

Name _____

approximately	astronomical	calculation	criteria
diameter	evaluate	orbit	spheres

Use each pair of vocabulary words in a single sentence.

- 1. spheres, diameter






- 2. evaluate, criteria

- 3. astronomical, orbit

- 4. calculation, approximately

Name _____

Read the selection. Complete the cause and effect graphic organizer.

Cause		Effect
		
		
		
		

Name _____

Read the passage. Use the ask and answer questions strategy to check your understanding as you read.

Is There Life Out There?

11 “Is there life out there?” is a question scientists who study
12 astrobology are trying to answer. They look for life in space. In recent
13 years, they have turned their attention to Europa, one of Jupiter’s four
14 largest moons.
15

16 Europa is a little smaller than Earth’s moon and is covered by a sheet of
17 ice. Its surface is too cold and exposed to too much radiation for anything
18 to live there. Scientists want to know what lies beneath the ice, for that is
19 where any life on Europa would most likely be.
20

91 The Necessities of Life

92 For years, scientists believed all life on Earth depended on energy
93 from the sun. During a process called photosynthesis, plants use energy
94 from sunlight to make food and to release oxygen into the atmosphere.
95 Aerobic creatures rely on that oxygen to breathe. In addition to providing
96 the fuel for photosynthesis, sunlight also provides the necessary
97 warmth for life to survive. Scientists believed life could not survive in
98 extreme temperatures.
99

100 Scientists also believed that all food chains led back to photosynthesis
101 and the food produced by plants. Recent discoveries, however, have
102 changed the way scientists think about life. They have discovered tube-
103 shaped, worm-like creatures and other animals living around hydrothermal
104 vents on the ocean floor. These newfound creatures do not rely on the sun
105 or plants for food and energy.
106

Name _____

The animals living around hydrothermal vents eat a form of bacteria that live on or below the ocean floor. The bacteria get energy during a process called chemosynthesis. Hydrothermal vents spit warm water filled with chemicals from inside the earth. The bacteria use these chemicals the way plants on the surface use sunlight: as a source of food and energy.

New Possibilities

The discovery of chemosynthetic life changed the way astrobiologists think about life in space. No longer do they have to look only for planets with sunlight and oxygen. Based on Earth's example, planets with oceans and hydrothermal vents might also support life. Based on these discoveries, Europa began to seem like a place where life might exist.

Europa has an oxygen-rich atmosphere, but the oxygen is not produced by photosynthesis. Europa is too far from the sun and too cold to support photosynthetic life. Its surface temperature is usually more than 200 degrees below zero Fahrenheit.

Europa does have oceans. In fact, Europa appears to have more oceans than Earth does. The ice on this moon's surface covers what appears to be moving liquid water. Do these oceans contain hydrothermal vents? Scientists do not yet know. If they do, the oceans of Europa might support chemosynthetic life. Only a space mission to Europa would tell for certain.

Until then, scientists are studying the closest possible environment they can find on Earth: Lake Vostok in Antarctica. Like Europa's oceans, Lake Vostok exists miles beneath a frozen surface. It does not receive direct sunlight, either. Therefore, like Europa, the lake cannot support photosynthetic life. If scientists find life in the lake, it would support the idea that there might also be life on Europa.

Name _____

A. Reread the passage and answer the questions.

1. What details from the first two paragraphs help explain why astrobiologists are interested in Europa, one of Jupiter’s moons?

2. What discovery on Earth caused scientists to become more interested in Europa?

3. What is the scientists’ main reason for studying Lake Vostok in Antarctica? What effect might their research have?

B. Work with a partner. Read the passage aloud. Pay attention to accuracy. Stop after one minute. Fill out the chart.

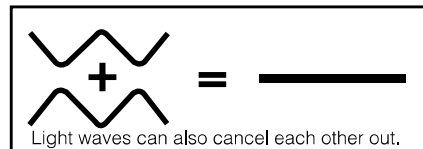
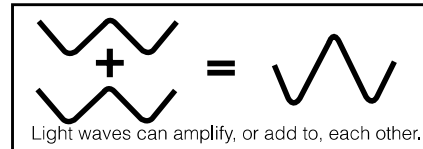
	Words Read	–	Number of Errors	=	Words Correct Score
First Read		–		=	
Second Read		–		=	

Copyright © The McGraw-Hill Companies, Inc.

Name _____

Seeing the Light

In 1803, Thomas Young made a discovery about light. He found that when light from two sources overlapped, it made a pattern of bright light and darkness. He thought light acted like a wave: the bright areas were created when two light waves matched up; the dark areas were created when two light waves did not match. His theory led to future discoveries about light.



Young discovered light waves change in brightness when they overlap.

Answer the questions about the text.

1. What genre of text is this? How do you know?

2. What text features does this text include?

3. How does the title relate to the main idea?

4. How does the graphic text feature help you better understand the text?

Name _____

<i>aero</i> = air	<i>chemo</i> = chemical	<i>sphaira</i> = globe, ball
<i>atmos</i> = vapor, steam	<i>hydro</i> = water	<i>syntithenai</i> = making or putting together
<i>astro</i> = star	<i>logy</i> = the study of	<i>therme</i> = heat
<i>bio</i> = life	<i>photo</i> = light	

Read each passage below. For each word in **bold**, write the Greek root or roots from the box above. Use the Greek roots and context clues to write the word's meaning.

1. "Is there life out there?" is a question scientists who study **astrobiology** are trying to answer. They look for life in space.

Greek root(s): _____

Meaning: _____

2. During a process called **photosynthesis**, plants use energy from sunlight to make food.

Greek root(s): _____

Meaning: _____

3. Plants make food and release oxygen into the **atmosphere**.

Greek root(s): _____

Meaning: _____

4. **Aerobic** creatures rely on that oxygen to breathe.

Greek root(s): _____

Meaning: _____

5. The animals living around **hydrothermal** vents eat a form of bacteria that live on or below the ocean floor.

Greek root(s): _____

Meaning: _____

Name _____

A. Read each sentence. Write the word with the suffix *-less* or *-ness* on the line. Then circle the suffix.

1. The owls went hunting under the cover of darkness. _____
2. The fearless police officers raced to the rescue. _____
3. "I will not tolerate this foolishness," our teacher said. _____
4. Were you filled with sadness when your team lost the game? _____
5. The photographer captured the fullness of the moon. _____
6. The situation seemed hopeless, but we kept trying. _____

B. Add the suffix *-less* or *-ness* to the word in parentheses. Write the new sentence on the line.

7. Our boat drifted for hours on the (motion) sea.

8. Did you see the (fierce) in the tiger's eyes?

9. The spider looked (harm), but I decided not to touch it.

10. My parents and I have a (fond) for picnics in the woods.

Name _____

Evidence is details and examples from a text that support a writer’s opinion. The student who wrote the paragraph below cited evidence that supports his or her opinion about the author’s use of cause and effect.

Topic sentence	→	I believe that the author of “Is There Life Out There?” used the cause and effect structure effectively.
Evidence	→	Readers can follow how changes in our understanding of life have led to new discoveries. For example, the discovery of animals living near hydrothermal vents in the ocean has helped scientists to discover chemosynthesis. As a result, they are now looking for life in the most unusual places.
Concluding statement	→	Another effect of their search might be the discovery of life in outer space, such as on the moon Europa!

Write a paragraph about the text you have chosen. Show how the author used cause and effect and give your opinion of its effectiveness. Cite evidence from the text. Remember to link ideas using clear transitions and to use the correct form of adjectives when making comparisons.

Write a topic sentence: _____

Cite evidence from the text: _____

End with a concluding statement: _____

Name _____

A. Read the draft model. Use the questions that follow the draft to help you think about how to add related ideas and delete unrelated ideas to create a stronger paragraph.

Draft Model

The best way to learn about space is with a telescope. You can see what the surface of Earth's moon looks like. The moon is not a planet.

1. What is the main topic of this paragraph?
2. How might you describe a telescope? For example, are there different types?
3. What can you learn from studying the surface of the moon?
4. What idea in the paragraph is unrelated to the rest of the paragraph?

B. Now revise the draft by adding related ideas and deleting unrelated ideas to make a strong paragraph.
