What Are the Key Features of Our Solar System?

Year 5 Science Unit

Unit Aim
Students will be able to describe the key features of our solar system.

Key Concepts
solar system, Sun, star, orbit, objects, planets, the Moon, moons, asteroids, meteoroids, dwarf planets, comets, inner, outer, rocky, gas giants, ice giants, Kuiper Belt, Oort Cloud, Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Pluto, Ceres

Unit Objectives
Students must understand that:

1. The Sun is at the centre of our solar system
   a. The Sun is a star, but other stars are not part of our solar system
2. Our solar system also includes all the objects that go around the Sun
   a. These other objects include planets, moons, asteroids, dwarf planets and comets
3. Planets are round (nearly spherical) objects which have a clear orbit around our Sun
   a. Some planets are known as inner planets others are known as outer planets
   b. Inner planets are closer to the Sun than outer planets
   c. Inner planets take less time to orbit the Sun than outer planets
   d. There are four inner planets Mercury, Venus, Earth and Mars
   e. All inner planets are rocky
   f. Outer planets are further from the Sun than inner planets
   g. There are two types of outer planets – gas giants and icy giants
   h. There are two gas giants – Jupiter and Saturn
   i. There are two icy giants, Uranus and Pluto
4. Most planets in our solar system have moons
   a. These moons orbit their planet while also orbiting the Sun
5. Asteroids are smaller than planets
   a. Most asteroids have an irregular shape, although some are nearly round
   b. Some asteroids are large enough to have their own moons
   c. These moons orbit their asteroid while also orbiting the Sun
   d. Smaller asteroids are called meteoroids
   e. Most asteroids are found in the Asteroid Belt between Mars and Jupiter
   f. Scientists have identified nearly 800,000 asteroids in our solar system
6. Dwarf planets also orbit the Sun
   a. Dwarf planets are round (almost spherical) objects, like planets
   b. Dwarf planets are smaller than planets but larger than asteroids
   c. Unlike planets, dwarf planets to do not have a clear orbit around the Sun
   d. Scientists have identified five dwarf planets, including Ceres and Pluto
   e. One dwarf planet, Ceres, lies in the asteroid belt
7. Comets are objects that are made mostly of ice and dust
a. When a comet’s orbit brings it closer to the Sun, the ice starts to melt and evaporate, forming a long tail.

8. The Kuiper Belt is a donut-shaped ring of icy objects that lies beyond the planets:
   a. The Kuiper Belt is the home of most dwarf planets including Pluto.
   b. The Kuiper Belt is also the home of many comets.

9. The Oort Cloud is like a shell surrounding our solar system that lies beyond the Kuiper Belt:
   a. Scientists believe the Oort Cloud contains billions if not trillions of icy objects the size of mountains or larger.
   b. These include some comets.