



Learning Journey Map

Year: **5**
Subject: **SCIENCE**

Term: **SPRING**
Topic: **EARTH AND SPACE**

Driving Question: How can we take on specific roles in a group to demonstrate our understanding of the solar system?

Power Skill: Collaboration - I can work in a pair and small groups in an assigned role, to generate solutions to simple, real-world problems.

National Curriculum Learning Objectives

- describe the movement of the Earth and other planets relative to the sun in the solar system
- describe the movement of the moon relative to the Earth
- describe the sun, Earth and moon as approximately spherical bodies
- use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky


Key Vocabulary


Solar system	Planet	Rocky	Gaseous	Sun
Orbit	Year	Day	Moon	Phases
Crescent	Gibbous	Waxing	Waning	Spherical


Key Learning

- The Solar System consists of the Sun and all astronomical bodies that orbit it. This includes the eight planets - Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune - as well as numerous dwarf planets, asteroids, comets and other satellites.
- The billions of systems of stars and planets - including our own Solar System - group together to form galaxies.
- Our Sun is a star.
- Planets nearer to the Sun take less time to go around it than those further away.
- The four closest to the Sun are called the rocky planets, because they are mostly made of rock and metal.
- The four planets farthest away are almost completely made up of gas. This means they have no surface to stand on. They are known as the gas giants.
- The Earth rotates on its axis, taking 24 hours (one day) to make one complete rotation. The half of the Earth that faces the Sun experiences daytime, while the half that faces away from the Sun experiences night.
- As the Moon rotates and orbits the Earth, its entire surface gets an equal amount of sunlight and darkness.
- The changing shapes that the Moon appears to take are called phases. A complete cycle of phases is known as a lunar month. The Moon takes approximately 29.5 days to make a complete orbit of the Earth. As the Moon orbits, light from the Sun is reflected by the Moon's surface.



Thinking Point
Why is Pluto no longer a planet? 

Thinking Point
Could we ever live on the moon? 

Thinking Point
Is there life on other planets? 

Explore and Investigate

Small Question	Enquiry	Big Idea(s)	Enquiry Type
How can we prove that Earth rotates?	Chn investigate how the direction and size of shadows change to prove the Earth rotates on its axis.	E1: The Earth is one of eight planets that orbit the sun. It has one large natural satellite called the Moon that orbits the Earth.	Observing over different periods of time.
What shape is the moon and does it change?	Chn keep a moon diary over the period of a month (focusing on moon shape) and a moon diary for one clear evening (focusing on position in the sky) and analyse their results.	E1: The Earth is one of eight planets that orbit the sun. It has one large natural satellite called the Moon that orbits the Earth.	Observing over different periods of time.

Key Learning

The Rocky Planets



Mercury

1 year = 88 Earth days
1 day = 59 Earth days
No. of moons = 0 moons



Venus

224.7 Earth days
243 Earth days
0 moons



Earth

365.26 Earth days
24 Earth hours
1 moon



Mars

687 Earth days
25 Earth hours
2 moons

The Gaseous Planets (Gas Giants)



Jupiter

11.9 Earth years
10 Earth hours
79 moons



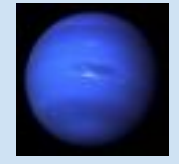
Saturn

29.5 Earth years
11 Earth hours
82 moons



Uranus

84 Earth years
17 Earth hours
27 moons




Neptune

164.8 Earth years
16 Earth hours
14 moons

Common misconceptions:

- Some children may think that stars 'disappear' or 'go away' during the day. Ensure they understand that the stars are still there but cannot be seen during the day due to the vast amount of light from the Sun.
- Some children might believe that the Sun moves around the Earth. In fact it is the Earth spinning that makes it look as if the Sun is moving across the sky.
- There is a common belief that the phases of the Moon are caused by the shadow of the Earth being cast onto the Moon's surface. In fact, the phases are caused by the relative position of the Moon and the Earth: our view of the Moon changes as it orbits the Earth.



Did you know?
Surface temperature: 5505°C
Distance to Earth: 149.6 million km
Radius: 696,342 km
Circumference: 4,366,813 km (2,713,406 miles)
Mass: 1,989,000,000,000,000,000,000,000,000kg
(About 1.3 million Earths could fit inside the Sun)

Thinking Point

- ❖ What if...Earth wasn't on an axis
...there were two suns,
...there was no moon
...there were no clocks?

Thinking Point

What was the Big Bang?

Demonstration:

Model the Solar System by asking one child to represent the Sun and eight children to represent each of the planets in the Solar System.

Measure out the scale distance between each planet.

