

# PLANET DATA

**National Curriculum Science** KS2 PoS Sc4: 4a

**QCA Science** Unit 5E: Earth, Sun and Moon

**Scottish 5–14 Guidelines Science** Earth in space: Level C

## HOW TO GATHER THE DATA

Finding data about the planets is a good opportunity for children to use CD-ROMs and Internet searches. Different groups can research different planets or different aspects of the planets (such as moons, rings, atmosphere or planet surface). The children do not need to know a lot of factual information about the planets (see below), but a topic on 'Space' invariably arouses their interest and can be used to develop their presentation skills. Work on the Earth in space provides links to other curriculum areas, such as ICT (searches, data handling), art (display work) and technology (making rockets and Moon buggies).

## THE SCIENCE BEHIND THE DATA

Children only need to know about the Earth, Sun and Moon for the purposes of the English National Curriculum; however, the Scottish and Welsh curricula require them to know about wider aspects of the Solar System, such as the nine planets. Children may think of our Moon as the only one, and not realise that other planets have their own moons. A moon is any large-sized natural satellite in orbit around a planet.

There are several theories about how our Moon was formed. One is that it was 'thrown out' from the Earth. Another is that it came from outside the Solar System, but was 'captured' by the Earth as it moved through space. This is another area of science where the 'right answer' is not known, but competing theories are based on the available evidence.

- The 'from the Earth' theory is supported by the similarity between Moon rock and some rocks in the surface of the Earth, and by the fact that the Pacific basin represents a great cavity in the Earth's surface. However, it is not easy to explain with this theory how the Moon became spherical or moved to where it is.

- A problem for the 'gravitational attraction' theory is that the two planets nearest to the Sun do not have any moons – but they both have a higher gravitational attraction than Mars, which has two moons. It may be that the Sun's gravitational attraction has pulled the moons of Mercury and Venus out of their orbit – if they ever existed! As the number of moons seems to increase with planetary size and distance from the Sun, it may be that planets are best able to 'capture' moons if they are both large and relatively far from the Sun.

### Answers

1. Pluto
2. One
3. Mercury and Venus.
4. Jupiter
5. Pluto
6. Yes
7. Accept any sensible statement, such as: The four largest planets all have more moons than the five smallest planets.
8.  $1 + 2 + 17 + 18 + 15 + 8 + 1 = 62$
9. Pluto, Mercury, Mars, Venus, Earth, Neptune, Uranus, Saturn, Jupiter.
10. Allow any sensible interpretations of the data, such as:
  - There are two distinct groups: smaller planets and larger planets.
  - All of the smaller planets except Pluto are nearer to the Sun than the larger planets.
  - The number of moons a planet has generally increases with the size of the planet.
  - The number of moons a planet has increases with the planet's distance from the Sun up to Jupiter, then decreases again.