



Frogs – Science KCV – Earth and Space



Key facts to learn:

- Know that the universe comprises all matter and space in existence
- Know that the Sun is a star
- Know that a planet (e.g Earth) is defined as a spherical celestial body that orbits a star
- Know it was once thought that everything orbited the Earth, but that scientists like Copernicus and Galileo used telescopes and measurement to show that the Earth orbited the Sun
- The Sun and the objects that orbit it are collectively known as our Solar System
- Know that there are eight major planets in our solar system: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune
- Know that a satellite orbits a planet and that moons are natural satellites
- Know that all the planets in the solar system orbit the Sun and that the further away they are from the Sun, the longer their orbit
- Know that night and day are the result of the Earth rotating on its axis
- Know that the tilt of the Earth towards and away from the Sun's light as the Earth orbits the Sun leads to the seasons
- Know that the Moon orbits the Earth roughly every 28 days
- Know that Katherine Johnson was a scientist and mathematician from America who worked for NASA and her calculations and work were critical to the success of the first and subsequent manned space flights

Key skills to do:

- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Use test results to make predictions to set up further tests.
- Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.

Words to know and spell (Tier 2 Vocabulary)

| | | |
|--------------|--------------|-----------|
| Earth | Dwarf Planet | Night |
| Sun | Orbit | Satellite |
| Moon | Rotate | Universe |
| Planets | Axis | Shadow |
| Star | Spherical | Sundial |
| Solar System | Day | Comet |

Words to understand and spell (Tier 3 Vocabulary)

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|----------------------|---|
| solar system | The Sun and the group of planets that move around it. |
| eclipse | An occasion when the Sun disappears from view while the moon is moving between it and the Earth, or when the moon becomes darker while the shadow of the Earth moves over it. |
| constellation | A group of stars in the sky that seem from Earth to form a pattern. |
| black hole | A region in space where gravity is so strong that nothing can escape. |

Concept check questions. Test yourself:

What shape is the Earth and what evidence is there to support this?
 The Sun, Earth and Moon - what orbits what?
 Does the Sun move across the sky?
 Is there gravity on the moon?

Opportunities for Investigation:

Research: How have our ideas about the solar system changed over time?