

# 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* 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