# Space

## Lesson 8: Inner & Outer Planets

### Today's focus

I will be able to:

- Identify common characteristics of all planets.
- Compare and contrast common characteristics of the inner and outer planet groups.

### Bellringer

A litter of kittens are given three different toys to play with: a rubber ball, a stuffed mouse, and a piece of yarn. Two students record how many times each kitten plays with each object over a period of one hour. At the end of the hour, the students conclude that the grey kittens prefer yarn to other toys. Which statement best describes the students' conclusion?

| | Grey Kitten 1 | Grey Kitten 2 | Black Kitten 1 | Black Kitten 2 | White Kitten | Striped Kitten 1 | Striped Kitten 2 |
|---|---|---|---|---|---|---|---|
| Ball | 1 | 1 | 2 | 1 | 4 | 3 | 2 |
| Mouse | 2 | 3 | 5 | 6 | 3 | 4 | 3 |
| Yarn | 7 | 6 | 5 | 4 | 2 | 7 | 6 |

A. It is an interpretation because there was no control group.

B. It is a personal opinion because it is not supported by the evidence collected.

C. It is scientific fact because it is supported by the results of the test.

D. It is a verified observation because it is what the students saw

### Brain Dump:

| Inner Planets | Outer Planets |
|---|---|
| Mercury, Venus, Earth, and Mars<br>• Rocky<br>• Terrestrial<br>• Hotter<br>• Close to Sun | Jupiter, Saturn, Uranus, Neptune<br>• Gaseous<br>• Giants<br>• Cooler<br>• Far from Sun |
| Mercury<br>Venus<br>Earth<br>Mars | Jupiter<br>Saturn<br>Uranus<br>Neptune |

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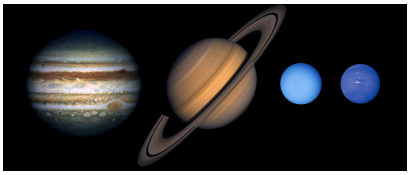
## Inner Planets

The four planets closest to the Sun are called the inner planets. They are also known as terrestrial, or rocky, planets because they are made mostly of solid rock. Evidence suggests that each has a core of iron. They are much smaller is size than the outer planets. They have relatively similar sizes and and closely spaced orbits. The inner planets have few, if any, moons. Moons are naturally occurring satellites that orbit planets. All of the inner planets rotate relatively slowly, and none of them have rings. Despite these similarities, each planet has its own unique characteristics and features.

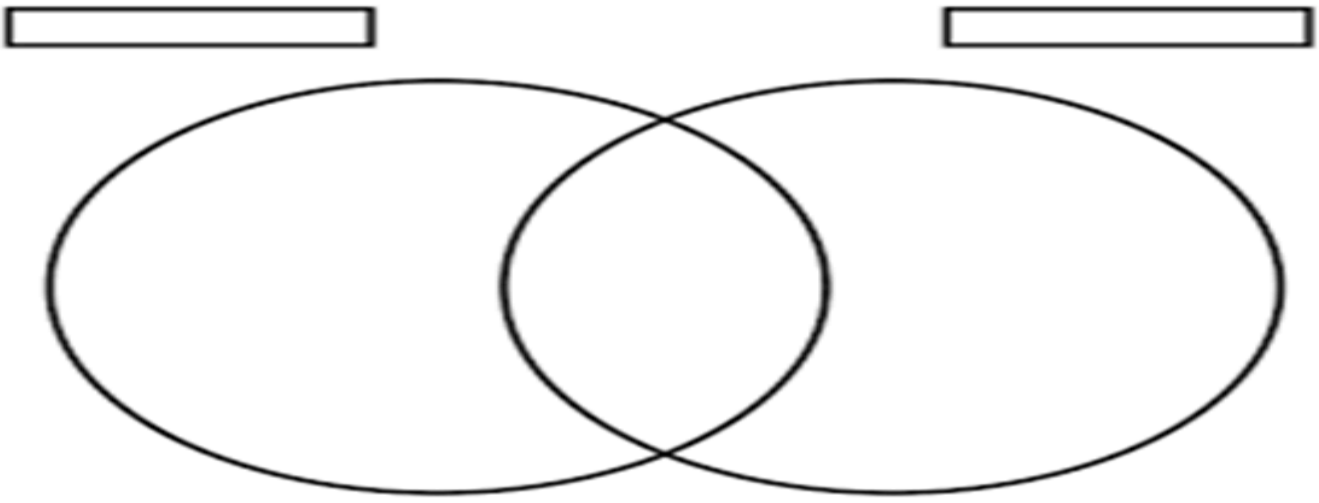
## Outer Planets

The four planets beyond Mars are called the outer planets. They are also called gas giants because they are huge compared to the inner planets and because they consist mostly of gases. The largest gas giant planet, Jupiter.

The gas giant planets do not have solid surfaces. They have very thick atmospheres made mostly of the gases hydrogen and helium. Each of these planets have ring systems, although most are difficult to see. Only Saturn's rings can be easily observed from Earth using a telescope. The gas giant planets all have many moons, and some of these moons even have atmospheres.



**Writing: Complete the Venn diagram by comparing and contrasting the properties of inner and outer planets.**



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## Exit Ticket/Check What You Know

1. Which of the following characteristics does not accurately describe the inner planets of our solar system?

a. The planets are large and composed of gases
b. The planets are small and rocky
c. The planets do not have ring systems
d. The planets have few or no moons

2. Which of these characteristics distinguishes the outer planets from the inner planets?

a. The outer planets have ring systems and many moons
b. The outer planets rotate and revolve in different directions.
c. The outer planets shave thin atmospheres compared to the inner planets
d. The outer planets have smaller diameters than the inner planets

3. Earth and Saturn are both planets orbiting the sun. Which of these other features do the two planets have in common?

a. They have a thin atmosphere
b. The rotate about an axis
c. There orbits are the same length
d. They have about the same mass

4. Planets are classified as either inner planets or outer planets based on their distance from the sun. What is found between the inner and outer planets. ?

a. Asteroids
b. Comets
c. Moons
d. stars

5. The planets of our solar system are divided into inner planets and outer planets. Which statement describes how inner planets are different from outer planets?

a. Inner planets are large, gaseous planets, and outer planets are small, rocky planets.
b. Inner planets are small and ricky planets, and outer planets are large and gaseous.
c. Inner planets are cold, gaseous planets, and outer planets are hot, rocky planets.
d. Inner planets are large and rocky, and outer planets are small and gaseous.