Warm-Up | Planets

Lesson Question

How are the inner and outer planets characterized?

Lesson Goals

Characterize the planets in the solar system.

Identify characteristics shared by the inner planets.

Identify each planet in the solar system.

Identify

characteristics

shared by the outer planets.

Words to Know

Fill in this table as you work through the lesson. You may also use the glossary to help you.

molten	liquefied by heat
ring	a wide, flat disc containing ice and rock particles that orbit a planet
revolution	the movement of an object around the center of another object
rotation	the turning or circling of an object
gaseous	existing as a gas

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The Solar System

The solar system consists of:

- the Sun.
- eight planets and their moons.
- several smaller objects.

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Characteristics of the Inner Planets

The [four] inner planets share several characteristics.

They:

- are small.
- are rocky.
- are dense.
- have few [moons].
- have a slow [rotation].
- have a fast [revolution].

Mercury

Mercury is the [smallest] planet and the closest to the Sun.

It has:

- no moons.
- an interior of mainly dense iron.
- virtually no [atmosphere].
- huge [temperature] ranges.

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Venus

Venus is similar to Earth in size, mass, density, and internal structure, but it differs in other ways.

Venus:

- rotates opposite of most other [planets].
- has a thick [atmosphere], mostly of carbon dioxide, surrounded by clouds of [sulfuric] acid.
- has the hottest [surface] temperature of any planet.

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Earth

Earth has three layers—a solid rocky crust, a hot [molten] mantle, and a dense core of iron and nickel.

Earth:

- is the only planet with [liquid] water at its surface.
- has an atmosphere that contains many different [gases].
- is the only planet with an atmosphere rich in oxygen.

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Mars

Mars is sometimes called the "red planet."

Mars has:

- an atmosphere that is mostly carbon dioxide, with a few clouds.
- surface features that appear to have been created by streams, lakes, or floods.
- big canyons and some giant, inactive volcanoes.
- seasons like Earth.

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The Outer Planets

The four outer planets share several characteristics.

They:

- are large.
- are gaseous.
- have low density.
- have many moons.
- have rings.
- have a fast rotation.
- have a slow revolution.

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Jupiter

Jupiter is the largest and most massive planet.

It has:

- a thick atmosphere of hydrogen and helium.
- 53 moons.
- four sets of rings.
- fast winds and storms.
- the Great Red Spot.

Saturn

Saturn is the second largest but least dense planet.

It has:

- a thick atmosphere of hydrogen and helium.
- 53 moons.
- the largest and most visible rings.

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Uranus

Uranus is one of the two "ice giants" of the outer solar system.

Uranus:

- is very cold.
- has a blue color from methane in the atmosphere.
- has 27 moons.
- has thin, flat rings.
- has a tilted axis.

Neptune

Neptune is the other "ice giant."

Neptune:

- is cold and blue.
- has an active and changing atmosphere that once had the Great Dark Spot.
- has 13 moons.
- has rings.

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Lesson Question

How are the inner and outer planets characterized?

Answer

(Sample answer) Inner planets are small, rocky, and dense. They have few moons and a slow rotation along with a fast revolution. The four outer planets are large and gaseous. They have low density and many moons. The outer planets also have rings, along with a fast rotation and a slow revolution.

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Review: Key Concepts

	Inner Planets Mercury, Venus, Earth, Mars	Outer Planets Jupiter, Saturn, Uranus, Neptune
Size	small	large
Composition	rock	gas
Density	high	low
Moons	few	many
Rings	no	yes
Rotation	slow	fast
Revolution	fast	slow

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Review: Key Concepts

Mercury	Venus	Earth	Mars
Smallest and closest to the Sun	Called “Earth’s twin”	Only planet with liquid surface water	Called the “red planet”

Review: Key Concepts

Jupiter	Saturn	Uranus	Neptune
Largest and most massive	Least dense with most visible rings	Rotates on its side	Has active, changing atmosphere

Use this space to write any questions or thoughts about this lesson.

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