

**UNDERSTANDING THE LESSON****7****Putting Events in Order****LESSON 1 CONTENT MASTER**

\* The chart can help you understand how science advanced during the 1500s and 1600s. In each box write the name of one scientist. Give a brief description of the theory, invention, or improvement that he was best known for. Be sure to list the scientists in their correct historical order. The first name has been entered for you.

**Name of scientist:** Copernicus

**Theory:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Name of scientist:**

**Improvement:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Name of scientist:**

**Invention:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Name of scientist:**

**Improvement:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Think and Write:** What skills or qualities do you think a good inventor has? Write a paragraph describing the needed skills or qualities, and why they are necessary to being a good inventor. You may use the back of the sheet.

# A REVOLUTION IN SCIENCE

# 7

\* Study the events in the box. Decide which came first, second, third, fourth, and fifth. Then write the events in order on the lines below the box.

- Galileo uses a telescope to discover four of Jupiter's moons.
- *On the Revolutions of the Heavenly Bodies* is printed.
- Ptolemy says the sun, moon, and planets revolve around the earth.
- Leeuwenhoek's microscope enables people to study microorganisms.
- Copernicus is convinced the earth and planets revolve around the sun.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

Copy the group of words that correctly completes each of the following sentences.

1. Copernicus did not want to publish his book because he was afraid that \_\_\_\_\_  
 a. people would scorn him      b. he was wrong      c. it was not well-written
2. Galileo learned about pendulums and falling objects by \_\_\_\_\_  
 a. talking with Copernicus      b. observing them      c. studying Aristotle
3. The invention of the telescope enabled scientists to \_\_\_\_\_  
 a. study distant objects      b. become famous      c. work with sea captains
4. Observation and experiments brought about a change in \_\_\_\_\_  
 a. people's thinking      b. the nature of the earth      c. lens grinding

Thinking Further: Why do you think people in the 1500s found it so difficult to change their beliefs from Ptolemy's view of the universe to Copernicus's?

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# ANALYZING VIEWS OF OUR SOLAR SYSTEM

# 7

\* The paragraphs below describe three scientists who made important discoveries about our solar system. On the facing page are two illustrations. One shows the place of the earth in the universe according to a theory, or set of ideas, devised in the first century A.D. The second shows a major revision of the theory during the Renaissance. Read the paragraphs and study the illustrations. Then answer the questions.

You have probably studied the solar system in school. Our solar system consists of the sun, the nine major planets and their moons, and a belt of asteroids, or minor planets. All these bodies, including the earth, revolve around the sun.

For many centuries, however, people thought that the sun, other stars, and the planets revolved around the earth. One man who believed this was Ptolemy, an Egyptian astronomer who lived from about A.D. 100 to 165. Ptolemy spent many years trying to figure out how the stars and planets moved around the earth. Scientists later gave his name to this theory. They called it the Ptolemaic Theory.

Around 1512 a Polish astronomer,

Nicolaus Copernicus, decided that this ancient view of the universe was wrong. He was the first to observe that the sun is the center of our solar system and that the earth and other planets move around it. This theory is called the Copernican Theory.

About 1609, Johannes Kepler, a German astronomer, made another important discovery. He observed that the planets do not move around the sun in circular orbits. Rather, they move in paths shaped like ellipses or ovals.

The discoveries of the Renaissance scientists Copernicus and Kepler made possible much of what we know today about our solar system.

1. Identify and describe briefly the three astronomers mentioned in the paragraphs.

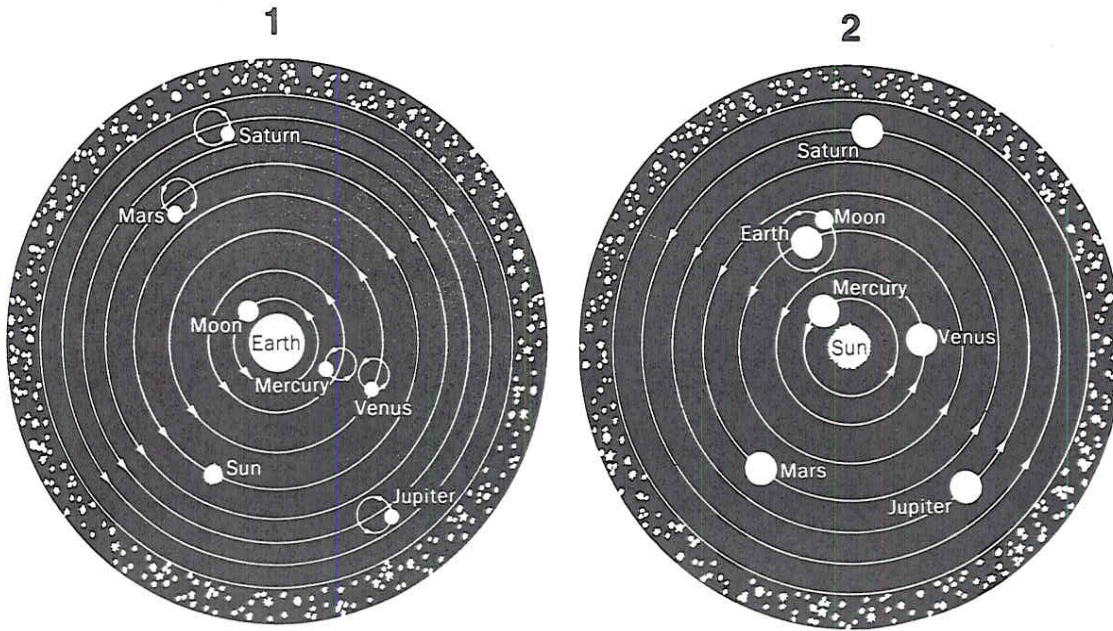
- a. \_\_\_\_\_  
 \_\_\_\_\_
- b. \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- c. \_\_\_\_\_  
 \_\_\_\_\_

2. What did Ptolemy think was at the center of the universe? \_\_\_\_\_  
 \_\_\_\_\_

3. Who first observed that the planets revolve around the sun? \_\_\_\_\_  
 \_\_\_\_\_



ANALYZING VIEWS OF OUR SOLAR SYSTEM *CONTINUED*



**Ptolemaic Theory** Ptolemy thought that the earth was the center of the universe and that the sun and the planets circled the earth. Ptolemy also believed the planets moved in smaller circles, called epicycles.

**Copernican Theory** Copernicus was the first astronomer to observe that the earth, moon, and planets orbit the sun.

4. What did Kepler add to the Copernican Theory? \_\_\_\_\_  
\_\_\_\_\_
5. What is the main difference in how the earth is shown between illustrations 1 and 2 above? \_\_\_\_\_  
\_\_\_\_\_
6. Describe two ways in which illustrations 1 and 2 are alike. \_\_\_\_\_  
\_\_\_\_\_

**Thinking Further:** For centuries people have observed the solar system and stars. How did improvements in the telescope by Galileo (1564–1642) and others make observing the universe easier?

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\_\_\_\_\_