

Matter on the Move

Trace where different kinds of matter occur in the solar system.

6.2.a "matter is distributed throughout the solar system;"

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each phrase that tells where matter is found in the solar system. Circle each type of matter named, so you can connect materials to locations.

A Solar System Full of Matter

- ① The solar system is not empty space with a few large objects. Matter, anything that has mass and takes up space, is spread across it. The Sun contains most of the solar system's matter. It is a huge ball of hot plasma, made mostly of hydrogen and helium. The eight planets hold much less matter than the Sun. Even the space between major objects contains thin gas, tiny dust grains, and small rocky pieces moving around the Sun.
- ② Closer to the Sun, heat shaped what could remain on planets. Mercury, Venus, Earth, and Mars are rocky planets with metal cores and solid surfaces. Farther out, Jupiter and Saturn are mostly hydrogen and helium gas surrounding denser material. Uranus and Neptune contain gases plus large amounts of water, ammonia, and methane in icy or fluid forms. This pattern does not mean every object at one distance is identical. Temperature, gravity, and an object's history also affect the matter it holds.
- ③ Other kinds of matter orbit the Sun in smaller bodies. Many asteroids, made of rock and metal, travel mainly in the asteroid belt between Mars and Jupiter. Far beyond Neptune, the Kuiper Belt includes icy objects. A comet can travel from this cold region toward the Sun. As it warms, some of its ice changes into gas and releases dust, making a glowing coma and tail. Meteoroids, dust, and gas also move through many parts of the solar system.

2

ANSWER WITH EVIDENCE

Use the passage

1 Which object contains most of the solar system's matter, and what is it mostly made of?

2 How does the matter in the rocky planets closer to the Sun differ from the matter in Jupiter and Saturn?

3 Where do many asteroids travel, and what are they made of?

4 What happens to some of a comet's ice as the comet moves toward the Sun?

3

YOUR TURN

Your own words

Build a distribution table for three different places in the solar system. Choose one place near the Sun, one outer planet, and one small-body region, then list the matter found there and a clue from the passage.

PLACE	MATTER FOUND THERE	PASSAGE CLUE

PART 1 • READ AND MARK

Underline each phrase that tells where matter is found in the solar system. Circle each type of matter named, so you can connect materials to locations. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Which object contains most of the solar system's matter, and what is it mostly made of?	The Sun contains most of the solar system's matter. It is made mostly of hydrogen and helium.
2	How does the matter in the rocky planets closer to the Sun differ from the matter in Jupiter and Saturn?	The rocky planets have metal cores and solid surfaces. Jupiter and Saturn are mostly hydrogen and helium gas surrounding denser material.
3	Where do many asteroids travel, and what are they made of?	Many asteroids travel mainly in the asteroid belt between Mars and Jupiter. They are made of rock and metal.
4	What happens to some of a comet's ice as the comet moves toward the Sun?	Some ice changes into gas and releases dust, making a glowing coma and tail.

PART 3 • YOUR TURN (SAMPLE ANSWER)

PLACE	MATTER FOUND THERE	PASSAGE CLUE
Earth	Rock and metal, with a solid surface	Earth is named as a rocky planet closer to the Sun.
Saturn	Mostly hydrogen and helium gas around denser material	Saturn is described as an outer planet with these gases.
Kuiper Belt	Icy objects	The passage says this region far beyond Neptune includes icy objects.

Accept accurate locations and materials connected in the passage. For the table, students may choose different valid places if each material-location match is supported by the text.