Search for facts. Have fun. Good luck!

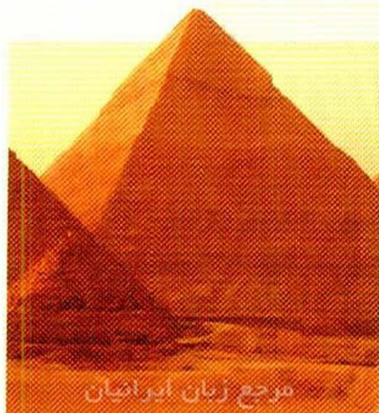
UNIT

5

Engineering

www.irLanguage.com

Chapter 13



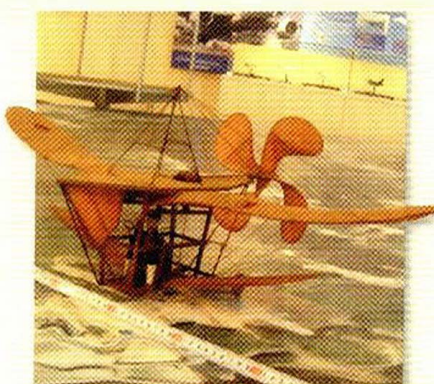
Amazing Achievements

The world is full of examples of amazing engineering projects, old and new.

Content areas:

- Engineering
- Geography

Chapter 14



Almost the Father of Flight

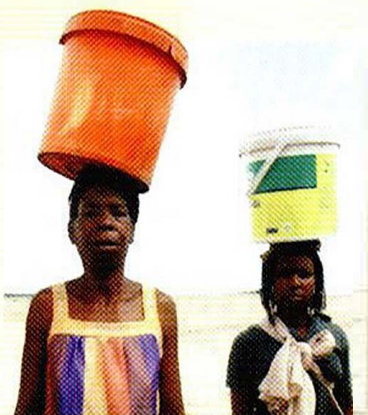
Many people believe that two brothers from the United States created the first airplane, but is this true?

www.irLanguage.com

Content areas:

- Engineering
- Aviation

Chapter 15



An Engineering Superstar

A young engineer is making life better for people in developing countries, and she's helping the Earth, too.

Content areas:

- Engineering
- Environmental Studies

Amazing Achievements



1 TOPIC PREVIEW

A All through history, people have built amazing things, such as enormous bridges and giant skyscrapers. Why are projects like these “amazing achievements”? Put a check (✓) next to the three reasons you think are most important. Share your answers with your classmates.

- 1 ____ They take a lot of time.
- 2 ____ They cost a lot of money.
- 3 ____ They are very beautiful.
- 4 ____ They are difficult to build.
- 5 ____ They are dangerous to build.

B Read the title of this chapter, look at the picture, and discuss the following questions.

- 1 What is the name of the engineering achievement in the picture? Where do you think it is?
- 2 Do you know any great building projects in the world? If so, what are they?
- 3 What do you think the reading is going to be about?

2 VOCABULARY PREVIEW

- A** Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Engineering	Academic Word List	Geography
crane lever pulley ramp	approximately structure	flood (v.) mountain range tropical wilderness

The chart shows selected words from the reading related to engineering, geography, and the Academic Word List (AWL). For more information about the AWL, see page 121.

- B** Write the word from Part A next to its definition.

- 1 Something that people build, such as a bridge: _____
- 2 Something that connects a lower level to a higher level:

- 3 About or almost (you use this word before numbers or amounts that are not exact): _____
- 4 A large area where there are no houses, roads, or businesses because it is too difficult for people to live there: _____
- 5 To cover or fill with too much water: _____
- 6 A tall machine that lifts and moves heavy things: _____
- 7 A word that describes a very hot and very wet place:

- 8 A long piece of metal or wood that helps people move things:

- 9 The Andes and the Alps are an example of this: _____
- 10 A wheel with rope around it that helps people lift things:

Preview the questions in Reading Check Part A on page 102. Then read the story.

Amazing Achievements

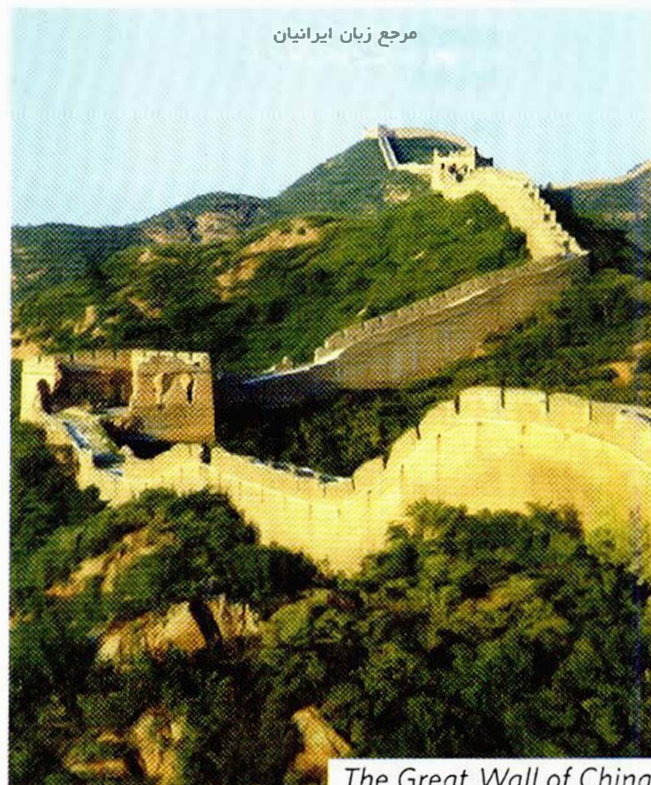
1 Humans are great builders. Examples are all over the world. The Egyptian pyramids, the Panama Canal, and the Alaska Pipeline are just a few. Thousands of people worked on these enormous structures. What makes these structures such amazing achievements? Is it their size? Is it their beauty? Is it the number of workers? Is it the danger of the work?

2 The ancient pyramids of Egypt are still a mystery today. No one knows exactly how the Egyptians built them. The biggest pyramid is the Great Pyramid of Giza. The Egyptians built it in about 2550 BCE. The workers

used 2.5 million limestone¹ blocks. The Great Pyramid covers 123 acres (50 hectares or 500,000 square meters). It's 480 feet (146 meters) high. The sides are 755 feet (230 meters) long.

3 How did the workers build the Great Pyramid? There were no wheels at the time, so there were no cranes or pulleys. Experts think the builders used simple machines, such as levers and ramps. The Great Pyramid took over 80 years to build. Approximately 30,000 people worked on it.

4 What was the most dangerous engineering project? It was the Panama Canal. This waterway in Central America is 50 miles (80 kilometers) long. It lets ships pass between the Atlantic and Pacific oceans. The French started the project in 1881. However, the work was too difficult, and they stopped. The United States continued the project in 1904 and completed it in 1914. A total of 56,307 people worked on the canal.



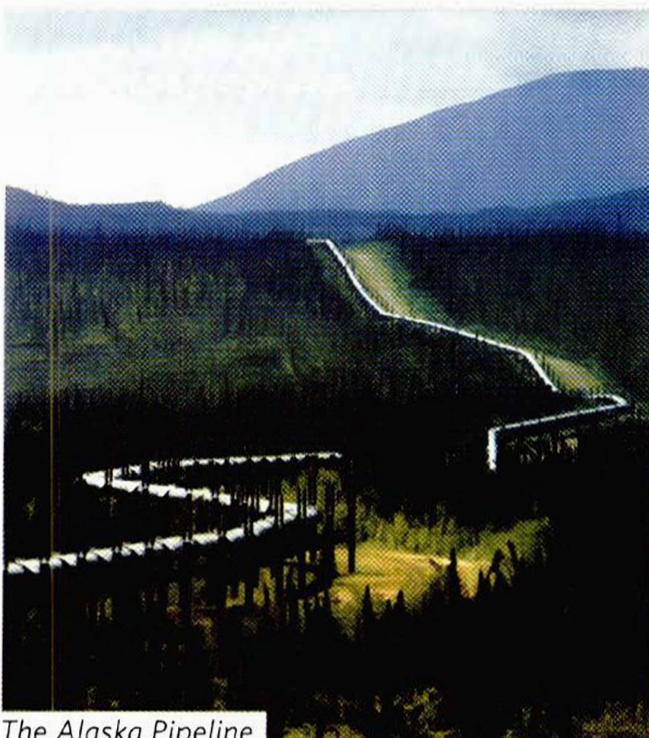
The Great Wall of China

¹ limestone: gray rock that is often used as a building material

The area around the canal was very dangerous. It had a tropical climate. That means it was very hot and wet, with about 105 inches (267 centimeters) of rain a year. The heavy rain often flooded the rivers. There were mosquitoes. No one knew that mosquitoes caused malaria. Thousands of workers died from malaria and accidents.

One of the greatest engineering achievements of the twentieth century was the Alaska Pipeline. In 1968, an oil company found the largest oil field in North America. How could they get oil from Alaska to the rest of the United States? They worked with other oil companies to build a pipeline.

The Alaska Pipeline is the longest pipeline in the world. It carries oil for 800 miles (1,287 km) through the cold, hard Alaskan wilderness. It crosses three mountain ranges and more than 800 rivers and streams. More than 70,000 workers built it. They worked for nine years in sub-zero temperatures. They completed the work in 1977. Since then, over 15 billion barrels² of oil have traveled through the pipeline.



The Alaska Pipeline

There are many other amazing engineering projects around the world. For example, the Great Wall of China was the largest building project in history. The Great Wall is approximately 4,500 miles (7,242 km) long. Another example is the Pan-American Highway. It is about 20,300 miles (32,670 km), and it is the longest road in the world. It goes through Canada, the United States, Mexico, Central America, and South America. Can you think of other examples of great engineering projects? Which project do you think is the greatest of all?

² barrel: one barrel of oil equals 42 gallons (159 liters)

4 READING CHECK

A Are these sentences true or false? Write *T* (true) or *F* (false).

- 1 ____ The workers who built the Great Pyramid probably used cranes and pulleys.
- 2 ____ The Panama Canal was a dangerous project.
- 3 ____ The Alaska Pipeline carries water from Alaska to the rest of the United States.

B Circle the letter of the best answer.

- 1 The Egyptians built the Great Pyramid in about ____ .
a 255 BCE b 755 BCE c 2550 BCE
- 2 To build the Great Pyramid, experts think that the builders used ____ .
a wheels b levers and ramps c no machines at all
- 3 The Panama Canal is in ____ .
a the United States b Central America c France
- 4 What is the purpose of the Panama Canal?
a It stops flooding.
b It lets ships pass between the Atlantic and the Pacific oceans.
c It lets water pass from the Atlantic Ocean to the Pacific Ocean.
- 5 Oil companies built the Alaska Pipeline in the ____ .
a twentieth century
b nineteenth century
c twenty-first century
- 6 Which sentence best describes the area around the Alaska Pipeline?
a It's a large area with almost no people.
b It's a large area with many oil companies.
c It's a small area with thousands of people.
- 7 The Great Wall of China is about ____ long.
a 20,300 miles
b 4,500 miles
c 800 miles
- 8 How many countries does the Pan-American Highway run through?
a four
b five
c The reading doesn't say.

5 VOCABULARY CHECK

A Retell the story. Fill in the blanks with the correct words from the box.

approximately	cranes	flooded	levers	mountain ranges
pulleys	ramps	structures	tropical	wilderness

The Great Pyramid is just one example of many enormous _____¹ around the world. When the Egyptians built the Great Pyramid, there were no wheels. That's why experts guess that the workers probably did not use _____² or _____³. Instead, they probably used simple machines like _____⁴ and _____⁵. We don't know exactly how many workers built the Great Pyramid, but we think that _____⁶ 30,000 people worked on it.

The Panama Canal was a dangerous engineering project because the area was very hot and wet. In this _____⁷ climate, there were about 105 inches (267 cm) of rain a year. All this rain _____⁸ the rivers.

The Alaska Pipeline is another great engineering achievement. The pipeline goes through hundreds of miles of Alaskan _____⁹, where there are almost no people. The pipeline crosses many rivers and streams. It also crosses three big _____¹⁰.

B Unscramble the words to complete the sentences.

- 1 The Great Wall of China is a very large _____.
(trusetruc)
- 2 The next big rainstorm will probably _____ the river.
(dolof)
- 3 There are many rivers in the Alaskan _____.
(snerdlisew)
- 4 It is rainy and hot in a _____ climate. (ploricat)
- 5 No one knows exactly how high the mountain is, but most books say it is _____ 5,350 feet (1,631 m). (taxaporypelim)

6 APPLYING READING SKILLS

Organizing information into a chart can help you remember important details in a reading. The chart can also help you review the information for a test.

A Complete the chart with information from the reading.

Structure	Year when the project started	Number of workers	Number of years it took to build	Size (length)
The Great Pyramid	about 2550 BCE			sides: 755 feet (230 m)
The Panama Canal			33 years	
The Alaska Pipeline	1968			

B Use the chart in Part A to answer the questions.

- 1 Which structure is the oldest? _____
- 2 Which structure is the most recent? _____
- 3 Which structure had the greatest number of workers? _____
- 4 Which structure took the longest to build? _____
- 5 Which structure took the shortest time to build? _____
- 6 Which structure is the longest? _____

7 DISCUSSION

Discuss the following questions in pairs or groups.

- 1 Which engineering project do you think is the greatest in the world? Give reasons for your answer.
- 2 Choose one structure from the reading, and tell why you would like to visit it.
- 3 Describe a great engineering project that you think we need today.

Almost the Father of Flight



1 TOPIC PREVIEW

A Imagine that you lived in the past and you wanted to invent a flying machine. What would you study first and why? Put a check (✓) next to two things in the list that you think could help you the most. Share your answers with your classmates.

- 1 ____ balloons
- 2 ____ birds
- 3 ____ flying fish
- 4 ____ kites
- 5 ____ (your idea)

B Read the title of this chapter, look at the picture, and discuss the following questions.

- 1 What do you think the picture shows?
- 2 What do you know about the history of flight?
- 3 What do you think the reading is going to be about?

2 VOCABULARY PREVIEW

- A** Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Engineering	Academic Word List	Aviation
engine engineering plans model (n.)	design (v.) specific unique	aircraft landing gear propeller wing

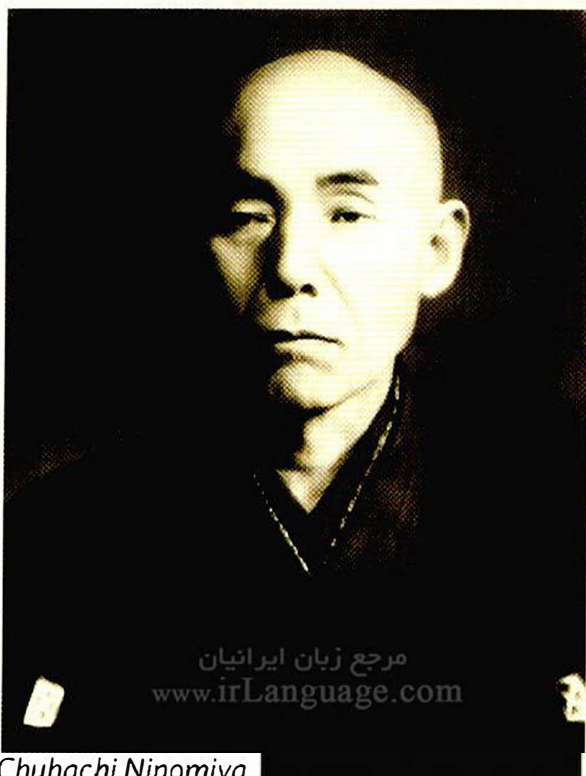
The chart shows selected words from the reading related to engineering, aviation, and the Academic Word List (AWL). For more information about the AWL, see page 121.

- B** Fill in the blanks with the words from Part A.

- 1 Today, car manufacturers want to _____ cars that use less gas and oil.
- 2 In Mexico City, there is a famous building in the shape of a washing machine. This building is _____. There are no others like it in the world.
- 3 The part of the car that makes it run is the _____.
- 4 The _____ of an airplane has wheels. It helps the plane move on the ground.
- 5 The engineer drew detailed diagrams and pictures of the plane. Then he gave these _____ to an airplane manufacturer so that they could build the plane.
- 6 The _____ is a part of a plane that turns around and around very fast to make the airplane move.
- 7 A bird has a/an _____ on each side of its body to help it fly.
- 8 Another word for *airplane* is _____.
- 9 At the airport, a pilot needs to land an airplane on a/an _____ runway. The pilot cannot land the plane in any other place.
- 10 Before engineers build a new airplane, they usually make a small copy, or _____, of the plane.

Preview the questions in Reading Check Part A on page 109. Then read the story.

Almost the Father of Flight



Chuhachi Ninomiya

Chuhachi Ninomiya was a young man with a dream. He wanted to invent a flying machine. He watched birds fly for hours and hours. He also studied insects and flying fish to get ideas. Did Ninomiya's dream come true? The story of his life will give you the answer.

Ninomiya was born in Japan in 1866. As a boy, he loved flying kites. People called him "Kite-flying Chuhachi." Ninomiya also loved to design kites. His kites were unique because

they had pockets. Some businesses used Ninomiya's kites for advertising. They put advertisements into the pocket of a kite. The pocket opened and let the ads fall to the ground. Then the pocket closed again.

Ninomiya built his first model of a flying machine in 1891. He was just 24 years old. He called his model "The Crow," which is the name of a kind of bird. It had a propeller and landing gear, but its wings did not move. Ninomiya's model actually flew!

In 1894, Ninomiya became a soldier in the army. He thought flying machines could be very useful in a war. He gave his engineering plans to the army. The plans had drawings and specific directions for building a flying machine. However, the army didn't pay attention to Ninomiya. They said: "Humans are not supposed to fly." They thought he was crazy.

Ninomiya left the army in 1898. He continued to design airplanes. He started to build a plane that was more like a

modern airplane. Ninomiya's plane wasn't a model this time. It was a real, full-size plane.

6 The plane was almost finished. All Ninomiya needed was an engine, and he ordered one. Then one day, he read in the newspaper about the Wright Brothers. These two men from the United States flew their first plane in December of 1903. Ninomiya read about the brothers' success just one day before he received his engine. This was bad news for Ninomiya. He stopped building his plane, and he never built another one. After that, he became a Shinto priest.¹



7 Most people think the Wright Brothers designed the first airplane. But this isn't true. Ninomiya designed and flew model planes many years before the Wright Brothers did. However, the Wright Brothers flew their first plane before Ninomiya finished his full-size plane. Unlike Ninomiya's plane, the Wright Brothers' plane did not have landing gear. It also had a kind of wing that wasn't as modern as the wing on Ninomiya's plane. In 1991, an expert in aviation used Ninomiya's engineering plans to build an airplane. He said that Ninomiya's plane was better than the Wright Brothers' plane.

8 Ninomiya never lost his interest in airplanes and flight. He even built a shrine² for people who died in airplane accidents. Before he died in 1936, he received an apology³ and an award⁴ from the army. Today, he has the greatest honor of all: The Japanese call him "the father of Japanese aircraft."

¹ *Shinto priest*: a person who has training and special responsibilities in Shintoism, a religion of Japan

² *shrine*: a place where people go to pray

³ *apology*: words that you say or write to show you are sorry about something you did

⁴ *award*: a prize that someone receives for an achievement

4 READING CHECK

A Circle the letter of the best answer.

- 1 What was Ninomiya's dream when he was a young man?
a to fly kites
b to invent a flying machine
c to study birds and insects
- 2 When did Ninomiya build his first airplane model?
a when he was in the army
b after he left the army
c before he joined the army
- 3 Which sentence is correct?
a Ninomiya designed a plane after the Wright Brothers did.
b Ninomiya's design was the same as the Wright Brothers' design.
c Ninomiya's design was better than the Wright Brothers' design.

B Are these sentences true or false? Write *T* (true) or *F* (false).

- 1 ____ Ninomiya's kites were unique because they had moving wings.
- 2 ____ Ninomiya's first flying machine model was called "The Bird."
- 3 ____ Ninomiya's first model had wings that did not move.
- 4 ____ The army agreed with Ninomiya's idea to use flying machines in a war.
- 5 ____ Ninomiya ordered wings for his full-size plane.
- 6 ____ The Wright Brothers flew their plane before Ninomiya finished building his plane.
- 7 ____ Ninomiya built more planes after he heard about the Wright Brothers.
- 8 ____ Ninomiya became a priest.
- 9 ____ Ninomiya's plane was better than the Wright Brothers' plane.
- 10 ____ Ninomiya died before the Japanese army understood his contribution to aviation.

5 VOCABULARY CHECK

A Retell the story. Fill in the blanks with the correct words from the box.

aircraft	designed	engine	engineering plans	landing gear
model	propeller	specific	unique	wings

As a boy, Chuhachi Ninomiya loved to fly kites. He also _____ kites. His kites were _____ because they had pockets that could carry advertisements. Ninomiya built his first _____ of an airplane when he was just 24 years old. It had _____ that did not move. It also had a/an _____ and _____. It could fly!

When Ninomiya was a soldier, he showed the army his _____, including _____ directions for building a flying machine. However, the army wasn't interested. After Ninomiya left the army, he started to design his own real, full-size plane. He ordered a/an _____ to finish the plane. However, before the part arrived, he read about the Wright Brothers' success, and he stopped building planes. Today, people understand Ninomiya's contribution, and they call him "the father of Japanese _____."

B Some nouns and verbs have the same form. Are the words in bold nouns or verbs? Circle the correct word form for each sentence.

Noun	Verb
design	design
plan	plan
model	model

- | | | |
|---|------|------|
| 1 He wanted to design an airplane. | Noun | Verb |
| 2 The army didn't like Ninomiya's plan . | Noun | Verb |
| 3 He built a model before he built a real plane. | Noun | Verb |
| 4 We plan to visit Japan next year. | Noun | Verb |
| 5 Everyone likes the design of that new car. | Noun | Verb |

6 APPLYING READING SKILLS

Understanding the order of events in a reading means that you know what happens first, second, third, and so on. A good idea is to make a list of the events in order, and number the first event 1, the second 2, and so on.

A Complete the list to show the events in Ninomiya's life. Write the events in the correct order from 1 to 5.

- Ninomiya designed kites.
- Ninomiya gave his engineering plans to the army.
- Ninomiya studied the way birds and insects fly.
- Ninomiya built his first model of a flying machine.
- The army didn't pay attention to Ninomiya's ideas.

1 *Ninomiya studied the way birds and insects fly.*

2

3

4

5

B Read the rest of the events in Ninomiya's life. Write them in the correct order on a separate piece of paper.

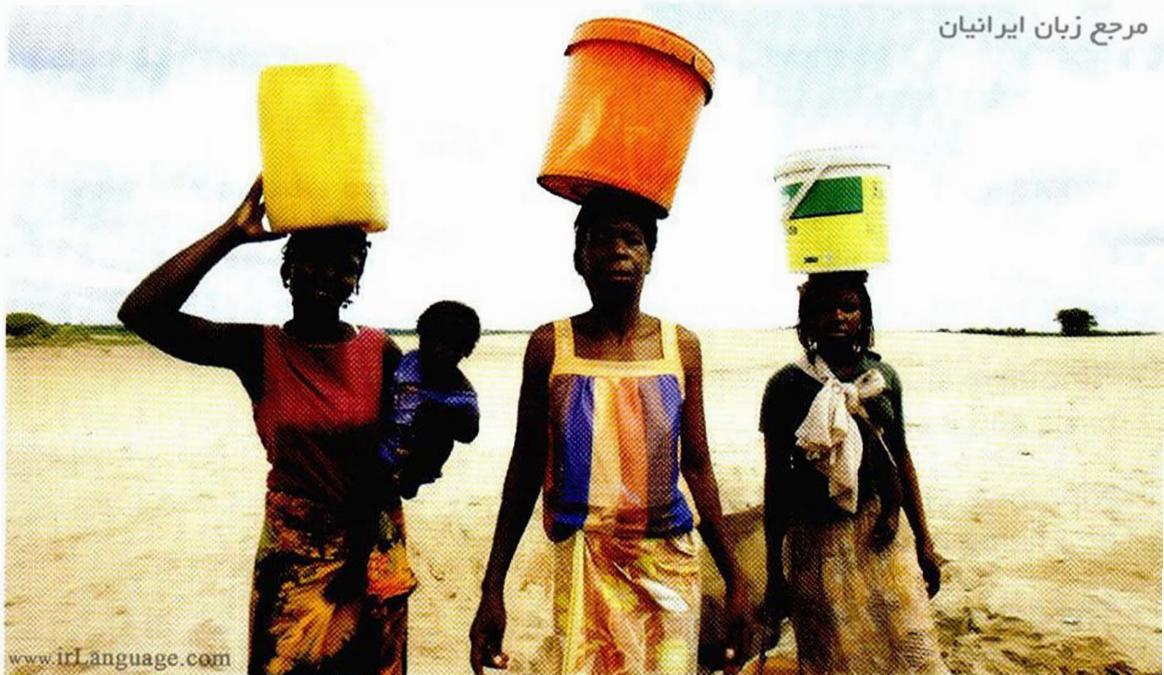
- a** The army apologized to Ninomiya.
- b** Ninomiya stopped building his plane, and he became a priest.
- c** Ninomiya started to build a full-size plane.
- d** Ninomiya read about the Wright Brothers.
- e** Ninomiya was waiting for an engine for his full-size plane.

7 DISCUSSION

Discuss the following questions in pairs or groups.

- 1** Do you like to fly? Why or why not? Tell your classmates about one of your experiences on an airplane.
- 2** Think of an inventor or someone you know who had an idea for an invention. What was the invention? Was it successful?
- 3** Think of a machine you would like to invent or a machine you would like to improve. Describe your idea.

An Engineering Superstar



1 TOPIC PREVIEW

A What do you do to make the world a better place? Put a check (✓) next to all the things you do. Share your answers with your classmates.

- 1 ____ I give money to organizations that help people.
- 2 ____ I recycle paper and plastic.
- 3 ____ I try to do things for people who need some help.
- 4 ____ I often walk or bike instead of driving.
- 5 ____ (your idea)

B Read the title of this chapter, look at the picture, and discuss the following questions.

- 1 Look at the picture. Where do you think the people are?
- 2 What do you think the people in the picture are doing? Why?
- 3 What do you think the reading is going to be about?

2 VOCABULARY PREVIEW

- A** Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Engineering	Academic Word List	Environmental Studies
electricity evaporate tool	energy source volunteer (v.)	local natural resource planet renewable

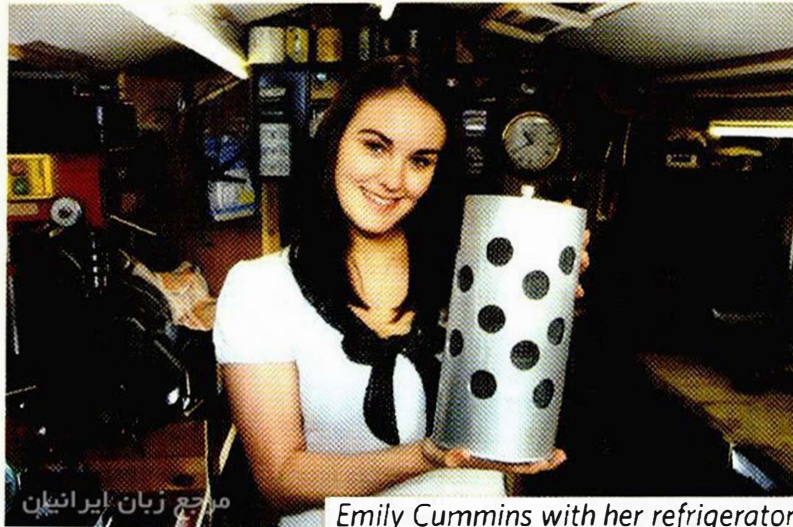
The chart shows selected words from the reading related to engineering, environmental studies, and the Academic Word List (AWL). For more information about the AWL, see page 121.

- B** Fill in the blanks with words from Part A.

- 1 She doesn't eat food from places that are far away. She gets food from _____ farms.
- 2 When we take oil from the earth, we can't replace it. Someday, there won't be any more oil. In other words, oil is not _____.
- 3 Today, some people are using _____ from the sun to heat their houses.
- 4 Computers, televisions, and refrigerators are some of the machines that need _____ to work.
- 5 There is water on the road now, but soon it will be dry. The hot sun will make the water _____.
- 6 You need a hammer to hang pictures on the wall. It's a useful _____.
- 7 Water comes from nature. It's an example of a/an _____.
- 8 The name of our _____ is Earth.
- 9 We get light and heat from the sun. It's an important _____ of light and heat on Earth.
- 10 She doesn't want any money for her work. She wants to _____.

Preview the questions in Reading Check Part A on page 116. Then read the story.

An Engineering Superstar



Emily Cummins with her refrigerator

- 1 It's early morning in a small village in Kenya, Africa. Women and children are carrying heavy containers of water on their heads. They walk many miles to get this water. It's hot, and they're tired. They can only carry a few containers a day. A young British woman learns about the problem. She wants to help.
- 2 Who is the young woman? Her name is Emily Cummins. How did she help? She invented a water carrier for the people in Kenya. They can pull it like a suitcase.
- 3 Cummins is an engineer. She designs useful products for places without many natural resources. These places often don't have a lot of water. They also don't have a lot of oil, coal, or gas. These resources are not renewable. That means you can't replace them when you take them from the earth. Cummins's products don't use oil, coal, or gas. They use other sources of energy, such as the sun. This makes the products sustainable.¹ People can continue to use them in the future without hurting our planet.
- 4 How did Cummins get started? As a young child in England, she loved to work with her grandfather in his workshop. He taught her how to use his tools. He showed her how to make toys and jewelry boxes from small pieces of metal.

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¹ *sustainable*: able to continue for a long time

She designed her first product when she was in high school and just 15 years old. Her grandfather had arthritis.² He couldn't squeeze³ a tube of toothpaste with his hand. Cummins invented a tube with a lever. The lever pushes the toothpaste out of the tube. You don't have to squeeze the tube.

While she was still a high school student, Cummins designed a new kind of refrigerator. Why? Refrigerators normally use a lot of electricity. They are too expensive for many people in developing countries. Cummins's refrigerator is not expensive. Here's how it works: One container of the refrigerator keeps food and medicine clean and dry. This container sits in another container filled with water and sand. The sun's energy makes the water in the sand evaporate. In other words, the water goes into the air and takes heat from the sand with it. This cools the sand. The cool sand keeps the food and medicine cool. The design is very simple, and it uses cheap, local materials. People can even make the refrigerator themselves.

After leaving school, Cummins spent five months in Africa. She wanted to learn more about life there, so she volunteered at a school in Namibia. There, she could test and improve her

designs. Her refrigerator became a great success! Today, it helps thousands of people.

Cummins studied business at the University of Leeds, in England. Today, she continues to design sustainable products. She has won many awards for her designs. Her inventions are famous because they use local resources, they don't hurt the planet, and the materials are all recyclable.

Do you have ideas for sustainable products? Maybe you, too, can become an engineering superstar!



Emily Cummins's water carrier

² *arthritis*: a disease that causes pain when a person tries to move a joint, such as a knee, wrist, or finger

³ *squeeze*: push together using force

4 READING CHECK

A Match each of Cummins's inventions with the way it works.

- | | |
|------------------------|-------------------------------------|
| 1 toothpaste tube ____ | a You can pull it like a suitcase. |
| 2 refrigerator ____ | b It uses a lever. |
| 3 water carrier ____ | c It cools things with evaporation. |

B Circle the letter of the best answer.

- 1 To help people carry water, Cummins invented ____ .
a a suitcase b a container for the head c a container that you pull
- 2 Cummins's products are sustainable because they use ____ .
a a lot of water b renewable materials c a lot of oil and gas
- 3 Cummins learned how to build things when she was ____ .
a a young child b just 15 years old c a university student
- 4 Cummins's first product was ____ .
a a water carrier b a toothpaste tube c a refrigerator
- 5 Which is a true sentence about Cummins's refrigerator?
a It uses a lever. b It uses electricity. c It uses energy from the sun.
- 6 How does Cummins's refrigerator work?
a Energy from the sun cools the water.
b Energy from the sun evaporates the sand.
c Energy from the sun evaporates the water.
- 7 When Cummins was in Africa, ____ .
a she worked at a school
b she studied at the university
c she sold refrigerators
- 8 Cummins won awards because ____ .
a she studied business
b she volunteered in Africa
c she designed sustainable products

5 VOCABULARY CHECK

A Retell the story. Fill in the blanks with the correct words from the box.

electricity	energy	evaporate	local	natural resources
planet	renewable	sources	tools	volunteered

Emily Cummins designs useful products for places without many _____, such as oil, coal, and gas. Cummins's products don't use oil, coal, and gas because they are not _____. That means you can't replace these materials when you take them from the earth. Cummins uses other _____ of _____, like the sun. This makes her products sustainable. Sustainable products don't hurt the _____.

Cummins's grandfather taught her how to use _____ and how to build things. When she was in high school, she designed a new kind of refrigerator that doesn't use _____. Instead, it uses water, sand, and the sun. The heat of the sun makes the water _____, and the water takes heat from the sand with it. The cool sand cools the food. Cummins tries to use cheap, _____ materials, like sand, because they are easy to find and use.

Cummins spent five months in Namibia, and she _____ at a school. She tested her designs there, and today she continues to develop sustainable products for developing countries.

B Some nouns and verbs often go together. Circle the verbs that often come before the nouns in bold. Sometimes, more than one answer is possible.

- | | | | | |
|---|------|------|------|--------------------------|
| 1 | use | do | save | electricity |
| 2 | save | help | live | the planet |
| 3 | do | make | use | tools |
| 4 | have | find | run | natural resources |
| 5 | do | save | use | energy |

6 APPLYING READING SKILLS

Finding main ideas and supporting details (information that explains the main ideas more fully) will help you have a better understanding of a reading.

- A** Match the main idea of the reading with the supporting details. Write the letter of each detail in the appropriate box.

MAIN IDEA	SUPPORTING DETAILS
1 Cummins designs products for places without many natural resources.	a Her grandfather showed her how to make toys and jewelry boxes from small pieces of metal. b She designs products that use sources of energy, such as the sun. c She designs products that don't use oil, coal, or gas. d Her grandfather showed her how to use his tools.
2 Cummins started to make things when she was very young.	

- B** Find four supporting details for this main idea in the reading.

Cummins designed a new kind of refrigerator.

- 1 _____
- 2 _____
- 3 _____
- 4 _____

7 DISCUSSION

Discuss the following questions in pairs or groups.

- 1 What kind of person is Emily Cummins? Describe her personality. Is your personality similar to or different from hers?
- 2 What can you do to save natural resources? What can governments do?
- 3 Think of an idea for a new sustainable product, and describe it.

UNIT 5 WRAP-UP

VOCABULARY REVIEW

Chapter 13	Chapter 14	Chapter 15
Engineering crane • lever • pulley • ramp	Engineering engine • engineering plans • model (n.)	Engineering electricity • evaporate • tool
Academic Word List approximately • structure	Academic Word List design (v.) • specific • unique	Academic Word List energy • source • volunteer (v.)
Geography flood (v.) • mountain range • tropical • wilderness	Aviation aircraft • landing gear • propeller • wing	Environmental Studies local • natural resource • planet • renewable

Find words in the chart above that match the definitions. Answers to 1-4 are from Chapter 13. Answers to 5-8 are from Chapter 14. Answers to 9-12 are from Chapter 15.

- 1 Something that is built, such as a road, building, or canal:

- 2 A handle that you push or pull to make a machine work: _____
- 3 To cover with water: _____
- 4 About (used with numbers and amounts): _____
- 5 A machine that can fly: _____
- 6 To make or draw plans for something: _____
- 7 Drawings that show how to build something: _____
- 8 The part of a vehicle, such as a car or a train, that makes it move:

- 9 The thing or place that something comes from: _____
- 10 To change from a liquid into steam or a gas: _____
- 11 Easy to replace, or put back, after use: _____
- 12 A large, round object in space, such as Earth or Mars: _____

VOCABULARY IN USE

Work with a partner or small group, and discuss the questions below.

- 1 What **mountain range** is closest to where you live? Do you ever go there?
- 2 Would you like to spend a day in the **wilderness**? Why or why not?
- 3 Do you like **tropical** weather? Why or why not?
- 4 Do you eat any **local** foods? If so, what do you eat? Where does most of your food come from?
- 5 Think of a **unique** person you know or know about. What makes that person unique?
- 6 What kinds of **tools** do you know how to use? What do you use them for?
- 7 What are some **natural resources** in your area or another place you know about?
- 8 Did you ever **volunteer**? If so, what kind of volunteer work did you do? If not, what kind of volunteer work would you like to do?

ROLE PLAY

Work with a partner. Choose two of the people below. Student A is one person. Student B is the other person. Take turns asking and answering questions. Then change roles.

- **Emily Cummins**
- **Chuhachi Ninomiya**
- **a designer of the Great Pyramid**

WRITING

Answer the following questions. Give your own ideas and use examples from the stories.

- What is the most important invention or structure in the world?
- Why do you think it is the most important?

WEBQUEST

Find more information about the topics in this unit by going on the Internet. Go to www.cambridge.org/readthis and follow the instructions for doing a WebQuest. Search for facts. Have fun. Good luck!

The Academic Word List

What are the most common words in academic English? Which words appear most frequently in readings in different academic subject areas? Dr. Averil Coxhead, who is currently a Senior Lecturer at Victoria University of Wellington in New Zealand, did research to try to answer these questions. The result was the Academic Word List (AWL).

Coxhead studied readings in English from many different academic fields. She found 570 words or word families that appear in many of those readings. These are words like *estimate* and *estimation*; *analyze*, *analysis*, and *analytical*; *evident*, *evidence*, and *evidently* – words that you can expect to find when reading a sociology text, a computer science text, or even a music studies text. So if you want to read nonfiction in English or academic English, these are the words that are going to be most useful for you to study and learn.

When you study the readings in *Read This!*, you will study words that belong to two different academic subject areas. These words will help you understand the topic of each reading. In addition, you will study AWL words in the readings. Learning the AWL words will help you, not just when you are reading on that topic, but when you read any academic text, because these words are likely to come up in your reading again and again.

In the list below, we show you all the words that are from the Academic Word List that are in all three books of the *Read This!* series. Many of these words appear in several of the readings. However, the words in the list that are followed by letters and numbers are words that are the focus of study in one of the readings. The letters and numbers show which book and chapter the word appears in. For example, “access RT2, 13” tells you that you study the word *access* in *Read This!* Book 2, Chapter 13. When the letters and numbers after the word appear in color, that tells you that the word is the focus of study in this *Read This!* book.

From time to time you might want to study the words in this list and test yourself. By going to the chapter where the word appears, you can see the words in context, which is one of the best ways to study new or unfamiliar words.

The following list shows the AWL words that appear in the *Read This!* series.

A

access RT2, 13
accurate
accurately RT2, 6
achieve
achievement RT1, 5
adjust RT3, 14
adult RT2, 12
affect RT3, 11
alternative
analysis RT2, 12; RT3, 13
analyze
appreciate RT3, 1
approach RT3, 1
approaching
approximately RT1, 13
area RT1, 3
assist RT2, 5
assistance
authority RT2, 13
available
aware
awareness RT3, 8

B

beneficial
benefit RT2, 9

C

challenge RT1, 7; RT2, 2;
RT3, 3
challenged
challenging RT2, 14
channel
chapter

chemical RT3, 5
civil
classical
coincidence RT1, 9
collapse RT2, 13
comment
commit
communicate RT1, 1
communication
compensation
complex RT3, 4
computer
concentrate RT3, 14
concentration RT2, 14
conduct
conflict RT3, 10
constant
construct RT3, 1
construction
consultant
consume RT2, 9
contact RT3, 4
contrast
contribute
contribution RT1, 7
controversial RT3, 11
conventional RT3, 7
couple
create RT1, 3
creative RT2, 4
crucial RT2, 15
cultural
culture
cycle RT3, 6

D

data RT2, 9
define
design RT1, 14; RT3, 3
designer
detect RT2, 6
device RT3, 9
discriminate
discrimination
display RT3, 10
disposable RT3, 5
distinct RT3, 2
distinction
distinctive
distinctly
diverse RT3, 2
document RT3, 10
documented
domain

E

energy RT1, 15
enormous RT1, 10
environment
environmental
environmentally
equipment RT3, 8
establish RT3, 6
estate
estimate RT2, 13
eventually
evidence RT2, 12; RT3, 12
evolve RT3, 15
exhibit RT3, 11

expand RT2, 7

expert RT1, 2; RT2, 10; RT3, 5

export RT1, 12

F

feature RT1, 8

federal

federations

fee

file RT1, 5

final

finally

flexibility RT3, 9

flexible

focus RT1, 6

foundation RT3, 3

function RT1, 8

G

generation RT2, 13; RT3, 15

global RT1, 10

goal RT3, 8

grade

guideline RT1, 8

H

highlight

I

identical RT2, 11

identification RT3, 13

identified

identify RT2, 6

identifying

identity RT2, 10

illegal RT3, 12

image RT2, 4

impact RT2, 15

individual RT3, 7

injure

injured

injury RT3, 9

institute RT2, 4

instructions

intelligence

intelligent

intense RT3, 6

interaction RT3, 2

interactive

investigate RT2, 11; RT3, 12

investigating

investigation

investigative

investigator

investor

involve

isolate RT2, 8

issue

item

J

job

L

layer RT3, 3

legal

liberate RT3, 11

locate

location

M

maintain RT2, 5

major

maximum RT3, 14

media

medical

mental RT2, 14; RT3, 8

method RT2, 2

military

monitor RT3, 4

N

network RT1, 5

normal RT2, 3

normally RT1, 1

O

obviously RT2, 10

occur RT2, 8

option RT2, 15

P

participate RT1, 4

participation RT3, 7

partner RT1, 2

percent

period

philosophy

physical RT2, 8; RT3, 8

physically

policy RT3, 10

positive

predict RT1, 11; RT2, 6; RT3, 1

prime

principle RT3, 10

procedure RT2, 3
process RT2, 9; RT3, 5
project RT1, 5; RT3, 3
promote
psychological
psychologist
psychology
publish RT3, 12
publisher RT1, 4
publishing
purchase

R

range
ratio RT1, 8
reaction RT3, 11
recover RT2, 3
recovered
recovery RT3, 9
region RT3, 5
register RT1, 11
registration
relax
release RT3, 4
reluctant RT3, 2
rely
remove
require RT3, 13
research RT1, 1
researcher RT2, 1
resource
respond RT1, 7; RT2, 8
response
restrict RT2, 9
restricted

restricting
restriction
reveal RT3, 5
role RT2, 13
route RT3, 14

S

section
security RT1, 2
sequence RT1, 9
shift RT3, 15
significant RT3, 2
significantly RT2, 9
similar RT2, 1
similarity RT1, 9
site RT2, 6
source RT1, 15; RT2, 7;
RT3, 12
specific RT1, 14
specifically RT3, 9
specification
specify
stability RT3, 10
stabilize
stable
strategy RT1, 12
stress RT2, 14
structure RT1, 13; RT2, 4;
RT3, 3
style RT1, 4; RT3, 15
survey RT3, 4
survive RT2, 3; RT3, 6
survivor
sustainable
symbol RT1, 3; RT2, 7; RT3, 11

T

tape RT1, 6
task
team
technology
theory RT2, 2
trace
tradition
traditional RT3, 2
traditionally
transit
transition RT3, 15
transport RT2, 5; RT3, 13

U

uniform
unique RT1, 14; RT2, 11;
RT3, 1

V

vehicle RT3, 13
virtual
volunteer RT1, 15

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Fascinating Stories from the Content Areas

The **Read This!** series enhances students' enjoyment of reading in English, builds their reading skills, and develops their vocabulary.

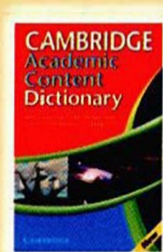
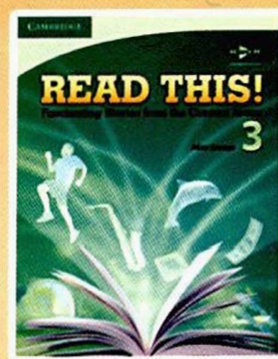
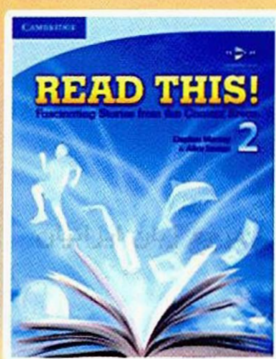
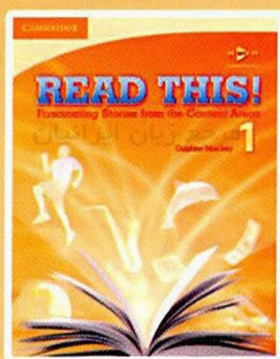
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FEATURES

- Thematic units mix content from different academic areas and promote interdisciplinary study.
- Students learn both useful content-related vocabulary and words from the Academic Word List.
- Reading skills exercises include graphic organizers to provide greater insight into the texts.

ALSO AVAILABLE

- WebQuests online that help students explore the content further (at www.cambridge.org/readthis)
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- Photocopiable Progress Tests in the Teacher's Manual



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