Spaceship Earth

Introduction

- Housekeeping
- What we're going to cover

Orbits and solar system

- Anything that orbits our sun is part of our solar system
- Our sun (and it's planets) are all moving through space, orbiting a giant black hole

Question one (Repeat per planet)

- What is the closest planet to the sun?

Mercury

- It has no atmosphere to keep it warm, so it's like an oven in the day and a freezer at night.
- Mercury is the smallest planet in our solar system—it's only a little bigger than our Moon!
- A day on Mercury lasts almost 59 Earth days! That's a very long time to wait for bedtime!

Venus

- Venus is the hottest planet because its thick atmosphere traps heat, a bit like a greenhouse!
- Venus is so hot that it could melt metal! It's hotter than any oven on Earth!
- Venus spins the opposite way to Earth, so the Sun rises in the west and sets in the east! Imagine the sun coming up backwards!

Earth

- Earth is the only planet we know that has life. It's like our spaceship, carrying us through space!
- Earth is just the right temperature for us to live—our 'Goldilocks' planet!
- Earth is covered with 70% water. That's why astronauts sometimes call it the 'Blue Planet.'

Mars

- Mars is often called the Red Planet because of its rusty surface. Imagine a giant desert but freezing cold!
- Mars has the tallest volcano in the solar system, called Olympus Mons. It's three times taller than Mount Everest!

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- There are dust storms on Mars that can last for months! Imagine a windy day that never ends!

Jupiter

- Jupiter is a gas giant and is so big it could fit over 1,300 Earths inside it! And it has a giant storm bigger than Earth.
- Jupiter is like the boss of all the planets—it's so big it has 79 moons! That's a lot of moons to keep track of!
- The big red spot on Jupiter is a huge storm that's been raging for over 300 years. That's one long storm!

Saturn

- Saturn's rings are made of ice, rock, and dust! They look beautiful from a distance.
- Saturn's rings are made of ice chunks, some as small as pebbles, others as big as houses!
- Even though Saturn is huge, it's so light that it could float in water—if you had a big enough bathtub!

Uranus

- Uranus spins on its side like a rolling ball. It's covered in icy clouds and is very, very cold.
- Uranus is called the 'sideways planet' because it tilts so much that it spins like a rolling ball!
- Uranus is a giant ball of gas, and it smells like rotten eggs because of the chemicals in its clouds!

Neptune

- Neptune has winds faster than any hurricane on Earth! Imagine a super windy day on another planet.
- Neptune is super windy! Its storms are 1,000 times stronger than any storm on Earth!
- Neptune's deep blue colour is because of methane gas in its atmosphere, making it look like a giant ocean!

Pluto

- Pluto is very small, so small it's smaller than earths moon!
- It was declassified as a planet in 2006

"Pale Blue Dot"

- This image shows Earth, taken from a spaceship called Voyager 1
- It's the furthest image ever taken of our planet, of our own spaceship

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- Everyone who has ever lived, everyone you have ever known, has lived here

Dark Sky Zone

- When you look up into the night sky, you'll see millions of stars
- Some members of the Stump Cross Team own telescopes
- When they point a telescope up into the sky, they can see further through space and capture beautiful images
- Here are a few photographs taken here at Stump Cross Caverns

Andromeda Galaxy,
Dumbell Nebula
Pacman Nebula
Orion Nebula

- After the photos, encourage the audience to look up at the night sky in a dark sky zone, such as one at Stump Cross to see these beautiful things.
- You may explain that a Light Year is the unit of distance used to measure how long it takes light to travel in a year. Light is the fast thing in the universe, so if an object is one light year away, it means it took light exactly one year to reach us.

Constellations visible from Stump Cross over winter

- What is a constellation? It was a way for ancient people to explain and make sense of the night sky.
- They would look for stars and, using their imagination, think of shapes and animals in the sky by drawing invisible lines together.
- Let's look at three constellations we can see

Great Bear

- Also known as The Plough or the Big Dipper
- It's part of a larger constellation called Ursa Major which means 'Greater Bear.
- The 'Big Dipper' part, the most recognised for us, is made up of seven bright stars that form the tail and hind quarters of The Great Bear.

Orion

- Named after a mythological hunter called Orion
- It's most visible from November to February
- If you look just below the stars that make up Orion's belt, you'll find the Nebula we looked at earlier

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Cassiopeia

- Named after a vain queen in Greek mythology who boasted about her beauty. It's said that Cassiopeia spends half of the year upside down as punishment for her boastfulness.
- There was a massive supernova (When a star explodes) - even today, if you point a radio telescope toward it in the night sky, you'll be able to hear the noise it makes!
- This constellation is visible all year round.

Make your own constellations

- Crafting group activity to create your own constellation

Any questions?

Make your own planet

- We suggest only allowing Mercury, Venus, Earth or Mars be made from clay as the others are gas giants.
- Provide instructions on how to make them.