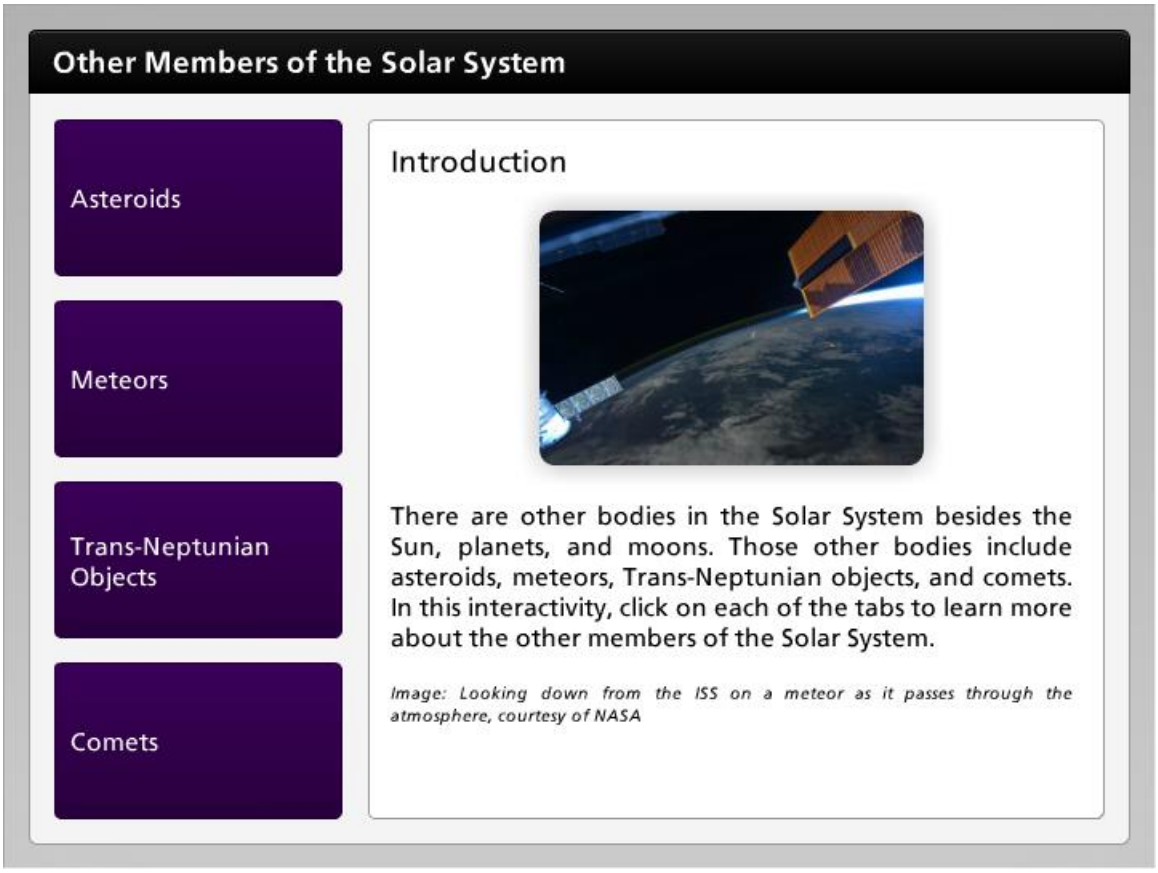
# Module 9: The Solar System
# Topic 5 Content: Other Members of the Solar System Notes

## Introduction




There are other bodies in the Solar System besides the Sun, planets, and moons. Those other bodies include asteroids, meteors, Trans-Neptunian objects, and comets. In this interactivity, click on each of the tabs to learn more about the other members of the Solar System.

*Image: Looking down from the ISS on a meteor as it passes through the atmosphere, courtesy of NASA*

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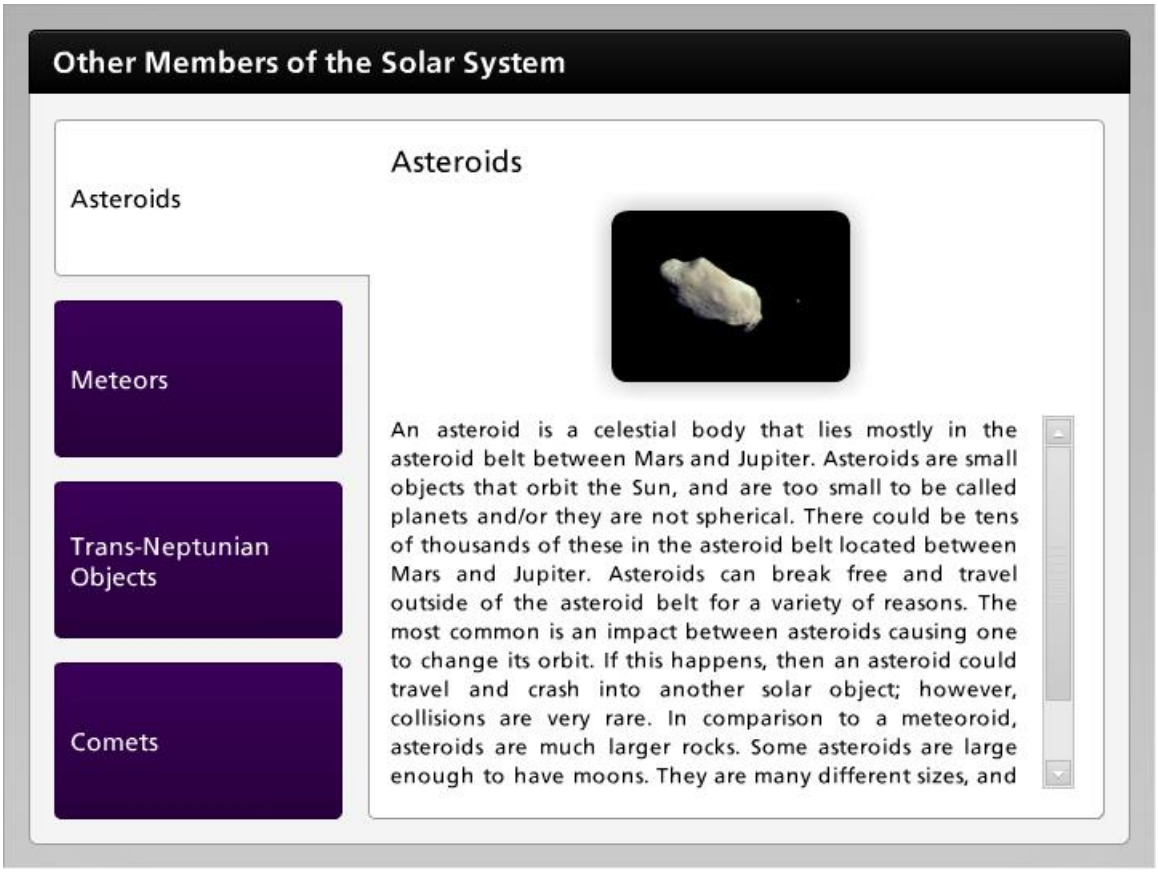
## Asteroids




An asteroid is a celestial body that lies mostly in the asteroid belt between Mars and Jupiter. Asteroids are small objects that orbit the Sun, and are too small to be called planets and/or they are not spherical. There could be tens of thousands of these in the asteroid belt located between Mars and Jupiter. Asteroids can break free and travel outside of the asteroid belt for a variety of reasons. The most common is an impact between asteroids causing one to change its orbit. If this happens, then an asteroid could travel and crash into another solar object; however, collisions are very rare. In comparison to a meteoroid, asteroids are much larger rocks. Some asteroids are large enough to have moons. They are many different sizes, and almost all asteroids lack an atmosphere.

*Image: An asteroid, courtesy of NASA/JPL*

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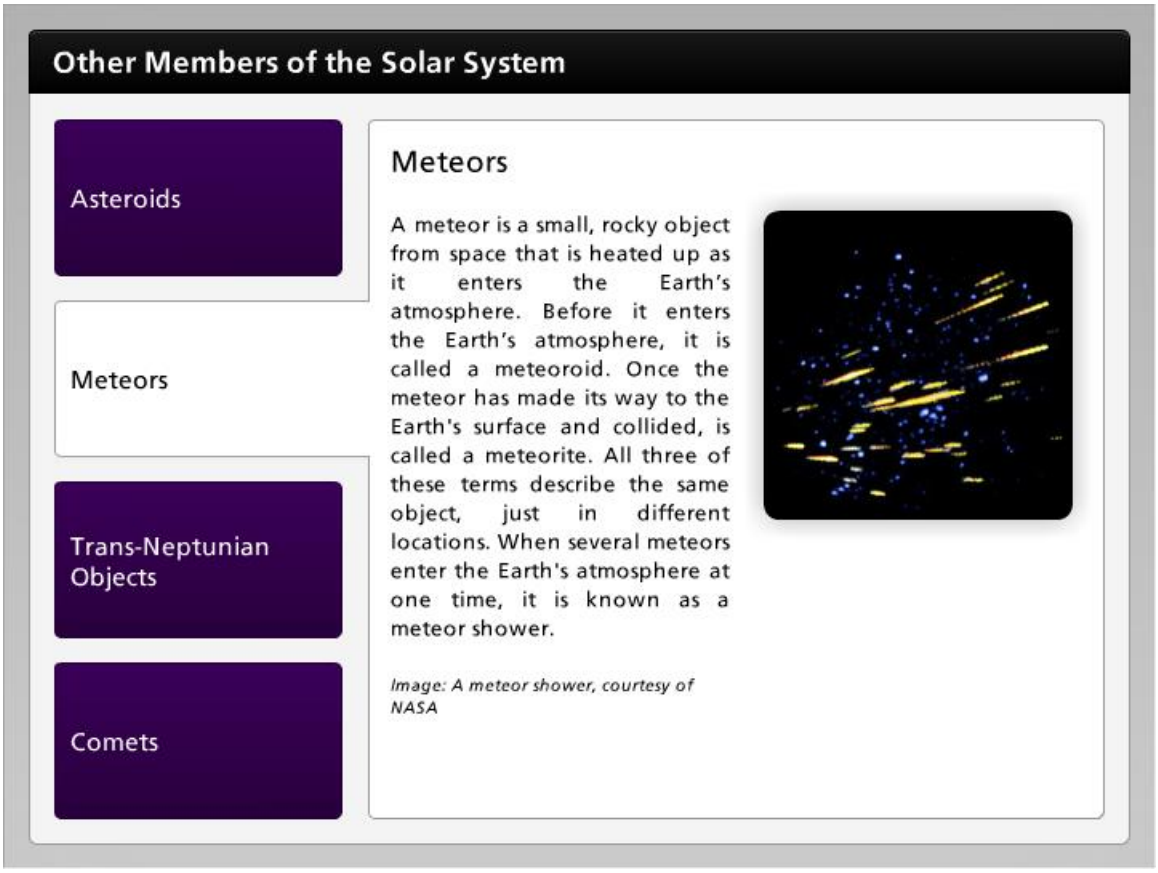
## Meteors




A meteor is a small, rocky object from space that is heated up as it enters the Earth's atmosphere. Before it enters the Earth's atmosphere, it is called a meteoroid. Once the meteor has made its way to the Earth's surface and collided, is called a meteorite. All three of these terms describe the same object, just in different locations. When several meteors enter the Earth's atmosphere at one time, it is known as a meteor shower.

*Image: A meteor shower, courtesy of NASA*

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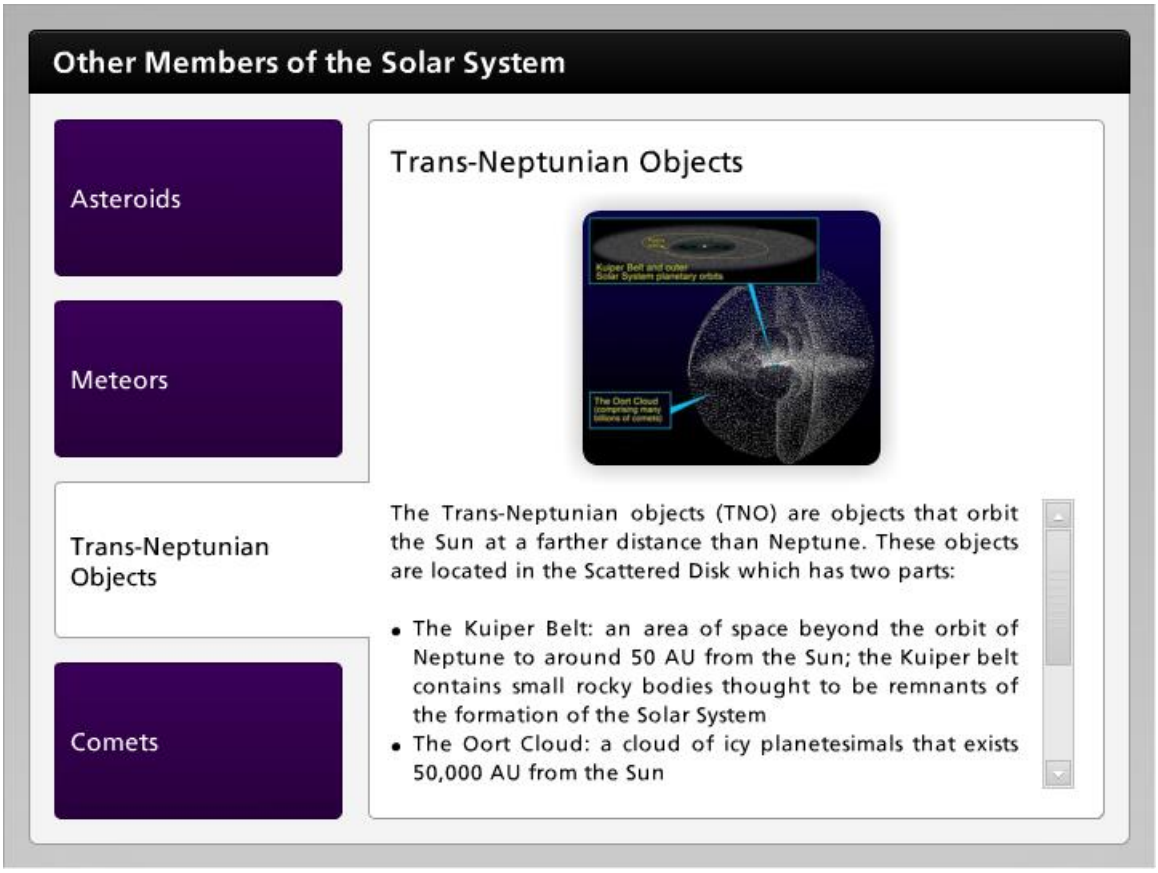
## Trans-Neptunian Objects




The Trans-Neptunian objects (TNO) are objects that orbit the Sun at a farther distance than Neptune. These objects are located in the Scattered Disk which has two parts:

- The Kuiper Belt: an area of space beyond the orbit of Neptune to around 50 AU from the Sun; the Kuiper belt contains small rocky bodies thought to be remnants of the formation of the Solar System
- The Oort Cloud: a cloud of icy planetesimals that exists 50,000 AU from the Sun

Some Trans-Neptunian objects are dwarf planets. The most famous of the dwarf planets is Pluto. Currently, around 1000 total TNO objects have been discovered.

*Image: The Kuiper Belt and the Oort Cloud, courtesy of NASA*

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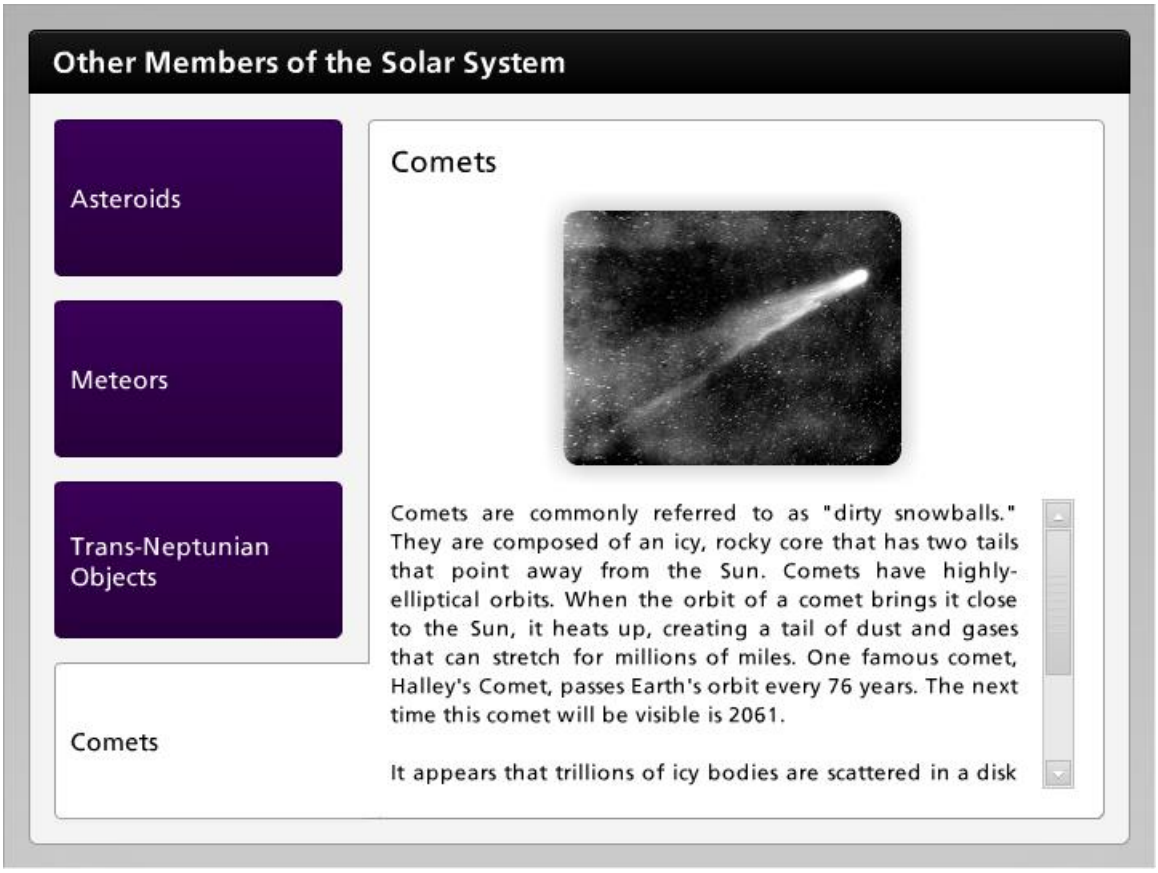
## Comets




Comets are commonly referred to as "dirty snowballs." They are composed of an icy, rocky core that has two tails that point away from the Sun. Comets have highly-elliptical orbits. When the orbit of a comet brings it close to the Sun, it heats up, creating a tail of dust and gases that can stretch for millions of miles. One famous comet, Halley's Comet, passes Earth's orbit every 76 years. The next time this comet will be visible is 2061.

It appears that trillions of icy bodies are scattered in a disk around the Solar System, and that is where comets originate. Long period comets come from the Oort cloud, a cloud of icy planetesimals that exists 50,000 AU from the Sun. Short period comets originate in the Kuiper belt.

*Image: Halley's Comet, courtesy of The Yerkes Observatory*