



Linked to:

Understanding the World; Past and Present; The Natural World

Knowledge Objective	Suggested experiences/activities/opportunities	Outcomes
<p>Session A: We live on Earth.</p> <p>Vocabulary: Earth, planet, land, ocean, gravity, sun, daylight, night time, orbit</p>	<p>Teacher-led input: Show children a picture of our planet. Explain this is planet Earth, our planet. Show children a globe. Explain that planet Earth has land and sea, it also has air for us to breathe. There is a special layer called ‘atmosphere’ around our planet that keeps the temperature just right and helps us to breathe. Our planet is perfect for us to live on. Show children a picture of the solar system. Explain that the sun is a big ball of very hot burning gas and it keeps our planet warm. Explain that our planet Earth orbits the sun, it travels in a path around it, turning as it orbits. (Children will come back to this concept in KS1 and KS2) When the land we live on faces the sun we have daytime, when it faces away we have night time. There is a very important invisible force called gravity which keeps us standing on the ground and stops us from falling off!</p> <p>Teacher-led activity: Look at lots of different pictures of places on Earth. Discuss how they are the same or different. Describe the places, what the children can see there, how trees/animals are different to those we have in our part of the world. Identify a variety of physical features (children will learn those terms in geography in year 1) such as mountains, lakes, rivers, valleys</p>	<p>Children know we live on planet Earth.</p> <p>Some children may be able to explain that planet Earth has air for us to breathe, land to live on and oceans. Children will begin to understand that gravity keep us standing on the ground.</p>
<p>Session B: People have been looking into space and asking questions for many years.</p> <p>Vocabulary: Astronomer, telescope, Galileo, Caroline Herschel, comets, stars, planets</p>	<p>Teacher-led input: Where do we live? What is special about our planet? Reconnect to previous learning. Explain that there is a lot to learn about our planet and many scientists study it to find out more. There are some scientists, called astronomers, who look into the sky and into space to find out what lies beyond our planet. Explain that a very long time ago a man called Galileo looked at the stars using a special tool called a telescope. Show children an image of Galileo and a telescope. Galileo was from Italy (show on a map) and he realised his telescope couldn’t see very far into space, so he invented a telescope that could see much further. He noticed Saturn had rings and Jupiter had moons. He told everyone he thought the Earth travelled around the sun, but people thought that was a silly idea. At that time they thought the sun moved around the earth. Galileo proved them wrong. Many astronomers have found new things about space; Caroline Herschel was the first female astronomer to discover a comet. A comet is a ball of ice and dust that flies through space. Show children pictures and videos if possible to support your explanation. If you have a telescope available to you, show the children how it works.</p> <p>Teacher-led activity: Write a letter to an astronomer (ideally find someone local or at a local university who you could write to) and children can ask questions about space. This could be a class letter or if children are able to, they could write individual letters. Alternatively you could make some video clips of the children asking questions.</p>	<p>Children will know that some people study space, looking into space and asking questions about what they notice.</p> <p>Some children will be able to explain astronomers are people who study space.</p>
<p>Adult led activity:</p>	<p>Explore gravity; this could be asking children to drop various things from a standing height and observe what happens. They could throw balls into the air and watch what happens. Ask children to drop a feather and a heavy object and observe the difference, one may fall faster than the other but both eventually reach the ground.</p>	<p>Children will know that gravity is a force we can’t see that keeps us on Earth.</p>
<p>Texts:</p>	<p>Caroline’s Comets by Emily Arnold McCulley Astro Girl by Ken-Wilson Max How the Stars came to be by Poonam Mistry</p> <p>The Hunting of the Great Bear (Native American Traditional Story) These books can be used throughout the unit.</p>	<p>Children will know that gravity is a force we can’t see that keeps us on Earth.</p>
<p>Additional provision:</p>	<p>Planetarium role play area with pictures of space, glow in the dark stars, fairy lights and telescopes, telescope making with craft materials, exploring a globe with magnifying glasses and mini clipboards for observations and mark making, space sensory tuff tray with scales to weigh tin foil comets, space rocks and moon dust.</p>	



Linked to:

Understanding the World; People Culture and Communities; The Natural World

Knowledge Objective	Suggested experiences/activities/opportunities	Outcomes
<p>Session A: People who travel into space are called astronauts.</p> <p>Vocabulary: Rocket, shuttle, astronaut, space suit, space boots, helmet, gravity, oxygen.</p>	<p>Teacher-led input: Tell me about Earth. Why don't we fall off Earth and float into space? What do we call a scientist that studies space? Explain that people who travel into space are called astronauts. They work very hard, learn lots of maths and science and also speak other languages. They need to understand how to fly their space rockets, how to land them, how to stay safe in space, there is a lot to think about. Mae Jemison wanted to be a scientist when she was a little girl, first she learned to be a doctor before she decided to learn how to be an astronaut. Show children a picture of Mae Jemison in her space suit. Explain she had to wear special clothes when she travelled into space. Identify space suit, space boots, helmet, gloves and explain that space suits have special life support packs on the back to help astronauts to breathe in space. Remind children we have a special thing called 'atmosphere' that contains oxygen which we need to breathe on Earth, but in space there is not enough oxygen to breathe.</p> <p>Teacher-led activity: Create an astronaut activity; children can be given the different parts of an astronaut to stick together whilst discussing what an astronaut would need to wear in space, they can then write labels for each part. Some children may prefer to draw and label an astronaut.</p>	<p>Children will know that astronauts work very hard to learn how to travel into space.</p> <p>Children will understand that astronauts need special clothing when they are in space.</p> <p>Some children may understand that gravity is a force that keeps us on the ground when on Earth.</p>
<p>Session B: Astronauts live and work on the International Space Station.</p> <p>Vocabulary: Tim Peake, International Space Station, scientists, telescopes, gravity</p>	<p>Teacher-led input: Who was Mae Jemison? Explain that right now, the International Space Station is travelling around Earth. There are apps and trackers to show where the station is at any given moment in time, your class might like to track where it is. Show an image of the ISS and explain that scientists and astronomers from different countries worked together to build the space station. Now there are scientists living and working there as the ISS orbits the earth. If possible show a model space station orbiting Earth using a globe. Tim Peake is a British astronaut who went to the Space Station to work. Show children pictures/videos of Tim Peake in the ISS. Talk about how astronauts have to learn to move around without gravity holding them down. Discuss how they eat, drink and work. Explain that the ISS helps scientists to learn more about space.</p> <p>Teacher-led activity: With a picture of Mae Jemison and Tim Peake, encourage children to write about astronauts. Support their writing using appropriate scaffolds.</p>	<p>Children will find out about the International Space Station and will know astronauts live and work there.</p> <p>They will begin to understand that astronauts have to train and work hard so they know how to survive in space.</p>
<p>Adult led activity:</p>	<p>Read Look Up by Nathan Bryon; talk about Rocket's dream to be an astronaut. Print a photo of each child's face and ask them to draw a space suit around their face- helmet, suit, boots, gloves, life support pack etc. Discuss which planet they might travel to.</p>	<p>Children will be able to imagine themselves as astronauts .</p>
<p>Texts:</p>	<p>Mae Jemison by Mary Nhin Mae Among the Stars by Roda Ahmed Look Up by Nathan Bryon</p> <p>Whatever Next by Jill Murphy How to catch a star by Oliver Jeffers</p>	
<p>Additional provision:</p>	<p>Space Station role play area, astronaut training assault course, rocket building with craft and recycled materials, use construction materials to build a space station or rocket, design and label a space station on graph paper, create an astronaut handbook.</p>	



Linked to:

Understanding the World; Past and Present; The Natural World; Expressive Arts and Design

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<p>Session A: There are planets in our solar system.</p> <p>Vocabulary: The Sun, Mercury, Venus, Earth, Mars Jupiter, Saturn, Uranus, Neptune.</p>	<p>Teacher-led input: Ask children to look at their Knowledge Organisers and tell you what they know about Space so far. Explain that we've learned about Earth, the Sun and astronauts, now we are learning about the other planets that are near to the sun in our Solar System. Orally rehearse the planet names. Talk about the features of the planets, their size, colour, any rings etc. Explain that on Jupiter, astronomers noticed a giant spot, they looked closely and discovered it's a huge swirling storm that has been raging for many years! When they look very closely with a powerful telescope, astronomers can see that Saturn's rings are made of ice and rock, some bits are very tiny like a grain of sand, others are as big as this classroom! Astronomers think that the only planet in our solar system with living things on it is Earth, but they are looking for signs of life on Mars, we will learn about that later in this unit. Emphasise that all of the planets in our solar system orbit the sun.</p> <p>Teacher-led activity: In a large open space, play pieces from Holst's The Planets. Ask children to respond with movement to the music, see what they do. Play Mars and contrast it with Venus or Neptune. Explain that Holst was a composer who used his imagination to compose the music, thinking about what each planet might be like. If time, allow children to respond by composing some music to represent a planet. This might be something you explore in curriculum time for music.</p>	<p>Children will become familiar with the planets in our solar system, recognizing names and features of the planets.</p> <p>Children will know the sun is a star located at the centre of our solar system.</p>
<p>Session B: The planets in our solar system are very different.</p> <p>Vocabulary: Rocky planet, gas giant, ice giant.</p>	<p>Teacher-led input: How many planets can you remember? Place the sun on the IWB and place the planets one by one naming each. Ask children to look closely and think about how the planets are different. Explain that scientists and astronomers know that some planets like ours have rock (like our land), some are made of gases and some are a mixture of gas and ice. Gas is something you can't hold, it is not solid or liquid. Mercury, Venus, Earth and Mars are all rocky planets. Jupiter, Saturn, Uranus and Neptune are all known as gas giants. They are huge balls of gas. Uranus and Neptune are sometimes called ice giants, they are made of gas and ice.</p> <p>Teacher-led activity: Children can create a solar system picture using sponges and paint, or draw a solar system before adding labels where they can. You could sing 'zoom, zoom, zoom we are going to the moon' with the children.</p>	<p>Children will continue to recognise and describe the planets in our solar system. They will be able to explain how the planets are different from each other, e.g. colour, size, rings etc.</p>
<p>Adult led activity:</p>	<p>Model using a non-fiction book to find out about space. Remind children how to use contents page etc. If children are ready to, they could create fact cards with a picture of the planet and an interesting fact they learned from the texts you were reading together. Then they could be 'astronomers' and share their fact with the headteacher!</p>	<p>Children have experience engaging with non-fiction texts.</p>
<p>Texts:</p>	<p>Meet the Planets – Caryl Hart The Planets Musical Book – Fiona Watt</p> <p>The Usborne Big Book of Stars and Planets – Emily Bone</p>	
<p>Additional provision:</p>	<p>Make the solar system with different resources including playdough, paint, crayons and recycled materials, create a fact book about the planet, favourite planet tally chart,</p>	



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<p>Session A: The stars we see in the sky are very far away.</p> <p>Vocabulary: Stars, galaxy, solar system, distance,</p>	<p>Teacher-led input: Can you remember who we learned about before who looked up at the stars? Galileo lived a long time ago and he looked up at the stars wondering what was out in space. Caroline Herschel looked at comets. Show a picture of the night sky. Explain that we see stars as tiny dots of light in the sky, but they are not tiny, they are just very far away. Use google earth to zoom out from the school to the earth- explain earth isn't small, but if we travelled away from it in a rocket it would look smaller and smaller. No astronaut has ever been to a star, they are too hot and too far away! Our sun is a star, but we couldn't travel there because it is too hot. Astronomers group stars into galaxies. Galaxies have lots of stars and planets; our own galaxy is called the Milky Way. It has over 100 billion planets in it and possibly 400 billion stars! Those are huge numbers. Show children some images of our galaxy. Explain our solar system would be a tiny dot in the galaxy- space is so enormous!</p> <p>Teacher-led activity: Create a galaxy on black sugar paper or card with shiny paper cut into tiny pieces. Whilst working with the children talk about the size of stars and how stars seem small because they are so far away.</p>	<p>Children will know that the stars we see in the sky are very far away.</p> <p>Children will understand that things that are far away can appear small, but if we were near to them we'd see they are not.</p>
<p>Session B: People have told stories about the stars for many years.</p> <p>Vocabulary: Constellation, shapes, formation, stars, Great Bear, Hercules, Pegasus, Leo.</p>	<p>Teacher-led input: Explain that people have looked at the stars and told stories about them for many years. Read 'How the Stars Came to Be' by Poonam Mistry. Explain it is a story and there are many others. Tell children that a long time ago people saw pictures in the stars; these are called constellations. Show children some constellations such as the Great Bear. Look at the shapes created in the constellations. Show children Hercules, explain he is a strong man from story told many years ago. Show children Pegasus and explain that Pegasus was a mythical creature like a horse with wings.</p> <p>Teacher-led activity: Role play the story of 'How the Stars Came to Be' with the children, asking them to respond to parts of the story with movement, perhaps to music if possible. Use any props available to you. Extend the story by asking children to create constellations; maybe those you've taught but children could also use their imagination to think of their own.</p>	<p>Children will know that people have been looking at the stars and telling stories for a long time.</p> <p>Children will respond to a story with movement and music.</p>
<p>Adult led activity:</p>	<p>Create a constellation using small silver star stickers and white chalk on black card. Use examples for children to look closely at the shapes and the positioning of the stars within the constellation.</p>	<p>Children will have experience looking at the formation of constellations</p>
<p>Texts:</p>	<p>How to catch a star by Oliver Jeffers Star in a jar by Sam Hay What We See in the Stars by Kelsey Oseid</p> <p>Zoo in the Sky: A Book of Animal Constellations by Jacqueline Mitton</p>	
<p>Additional provision:</p>	<p>Geoboard constellations, making constellations with chalk, glitter and paint, writing fiction books about a pet star, creating a star reading cave with black material and fairy lights or glow in the dark stars, star tuff tray with glitter, magnifying glasses and information books.</p>	



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<p>Session A: Astronauts have walked on the moon.</p> <p>Vocabulary: Moon landing, astronaut, Neil Armstrong, Apollo 11, crater, surface</p>	<p>Teacher-led input: Ask children to look at their Knowledge Organisers and talk about what they know now about space. Think about their use of vocabulary and assess how secure they are with the words we set out to learn. Ask children if they can remember the names of any astronauts? Remind children that Mae Jemison and Tim Peake are astronauts. Explain that in the past, astronauts have landed on the moon. Introduce Neil Armstrong and the Apollo 11 mission to the moon. Show children a video of the first steps on the moon. Show them the flag Armstrong put on the moon. Show images of the Apollo 11 space shuttle. Explain that now, scientists and astronomers have invented robots and machines they can control from Earth, which means people don't need to go to the moon. It is better to send a robot as they don't need food, water and air to breathe.</p> <p>Teacher-led activity: Write a short sentence (pitched at the appropriate level for your children) about the moon landings. Draw a picture of the moon landings.</p>	<p>Children will know that astronauts are people who travel into space.</p> <p>Children will know that in the past, astronauts went to the moon.</p> <p>Children will recognise Neil Armstrong as an astronaut that walked on the surface of the moon.</p>
<p>Session B: The Mars Rover is a robot that is exploring Mars.</p> <p>Vocabulary: Rover, Perseverance, signs of life, research</p>	<p>Teacher-led input: Reconnect to previous learning; who was the first person to walk on the moon? Remind children that now space scientists send machines and robots to do the work of astronauts, it is much safer and less complicated than sending a human. Explain that right now there is a special robot called the Mars Rover exploring the surface of Mars. Show children pictures and videos of Perseverance. Explain that the Mars Rover is gathering samples from Mars and studying them closely. On earth, scientists control what the rover does and receive information from it. Scientists are looking to see if anything has ever lived on Mars. The Rover can take pictures and rock samples which it will bring back to Earth, if everything goes to plan.</p> <p>Teacher-led activity: Design a robot to explore a planet. Discuss with children what planet they would send their robot to and why. Discuss what the robot would need to do, would it need wheels? Would it need cameras? Show lots of pictures of space exploration vehicles to give children ideas. Model how you might draw a design, adding different things and articulating your thinking as you draw, e.g. My robot needs to travel across bumpy land, so it needs big tyres on its wheels. (Draw on thick tyres)</p>	<p>Children will know that now scientists can send robots into space.</p> <p>Children will know that the Mars Rover is exploring Mars and taking picture of its surface</p>
<p>Adult led activity:</p>	<p>Role play the moon landings with a small group, discuss how the astronauts might have been feeling, what they were thinking. Use props and costumes if you have them. Create a space rocket using construction resources, or just chairs and imagination! Follow the children's lead to role play moon landings and let them decide where the rocket will go next!</p>	<p>Children will have an opportunity to role play the moon landings and then use their imaginations to decide where their rocket may go next.</p>
<p>Texts:</p>	<p>Shine by Sarah Asuquo Suzy Orbit Astronaut by Ruth Quayle Zoom to the Moon by Jenny McLachlan</p> <p>The Darkest Dark by Chris Hadfield</p>	
<p>Additional provision:</p>	<p>Rock sample exploration with magnifying glasses, tweezers and observation sheets, recycled material Mars Rover, building a Mars Rover with 3D shapes or different construction materials, Beebot Mars Rover role play, fact books, children to use digital cameras or iPads to take photos of what the Mars Rover might capture.</p>	