**Student Expectation**

The student is expected to describe the physical properties, locations, and movements of the Sun, planets, Galilean moons, meteors, asteroids, and comets.

**Key Concepts**

1. The Sun is at the center of our solar system and its strong gravitational pull holds 8 planets, asteroids, and other celestial objects in orbital paths around it.
2. Our Sun is a medium sized star yet is the most massive object in our solar system. It is an extremely hot, dense mass of gases which radiates varying amounts of visible light and charged particles. Located at the center of our solar system, the Sun rotates (spins) on its axis and does not have a solid surface.
3. Planets in the solar system revolve around the Sun in an orbital path and can be either rocky, terrestrial objects, or large and gaseous. Each planet rotates (spins) on an axis. The inner planets of Mercury, Venus, Earth, and Mars are mostly solid with minerals similar to those on Earth. The outer planets of Jupiter, Saturn, Uranus, and Neptune are gaseous masses with rocky cores surrounded by liquids.
4. Moons are smaller celestial objects that orbit planets. Ganymede, Io, Callisto and Europa, the largest moons that orbit Jupiter, are known as the Galilean moons because they were discovered by Galileo Galilean. Data about the physical properties and motions of each of these moons has been gathered using telescopes and satellites. Their physical properties vary from large volcanoes to major areas of frozen water. Some of the moons have layers similar to those that compose Earth.
5. A meteor is the glowing visible path of a meteoroid that has entered the Earth’s atmosphere. Smaller than an asteroid, a meteoroid is a solid rocky object moving in interplanetary space. Most meteoroids that enter Earth’s atmosphere are about the size of a pebble. A meteorite is a portion of a meteoroid (or asteroid) that survives its passage through the atmosphere strikes Earth’s surface.
6. Asteroids are small rocks revolving in an orbital path around the Sun. Although they are too small to be called planets, they can still crash into space ships or Earth and do significant damage. Most asteroids lie in a vast area between the orbits of Mars and Jupiter.
7. A comet is a small mass of dust and ice that travels in an orbit around the Sun. Most comets have elongated elliptical orbits that take them close to the Sun for a part of their orbit and then out into the further reaches of the solar system for the rest of the orbit. When close to the Sun and thus affected by solar radiation and solar wind, comets display a visible coma and tail.