

Warm-up

Ask students to reflect on what they have seen in the night sky and draw a celestial body. Provide them with the necessary stationery material. Then, tell students to share their drawings with a classmate so that they can guess what they have drawn. Finally, have a gallery walk of the group's drawings. Have a class vote for the most accurately drawn.

Teaching Tip

For Exercise 2
After completing Exercise 2, tell students to arrange the events chronologically. First, divide the class into small groups. Next, have them research the historical context in general. Then, tell students to design a timeline, adding other major world events from that time. Encourage the use of digital tools to present their timelines. Finally, have the groups present them and notice the other major world events that each group included and others didn't.

Differentiation Strategy

For Exercise 3
Go to the Differentiation Strategies Bank and adapt this exercise using Strategy 4c.

Flexi Exercises

(To adjust to students' needs, you can either use or not the activities below)

Exercise 1



Social Studies

Why do we look at the stars?

01 With a classmate, discuss the following questions.

1. What have you observed in the sky at night?
2. Why did ancient peoples observe the night sky?
3. How do you think it impacted their worldviews?

02 Read "Reinventing the Wheel." Write the name of the person who best completes the description.

| | |
|-----------------------|---|
| 1. Ptolomey | proposed a geocentric view of the Solar System. |
| 2. Galileo Galilei | was convicted of heresy for his beliefs about the movements of celestial bodies around the Sun. |
| 3. Copernicus | wrote about heliocentrism. |
| 4. Greek philosophers | were the first to propose that the Sun stayed in a static position. |

03 Read the text again. Complete the definition of heliocentrism and its history using words in bold from the text.

For centuries, the 1. geocentric view of the Solar System suggested that the Earth was at the center and that 2. heavenly / celestial bodies moved around it. Later scientists observed that the Sun remains in a 3. static position while the Earth and other 4. heavenly / celestial bodies rotate around it. This 5. heliocentric view was considered 6. heresy for centuries but is now the accepted explanation.

Reinventing the Wheel

Humans have always looked up at the sky and wondered about our place in the universe. For centuries, the greatest minds pondered the relative positions of the Sun, the Earth, and other planets, but they couldn't prove their theories without the right tools.

Early Greek philosophers proposed that the Earth rotated around a large ball of fire, giving birth to the first **heliocentric** model. However, some observers argued that this concept didn't explain why the stars in the sky appeared to stay relatively **static**. In the second century, the Roman-Egyptian astronomer Ptolemy provided a counter-idea, saying that the Earth must be static and that the Sun and other **celestial** bodies rotated around it. This **geocentric** worldview held sway for 1400 years.

We might still believe this if Nicolas Copernicus, a Polish astronomer, hadn't resurfaced earlier Greek ideas that the Sun is at the center of our Solar System and that the Earth and other **heavenly** bodies rotate around it. His concept, published in 1543, was called heliocentrism and took time to be accepted. However, a century later, the great minds of scientists such as Sir Isaac Newton and Galileo Galilei supported and built upon his model.

Although nowadays no one questions the heliocentric model, the Catholic Church considered the idea heretical in the early days. Galileo Galilei was convicted of **heresy** in 1633, and his book was banned, but thanks to his powerful connections, he was spared death. It wasn't until 1992 that the Church fully admitted that it had wrongly persecuted and imprisoned the Italian.



04 Working with a classmate, discuss how the following people probably felt about the situation given.

- › Ancient peoples / observing the sky
- › Copernicus / publishing his ideas about heliocentrism
- › Galileo Galilei / being jailed for his beliefs

Teaching Tip

For Exercise 6

After completing Exercise 6, encourage students to reflect on the function of the language in the blanks. Then, ask students to compare their answers with a classmate, justifying their reasoning. Finally, have volunteers share their sentences with the rest of the class.

Language Structures and Functions Tip

For Exercise 7

After writing, tell students to review their work and edit it for formality. Then, encourage them to get feedback from a classmate about the appropriate degree of formality in the speech. Afterward, invite volunteers to read their speeches aloud in groups and vote for the most convincing speech. Finally, if time allows and you deem necessary, review the grammar point in detail.

Differentiation Strategy

For Exercise 8

Go to the Differentiation Strategies Bank and adapt this exercise using Strategy 5.

Wrap-up

After designing their presentations, tell students to get feedback from a classmate. Then, tell students to write a few comprehension questions to help them check their audience's comprehension. For example:

1. *Who was the first scientist to believe Earth moved around the Sun?*
2. *What was Galileo charged with?*

Flexi Exercises

(To adjust to students' needs, you can either use or not the activities below)

Exercise 5

05 Read the sentences below. Write if they express certainty "C," ability "A," or criticism "CR."

1. Ancient people could appreciate the night sky better when there wasn't light pollution.

A

2. My telescope is broken! You could have been more careful with it!

CR

3. It might rain later, so we may not be able to see the stars well.

C

4. Ptolemy could not have understood the universe clearly if he thought geocentrism was accurate.

A

5. You might have helped me with my presentation about Galileo! I ended up getting a low mark.

CR

6. Meg knows so much about the stars. She may have majored in astronomy at university.

C

06 Complete the sentences by adding *can*, *could*, *might*, or *may* to one of the verbs in the box in the correct form.

allow / base / kill / name / study / tell

1. Greek philosophers _____ *couldn't / can't have based* their beliefs on scientific observations.

2. Galileo _____ *might / may have been killed* _____ had he not had powerful friends.

3. Nowadays, scientists _____ *can't allow* their personal beliefs to cloud their professional observations.

4. After going to the observatory, I think I _____ *may / might study* _____ astronomy at university.

5. Cindy _____ *might / could have told* me it would rain! We came all the way here and couldn't use the telescopes!

6. Sam _____ *could name* all the major constellations in the northern hemisphere when she was a kid.

07 Write a speech supporting heliocentrism as if you were Galileo Galilei. Answers will vary.



08 With a classmate, design a presentation about heliocentrism for younger students. Draw a diagram in your notebook to help you get started.