

## Information sheets to help you complete the task

### What are Comets?

These are balls of rock, ice and dust which orbit the Sun in elliptical orbits (oval-shaped orbits, not round). They can go very close to the Sun, and then they glide across the solar system, travelling many millions of miles beyond the most distant planets before making their return to the Sun.



Comets are recognisable because of their tails. This tail is only visible when the comet is close enough to the Sun, usually when it is at about the same distance from Earth as Mars is. The tail is visible because sunlight reflects off the ice and dust particles. When seen from Earth, a comet can have the appearance of a blurred star. The tail of a comet can be up to over 1 million kilometres long!

### What are asteroids?

Asteroids are small lumps of rocks and ice which orbit the Sun like mini-planets.

Between the orbits of Mars and Jupiter is an area called the Asteroid Belt. This is where the largest collection of asteroids orbiting the Sun are. Hundreds of thousands of asteroids, none with a diameter (width) of over 1,000 kilometres (with Ceres being the biggest), and only sixteen of them over 240 km, spin around the Sun. Occasionally they collide with each other, and may, one day, in millions of years, all join together to form another Earth-sized planet.



### What are dwarf planets?

Dwarf Planets tend to be much smaller than regular planets (all Dwarf Planets so far confirmed are smaller than Earth's Moon).

Dwarf Planets are also different from Planets because the path of their orbits isn't clear. Pluto's path crosses with Neptune's path and so it lost its title as a planet in 2006.



| Name of Planet | Average Distance from Sun                 | Time to Spin on Axis (a day) | Time to Orbit Sun (a year) | Average Temperature                          | Diameter (Use for Mass of the planet) | Number of Moons |
|----------------|---|------------------------------|----------------------------|--|---------------------------------------|-----------------|
| <b>Mercury</b> | 57,900,000 km<br>(36,000,000 miles)       | 59 days                      | 88 days                    | -183 °C to 427 °C<br><br>(-297 °F to 800 °F) | 4,878 km<br>(3,031 miles)             | None            |
| <b>Venus</b>   | 108,160,000 km<br>(67,000,000 miles)      | 243 days                     | 224 days                   | 480 °C<br>(896 °F)                           | 12,104 km<br>(7,521 miles)            | None            |
| <b>Earth</b>   | 149,600,000 km<br>(92,960,000 miles)      | 23 hours, 56 mins            | 365.25 days                | 14 °C<br>(57 °F)                             | 12,756 km<br>(7,926 miles)            | 1               |
| <b>Mars</b>    | 227,936,640 km<br>(141,700,000 miles)     | 24 hours, 37 mins            | 687 days                   | -63 C <sup>0</sup><br>(-81 F <sup>0</sup> )  | 6,794 km<br>(4,222 miles)             | 2               |
| <b>Jupiter</b> | 778,369,000 km<br>(483,500,000 miles)     | 9 hours, 55 mins             | 11.86 years                | -130 <sup>0</sup> C<br>(-202 °F)             | 142,984 km<br>(88,846 miles)          | 66              |
| <b>Saturn</b>  | 1,427,034,000 km<br>(888,750,000 miles)   | 10 hours, 39 mins            | 29 years                   | -130 °C<br>(-202 °F)                         | 120,536 km<br>(74,900 miles)          | 62              |
| <b>Uranus</b>  | 2,870,658,186 km<br>(1,783,744,300 miles) | 17 hours, 14 mins            | 84 years                   | -200 <sup>0</sup> C<br>(-328 <sup>0</sup> F) | 51,118 km<br>(31,763 miles)           | 27              |
| <b>Neptune</b> | 4,496,976,000 km<br>(2,797,770,000 miles) | 16 hours, 7 mins             | 164.8 years                | -200 °C<br>(-328 °F)                         | 49,532 km<br>(30,779 miles)           | 13              |

## Information on the appearance of the 8 planets to help you complete your fact cards



### Mercury

- Mercury is a rocky planet closest to the sun.
- Mercury has no atmosphere around it to protect it from the Sun or to retain any heat when it rotates on its axis.
- The surface of Mercury is covered with craters and completely dry. There is no possibility of life on Mercury.

### Venus

- Venus is covered by clouds of water vapour and sulphuric acid and the surface cannot be seen with an ordinary astronomy telescope.
- The atmosphere on Venus is composed of carbon dioxide. The surface is heated by radiation from the sun, but the heat cannot escape through the clouds and layer of carbon dioxide which makes it hotter than Mercury.

### Earth

- It is the only planet that has an atmosphere containing 21 percent oxygen.
- It is the only planet that has liquid water on its surface.
- It is the only planet in the solar system that has life.
- As a result of the Earth's geological activity (the volcanoes and earthquakes) the surface of the Earth has far fewer craters than the surface of planets as the craters have sunk down or been worn away by wind and rain over millions of years.

### Mars

- Mars is often called 'the red planet' because a mineral called iron oxide that is very common on the planet's surface which causes its surface to have a red tint.

- Mars has both North and South polar ice caps, much like Earth that are made mostly of frozen water. With so much water frozen in the ice caps of Mars, some scientists think that life could have once existed there.
- Olympus Mons on Mars is the largest mountain in the solar system at more than 25 km high (that's three times higher than Mount Everest).
- Valles Marineris is the largest canyon in the solar system, stretching 4,000 km across the planet's surface.

## Jupiter

- Jupiter is the first of the “gas giants” made of hydrogen, helium, methane and ammonia.
- Jupiter is the stormiest planet in the Solar System. There is a permanent, but ever-changing whirlpool of storms, known as Jupiter's Great Red Spot which can be seen using a telescope.

## Saturn

- The bright globe of Saturn is surrounded by rings which may be composed of ice. Three of these rings are visible from the Earth using a telescope.
- Saturn is a gas planet and is a great ball of hydrogen and helium.

## Uranus

- Most of the centre of Uranus is a frozen mass of ammonia and methane, which gives it the blue-green colour.
- The atmosphere also contains hydrogen and helium.
- Because Uranus is lying on its side as it orbits the sun, for nearly a quarter of its orbit one pole of the planet is in complete darkness.

## Neptune

- Neptune is the third largest planet in the Solar System, much smaller than the real giants, Jupiter and Saturn
- Neptune is made of gas; it is a great ball of hydrogen and helium.



