

Solar System Clues

Track planet order, motion, and size.

4.5 “The student will investigate and understand that the planets have characteristics and a specific place in the solar system. Key ideas include planets rotate on their axes and revolve around the sun...”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each planet name and write its order number above it. Circle *rotation* and *revolution*, then box the three sentences that give diameter comparisons.

A Place, a Spin, a Path

- ① Our solar system has eight planets. Starting closest to the Sun, their order is Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune. A planet's place affects how far it is from the Sun. Earth is third, while Neptune is eighth and much farther away. The Sun is a star at the center, not a planet.
- ② Each planet spins around an imaginary line called an axis. This spinning is rotation. As a planet rotates, different parts face the Sun, helping create day and night. At the same time, each planet travels in a path around the Sun. This larger trip is revolution. One rotation makes a day, and one revolution makes a year.
- ③ Planets are not the same size. Jupiter is the largest planet, with a diameter about 11 times Earth's diameter. The Sun is far larger than Jupiter. About 109 Earths could stretch across the Sun's diameter. Comparing diameters helps scientists describe size. Even the largest planet is tiny beside the Sun, but every planet has its own place and motion.

2

ANSWER WITH EVIDENCE

Use the passage

1

A spacecraft stops at the fourth planet from the Sun. What planet is it, and which planets are directly before and after it?

2

A planet completes one trip around the Sun. What has it completed? Explain why days can still pass during that trip.

3

Put the Sun, Jupiter, and Earth in order from largest to smallest. Use one diameter fact from the passage to support your order.

4

A spacecraft travels outward from the Sun to Earth, then Jupiter, then Neptune. Is it moving in the correct outward order? Use the planets' order numbers to explain.

3

YOUR TURN

Your own words

Plan a robot mission to Jupiter. Complete three rows, one about Jupiter's order, one about its motion, and one about size. In each row, write a fact and a mission choice that the fact supports.

FEATURE	FACT ABOUT JUPITER	MISSION CHOICE

PART 1 • READ AND MARK

Underline each planet name and write its order number above it. Circle *rotation* and *revolution*, then box the three sentences that give diameter comparisons. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	A spacecraft stops at the fourth planet from the Sun. What planet is it, and which planets are directly before and after it?	It is Mars. Earth is directly before Mars, and Jupiter is directly after Mars.
2	A planet completes one trip around the Sun. What has it completed? Explain why days can still pass during that trip.	It has completed one revolution. Days can pass because the planet rotates on its axis while it revolves around the Sun.
3	Put the Sun, Jupiter, and Earth in order from largest to smallest. Use one diameter fact from the passage to support your order.	Sun, Jupiter, Earth. The Sun is about 109 Earth diameters across, and Jupiter is about 11 Earth diameters across.
4	A spacecraft travels outward from the Sun to Earth, then Jupiter, then Neptune. Is it moving in the correct outward order? Use the planets' order numbers to explain.	Yes. Earth is third, Jupiter is fifth, and Neptune is eighth from the Sun.

PART 3 • YOUR TURN (SAMPLE ANSWER)

FEATURE	FACT ABOUT JUPITER	MISSION CHOICE
Order	Jupiter is the fifth planet from the Sun.	Plan for the robot to travel past the first four planets before arriving.
Motion	Jupiter rotates on its axis and revolves around the Sun.	Use a clock for Jupiter's day and a calendar for Jupiter's year.
Size	Jupiter is about 11 Earth diameters across, but the Sun is about 109 Earth diameters across.	Use a size scale that can show Jupiter and the much larger Sun.

Accept equivalent wording that accurately uses the passage's planet order, rotation and revolution facts, and diameter comparisons. For the mission table, accept reasonable mission choices when each one clearly connects to a correct fact.