

SOL 4.5 -- OUR SOLAR SYSTEM

2018 standards

The student will investigate and understand that the planets have characteristics and a specific place in the solar system. Key ideas include

- a. planets rotate on their axes and revolve around the sun;
- b. planets have characteristics and a specific order in the solar system; and
- c. the sizes of the sun and planets can be compared to one another.

Central Idea: Our solar system is composed of planets with unique characteristics, primarily due to their locations within the system. Earth is unique in that its characteristics and location allow for life to exist.

OUR SOLAR SYSTEM

- Our solar system is ancient. Early astronomers believed that **Earth** was the **center of the universe** and all other heavenly bodies **orbited around Earth**.
- We now know that our **sun is the center** of our solar system and the **planets revolve** around the sun

PLANETS

- Our **solar system** is made up of **eight planets**: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune.
 - Mercury, Venus, Earth, and Mars are considered **terrestrial planets**.
 - Jupiter, Saturn, Uranus, and Neptune are called **gas giants**.
-
- Mercury is **closest** to the sun and is a small, heavily cratered planet.
 - Mercury looks like our **moon**.
 - Mercury is the **smallest** planet in our solar system and its atmosphere is very thin.



SOL 4.5 Space - 2018 standards

- **Venus** is the second planet from the sun.
 - **Similar to Earth** in size and mass, Venus has a permanent **blanket of clouds** that traps thermal energy which causes high surface temperatures.
- **Earth** is the third planet from the sun.
 - Earth's atmosphere, its **liquid water**, and its distance from the sun (among other factors) make Earth **ideal for life**.
- **Mars** is the fourth planet from the sun and is sometimes called the **red planet**.
 - The atmosphere on Mars is **thin**.
 - Mars has a vast network of **canyons** and **riverbeds**.
 - Mars is roughly **half** the size of Earth.
- **Jupiter** is the fifth planet from the sun, the **largest** planet in the solar system (eleven times larger than Earth), and it is considered a gas giant.
 - Jupiter has **no solid surface**.
 - Its colored **cloud patterns** are caused by enormous **storms** in its atmosphere.
- **Saturn** is the sixth planet from the sun.
 - Early scientists thought Saturn was the only planet with **rings**, but we now know that all four gas giants (Jupiter, Saturn, Uranus, and Neptune) have rings.
 - Saturn's atmosphere is similar to that of Jupiter.
 - Saturn is almost **ten times** the size of Earth.
- **Uranus** is the seventh planet from the sun.
 - Uranus is a gas giant and is unique in that it spins on its side.
 - It has a large atmosphere and is a cold planet that is four times the size of Earth.
- **Neptune**, a very **cold planet**, is eighth from the sun.
 - Neptune appears **blue** because of its atmosphere.
 - It is roughly four times the size of Earth.
- **Pluto** is no longer included in the list of planets in our solar system due to its **small size** and **irregular orbit**.

