

# INTO SPACE



The Space Shuttle *Endeavour* lights up the sky as it leaves the Kennedy Space Center in Florida, U.S.A.

## Warm Up

**Discuss these questions with a partner.**

1. Have you seen a movie or TV show about space? Describe it.
2. Do you think life exists on other planets? Why or why not?
3. Do you think governments should spend money on space travel and research? Why or why not?



## Before You Read

**A. Matching.** Read the information and match each word in **bold** with its definition.

The Kepler Space **Telescope** is named after Johannes Kepler, a German **astronomer** from the 17th century. It was sent off into **space** in 2009 to study 170,000 stars in a small and distant part of our **galaxy**. Since then, the Kepler Space Telescope has discovered over a hundred **planets** and identified nearly 3,000 more objects that could be planets, including a few that may have life.

1. \_\_\_\_\_ is everywhere beyond the Earth.
2. Mars, Venus, Jupiter, and Earth are all \_\_\_\_\_.
3. A(n) \_\_\_\_\_, such as our own Milky Way, is a group of stars, gas, and dust.
4. A(n) \_\_\_\_\_ is someone who studies stars and other objects in space.
5. A(n) \_\_\_\_\_ is an instrument designed to make distant objects appear closer. It is commonly used to look out into space.

**B. Skim.** Read the first paragraph on the next page. Answer the question below. Then read the whole passage to check your ideas.

What do Shostak and Barnett think?

- a. We might soon communicate with beings from space.
- b. We will probably never find intelligent life outside Earth.
- c. We have probably already contacted beings from space.



# LIFE BEYOND EARTH?

^ A view of the Carina Nebula taken by the Hubble Space Telescope. The nebula is about 6,500 light years from Earth, and contains some of the largest and brightest stars in our galaxy.

1 Is there intelligent life on other planets? For years, scientists said “No” or “We don’t know.” But today, this is changing. Seth Shostak and Alexandra Barnett are astronomers. They believe intelligent life exists somewhere in the universe.<sup>1</sup> They also think we will soon **contact** these beings.<sup>2</sup>

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

<sup>1</sup> The **universe** is all of space—all stars, planets, and other objects.

<sup>2</sup> A person or a living creature (for example, an animal) is a **being**.

## Looking for Intelligent Life

- 15 Until recently, it was difficult to **search for** signs of intelligent life in the universe. But now, **powerful** telescopes **allow** scientists to **identify** many more small planets—the size of Mars or Earth—in other solar systems. If these planets are similar to Earth, they might have intelligent life.

## Making Contact

- 20 Have beings from space already visited Earth? Probably not, says Shostak. The **distance** between planets is too great. Despite this, intelligent beings might eventually contact us using other methods such as radio signals.<sup>3</sup> In fact, they could be trying to communicate with us now, but we may not have the right tools to receive their **messages**. But this is changing, says
- 25 Shostak. Within the next 20 years, we could make contact with other life forms in our universe.

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<sup>3</sup> A **radio signal** is a way of sending information using radio waves.



< Scientists are hoping to build rockets that could reach the closest stars.



## Reading Comprehension

**Multiple Choice.** Choose the best answer for each question.

- |                  |  |
|------------------|--|
| <b>Purpose</b>   | 1. What is the main purpose of this reading?<br>a. to explain how life started on Earth<br>b. to explain why we might find intelligent life outside of Earth<br>c. to show how telescopes work<br>d. to describe what life on other planets might look like  |
| <b>Main Idea</b> | 2. What could be another title for the last paragraph?<br>a. When Aliens Visited Earth<br>b. The Distance Between Planets<br>c. Our Galaxy: The Milky Way<br>d. Communicating with Intelligent Life  |
| <b>Detail</b>    | 3. Which reason for the existence of intelligent life is NOT mentioned?<br>a. There are planets in other solar systems that might be the size of Earth.<br>b. Some planets that circle stars might be similar to Earth.<br>c. The universe is too old to have just one planet with intelligent life.<br>d. Some other planets in the Milky Way have water. |
| <b>Detail</b>    | 4. What kinds of planets are most likely to have intelligent life?<br>a. Earth-size planets in our solar system<br>b. Earth-size planets in other solar systems<br>c. larger planets in our solar system<br>d. larger planets in other solar systems   |
| <b>Detail</b>    | 5. Why doesn't Shostak think intelligent beings have visited Earth?<br>a. They are waiting for us to contact them.<br>b. They don't have enough knowledge about Earth.<br>c. They are waiting for our technology to improve.<br>d. The distance to Earth is too great.   |
| <b>Reference</b> | 6. In lines 25–26, what does <i>life forms</i> refer to?<br>a. messages<br>b. radio signals<br>c. beings<br>d. planets   |
| <b>Detail</b>    | 7. Why does Shostak think we may make contact with intelligent life within the next 20 years?<br>a. We will have better technology to receive their messages.<br>b. We will be better able to send radio signals.<br>c. Bigger telescopes will identify an Earthlike planet.<br>d. Intelligent life will finally receive messages that we sent to them.    |



### Did You Know?

In April 2013, the Kepler Space Telescope found two Earthlike planets that might have water and—maybe—intelligent life.

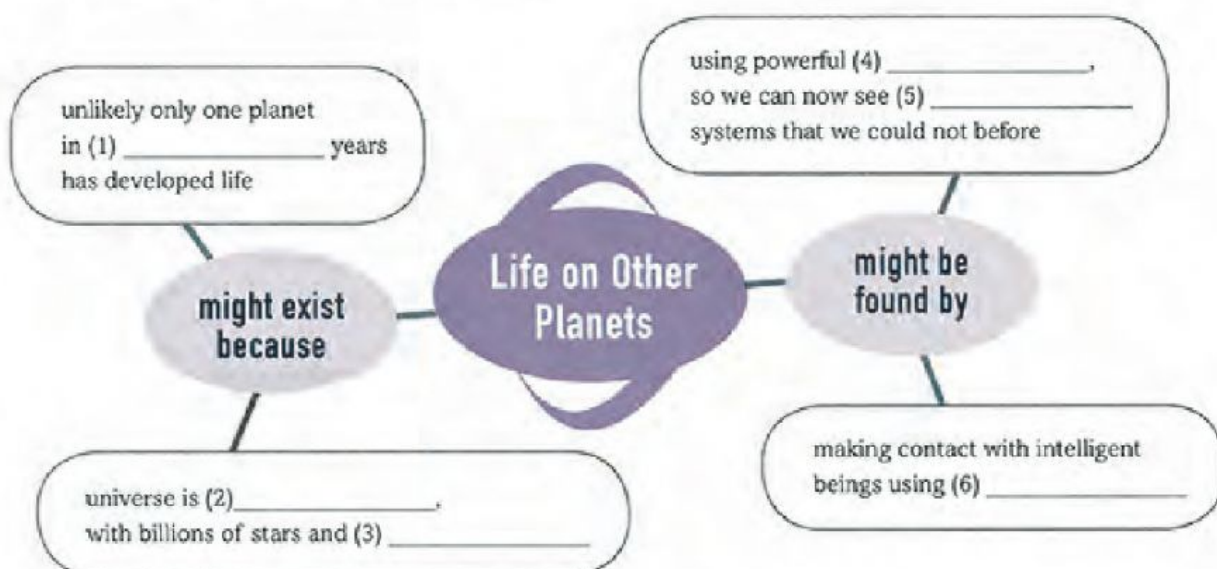
## Summarizing Using a Concept Map

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

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

**A. Analyzing.** Look back at the reading on pages 51–52. Discuss with a partner the kind of information you will need in order to summarize the text. Underline the main ideas and key details in the text.

**B. Summary.** Complete the concept map below with words from the reading.



**Critical Thinking** Discuss with a partner. What other reasons can you think of that life on other planets might or might not exist?



## Vocabulary Practice

- A. Completion.** Complete the sentences by circling the correct word or phrase in each pair.

Does life exist on other planets? Scientists use different methods to answer this question. Some use 1. (**powerful** / **entire**) radio telescopes. They hope to receive 2. (**tools** / **messages**) from intelligent life on distant planets. Other scientists only 3. (**search for** / **allow**) life in our solar system. But these scientists aren't only looking for intelligent life. They want to 4. (**circle** / **identify**) any possible life forms. To do this, they have to test whether conditions on a planet would 5. (**allow** / **contact**) any kind of life to exist.

- B. Words in Context.** Complete each sentence with the correct answer.

1. We measure **distance** in \_\_\_\_\_.  
a. kilometers (km)   b. kilograms (kg)
2. Some examples of **tools** are \_\_\_\_\_.  
a. monkeys and dolphins   b. telephones and laptops
3. If you **contact** someone, you \_\_\_\_\_ him or her.  
a. meet or communicate with   b. research and write about
4. If you have lived in a place your **entire** life, you have lived there \_\_\_\_\_ of your life.  
a. some   b. all
5. If a spaceship **circles** a planet, it \_\_\_\_\_ the planet.  
a. goes around   b. lands on

**Word Partnership** Use *message* with verbs and adjectives:  
(v.) **give** someone a message, **leave** a message, **take** a message, **get** a message, **send** a message; (adj.) **clear** message, **important** message, **powerful** message, **strong** message.

✓ Satellite dishes in New Mexico, U.S.A.



Unit 4A 55

## Before You Read

**A. Completion.** Read the definitions. Complete the paragraph with the correct form of the words in **bold**.

**astronaut:** a person who travels into space

**colony:** a place or an area under the control of another place, usually another country

**establish:** to make or start something, such as a system or an organization

**rocket:** a vehicle used to travel to space

Robert Zubrin is a(n) **1.** \_\_\_\_\_ scientist; he designs spaceships. He thinks we should send **2.** \_\_\_\_\_ into space, but not just to visit. Zubrin wants to **3.** \_\_\_\_\_ a human **4.** \_\_\_\_\_ on the planet Mars. He wants to change the planet into a new place for humans to live.

**B. Predict.** Read the sentence below. Circle your answer and discuss your reasons with a partner. Then compare your ideas with those in the passage.

Sending humans into space to live (**is** / **is not**) a good idea because . . .



^ This is how a Mars One colony might look like in the future.