

Sky Tools Compared

Compare how tools change what scientists can learn from space.

S4E1.a "Ask questions to compare and contrast technological advances that have changed the amount and type of information on distant objects in the sky."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the name of each sky-watching tool or telescope. Circle the words that tell what new amount or type of information it gave scientists.

New Ways to Study the Sky

- ① Long ago, sky watchers used only their eyes. They could see the Moon, several planets, and bright stars, but distant objects looked like tiny points. In 1609, Galileo aimed a small telescope at the sky. Its lenses made objects appear larger and collected more light. He saw mountains on the Moon and four moons moving around Jupiter, details that eyes alone could not show.
- ② Later, radio telescopes gave scientists a different kind of information. Instead of collecting visible light, these instruments detect radio waves from space. Radio waves can pass through some clouds of dust that block visible light. Radio observations helped scientists find large clouds of cold gas in the Milky Way and study pulsars, spinning stars that send regular radio signals.
- ③ Today, space telescopes avoid much of Earth's air, which can blur images and block some kinds of light. The Hubble Space Telescope observes mainly visible and ultraviolet light. The James Webb Space Telescope observes mostly infrared light, which can show warm dust and very distant galaxies. Both collect information from distant objects, but their different detectors give scientists different clues about what those objects are like.

2

ANSWER WITH EVIDENCE

Use the passage

1

Compare unaided eyes with Galileo's telescope. What two details could Galileo see that eyes alone could not show?

2

How did the information from a radio telescope differ from information collected with visible light? Give one difference from the passage.

3

Compare the Hubble Space Telescope and the James Webb Space Telescope. State one way they are alike and one way they are different.

4

Write one question that compares Galileo's telescope with a radio telescope and asks about the type of information each tool collects.

3

YOUR TURN

Your own words

Choose two different pairs of sky-watching tools from the passage. For each pair, write a question that compares the amount or type of information the tools provide, then answer your question using the passage.

TECHNOLOGY PAIR	COMPARISON QUESTION	ANSWER FROM THE PASSAGE

PART 1 • READ AND MARK

Underline the name of each sky-watching tool or telescope. Circle the words that tell what new amount or type of information it gave scientists. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Compare unaided eyes with Galileo's telescope. What two details could Galileo see that eyes alone could not show?	He saw mountains on the Moon and four moons moving around Jupiter.
2	How did the information from a radio telescope differ from information collected with visible light? Give one difference from the passage.	A radio telescope detects radio waves, which can pass through some dust that blocks visible light. This can help scientists find cold gas or study pulsar signals.
3	Compare the Hubble Space Telescope and the James Webb Space Telescope. State one way they are alike and one way they are different.	Both collect information from distant objects. Hubble observes mainly visible and ultraviolet light, while James Webb observes mostly infrared light.
4	Write one question that compares Galileo's telescope with a radio telescope and asks about the type of information each tool collects.	Sample answer: How is the information collected by Galileo's lens telescope different from the radio-wave information collected by a radio telescope?

PART 3 • YOUR TURN (SAMPLE ANSWER)

TECHNOLOGY PAIR	COMPARISON QUESTION	ANSWER FROM THE PASSAGE
Unaided eyes and Galileo's telescope	How did Galileo's telescope change the amount of detail sky watchers could see?	It made objects appear larger and collected more light, revealing Moon mountains and four moons around Jupiter.
Hubble Space Telescope and James Webb Space Telescope	How do the types of light observed by Hubble and James Webb differ?	Hubble observes mainly visible and ultraviolet light, while James Webb observes mostly infrared light.

Accept comparison questions that name two tools from the passage and ask about an amount or type of information. Answers must accurately use passage evidence and may use different wording.