

## Copernicus | Lesson Plan

How did Copernicus' discovery of a heliocentric universe demonstrate that evidence, not popularity, should determine truth?

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Through investigating Copernicus' journey in formulating his heliocentric theory of the universe, students will understand the role of hard work and perseverance in finding and determining truth.

### Learning Objectives:

- Explain that persistence, work ethic, and intellectual curiosity are vital to the discovery of truth.
- Recognize that ideas are not correct just because everyone believes them—evidence determines fact.
- Describe and sketch the astronomical objects that make up our solar system.

### Key Vocabulary:

- **Astronomer:** A scientist who studies the objects in the sky, including planets, galaxies, black holes, and stars.
- **Observatory:** A place for observing and studying natural objects and events on Earth or in space.
- **Heliocentric:** A Sun-centered theory of the universe.
- **Geocentric:** An Earth-centered theory of the universe.
- **Orbit:** A regular, repeating path that one object in space takes around another one.
- **Lunar Eclipse:** A time when the earth is in between the moon and the sun, casting a shadow onto the moon.
- **Axis:** A real or imagined line through the center of an object.

**Educational Standards:** CCRA.L.1, CCRA.L.2, CCRA.L.4, CCRA.W.4, CCRA.R.7, CCRA.SL.1, CCRA.SL.2, CCRA.SL.4, CCRA.W.2

**Academic Subject Areas:** Biography, Science, Discoveries

### What You'll Need

- Video: *Nicolaus Copernicus: Questioning The Center Of Our Solar System* (Watch [Here](#))
- Worksheet: *Nicolaus Copernicus: Questioning The Center Of Our Solar System* (Click [Here](#))
- Yellow, blue, and white construction paper cut into circles, one of each color for each group of three students
- A poster or online graphic of our solar system to use for the worksheet



## Lesson Plan (45 minutes)

### Warm-Up: (20 minutes)

1. Briefly explain the heliocentric model of the Universe: The sun is at the center of our solar system. The Earth and other planets revolve around the sun, and the moon revolves around the Earth.
2. In a large open space, place students in groups of three. Give each group three circles of construction paper: one yellow, one blue, and one white.
3. Choose one student in each group to be the sun (that student will hold the yellow circle), one to be the Earth (that student will hold the blue circle), and one to be the moon (that student will hold the white circle).
4. Instruct the sun to stand still in the center, the Earth to stand an appropriate distance away, and the moon to stand close to the earth.
5. Guide the Earth to slowly walk around the sun in a circular path to represent Earth's orbit. As the Earth moves, instruct the moon to walk around the Earth to represent the moon's orbit.
6. Explain that the Earth takes one year to orbit around the sun, and the moon takes about one month to orbit around the Earth.
7. Discuss how the heliocentric model (demonstrated here) was a significant change from the previous geocentric model, where people once believed that the earth was at the center of the universe.
8. Reveal that the class will watch a video about a man named Nicolaus Copernicus, who first proposed the theory that the sun is near the center of the universe.
9. Display the worksheet and distribute individual copies to students.
10. Read over the worksheet as a class so that students know what to listen for during the video.

### Watch and Complete: (15 minutes)

1. Watch the video.
2. Pause throughout the video to allow students to complete answers and notes on the worksheet. Assist as needed.

### Wrap-Up: (10 minutes)

1. Allow students several minutes to complete the worksheet independently.
2. If time allows, invite volunteers to share their responses to questions 13 and 14.
3. Collect the worksheet as a formative assessment or participation grade.
4. Conclude the lesson by having students reflect on the importance of understanding how Copernicus demonstrated persistence, a strong work ethic, and intellectual curiosity in his quest for truth. These qualities were crucial in helping him make such an important discovery.
5. Encourage students to think about how these traits apply to their own lives. How can persistence and curiosity help them learn something new or solve problems they encounter? Just as Copernicus didn't accept the widely held belief that the Earth was at

the center of the universe without evidence, students should consider the importance of questioning ideas and seeking evidence themselves.

6. Reiterate that understanding Copernicus and his heliocentric theory is vital because it teaches valuable lessons about the importance of curiosity and questioning the world around us. These skills are not only crucial for scientists but are also useful in everyday life, from school projects to gaining a better understanding of the world.
7. Conclude by explaining that learning about Copernicus is important because it shows that challenging popular beliefs and seeking evidence can lead to incredible discoveries. Remind students that true understanding comes from observing, questioning, and never giving up on the search for truth.

### **Don't have time for the full lesson? Quick Activity (15-20 minutes)**

Distribute the worksheet and allow students to complete it while they follow along with the video.