The Moving Earth

How new evidence challenged old ideas

SS24.8.17 "Analyze the influence of the Scientific Revolution on European religion and society, including the astronomical theories of Nicolaus Copernicus and Galileo Galilei..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline observations and claims about the heavens, circle a religious or social response to them, and number the actions investigators used to check ideas.

A Sky in Question

1 In 1543, Nicolaus Copernicus published a surprising proposal: Earth and the other planets travel around the Sun. Many Europeans had learned that Earth stood still at the center of the universe. His model challenged that familiar picture and raised questions about how to read Bible passages that seemed to describe a motionless Earth. Copernicus used mathematics and earlier observations to build his model, but he lacked direct proof that Earth moved. His idea invited people to test an explanation of the heavens rather than accept a familiar one.

2 About seventy years later, Galileo Galilei aimed a telescope at the sky. He saw moons orbiting Jupiter, showing that not everything circles Earth. He also observed the changing phases of Venus, evidence that fit a Sun-centered arrangement of the planets. Galileo argued that observation should help decide questions about nature. Some Church leaders saw his public defense of Earth's motion as a challenge to their reading of Scripture. In 1633, a Church court judged him strongly suspected of heresy, and he spent the rest of his life under house arrest.

3 The Scientific Revolution changed more than astronomy. Investigators increasingly tested ideas with careful observations, measurements, and experiments, then shared results so others could check them. This approach, now called the scientific method, could expose mistakes and lead to new questions. For example, a scientist studying falling objects could compare measured drops instead of relying only on an ancient writer's claim. Printed books and scientific groups helped discoveries circulate across Europe. The changes did not end religious belief: many investigators remained religious, while debates continued over who could explain the natural world.

2 ANSWER WITH EVIDENCE

Use the passage

1. How did Copernicus's proposal challenge both a familiar picture of the universe and some readings of the Bible?

2. How did Galileo's observations of Jupiter and Venus each challenge or test ideas about the planets?

3. Why did Galileo's way of studying the sky lead to a conflict with some Church leaders, and what happened to him?

4. Why could the scientific method lead to new ideas instead of simply repeating older claims?

3 YOUR TURN

Your own words

Imagine a respected European writer claims that seeds grow best without sunlight. In four to five sentences, describe a fair test, explain how others could check the results, and show how a finding might change what people accept as true.

ANSWER KEY

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GRADE 8 · SS24.8.17

PART 1 · READ AND MARK

Underline observations and claims about the heavens, circle a religious or social response to them, and number the actions investigators used to check ideas. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How did Copernicus's proposal challenge both a familiar picture of the universe and some readings of the Bible?	**It placed Earth in motion around the Sun instead of still at the center, raising questions about Bible passages that seemed to describe a motionless Earth.**
2	How did Galileo's observations of Jupiter and Venus each challenge or test ideas about the planets?	**Jupiter's moons showed that not everything orbits Earth. Venus's changing phases fit a Sun-centered arrangement of the planets.**
3	Why did Galileo's way of studying the sky lead to a conflict with some Church leaders, and what happened to him?	**He used observations to defend Earth's motion, which some leaders saw as a challenge to their reading of Scripture. A Church court judged him strongly suspected of heresy, and he lived under house arrest.**
4	Why could the scientific method lead to new ideas instead of simply repeating older claims?	**Investigators tested claims through observation, measurement, and experiments, then shared results for others to check. This could reveal mistakes and raise new questions.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Investigators could plant the same kind of seeds in matching pots with equal amounts of soil and water. They could place one group in sunlight and another in darkness, then measure how many seeds sprout and how the plants grow. By sharing their methods and measurements, they would let others repeat the test. If the plants in sunlight grew better, people might question the respected writer's claim and trust the tested evidence instead.

Accept answers that distinguish Jupiter's moons from Venus's phases: the moons show that not everything orbits Earth, while the phases fit a Sun-centered arrangement. For Part 3, look for a controlled comparison, a way to repeat or check the test, and a plausible effect on accepted ideas.