Exploring Space: Cross-Curricular Topic : Year 1/2

Exploring Space

A KS1 cross-curricular topic for Year 1 and 2

History

1	Investigate the five main discoveries Galileo made using the newly invented telescope.
2	Use historical sources to find out about the Apollo 11 mission and moon landing.
3	Create a fact-file about either Neil Armstrong, Katherine Johnson or a British astronaut.
4	Understand chronological order and then create a timeline of the key events in the history of space exploration.
5	Compare the Sojourner (1997) and Perseverance (2020) Mars rovers and predict what the future of Mars exploration will be.

- *KS1 - The lives of significant individuals in the past who have contributed to national and international achievements.*
- *KS1 - Events beyond living memory that are significant nationally or globally.*
- *KS1 - They should know where the people and events they study fit within a chronological framework.*
- *KS1 - To identify similarities and differences between ways of life in different periods.*

Art

1	Learn skills for shaping, marking and joining clay. Use these skills to create an alien figure from clay.
2	Design and make a space-themed clay tile with an element of relief.
3	Find out about the planets of the solar system and then create a colourful picture of them using chalks.

- *KS1 - to use sculpture to develop and share their ideas, experiences and imagination.*
- *KS1 - to develop a wide range of art and design techniques in using colour, pattern, texture, line, shape, form and space.*
- *KS1 - to use drawing to develop and share their ideas, experiences and imagination.*

Science

1	Go on a materials hunt in the classroom and learn to distinguish between the object and the material it is made from.
2	Use Venn diagrams to sort materials by their properties.
3	Investigate the materials used in an astronaut's spacesuit and explain how their properties justify their use.
4	Plan and carry out a fair test investigation into which material would be most insulating for an astronaut.

- *KS1 - distinguish between an object and the material from which it is made.*
- *KS1 - identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.*
- *KS1 - describe the simple physical properties of a variety of everyday materials .*
- *KS1 - identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.*
- *KS1 - asking simple questions and recognising that they can be answered in different ways.*
- *KS1 - observing closely, using simple equipment, performing simple tests, identifying and classifying, using their observations to suggest answers to questions and gathering and recording data to help in answering questions.*

PE

1	Develop underarm throwing skills and apply in either a game of space invaders or space catch!
2	Learn how astronauts exercise on the International Space Station and then take part in a series of exercises to train like an astronaut.

- *KS1 - master basic movements including running, jumping, throwing and catching, as well as developing balance, agility and co-ordination, and begin to apply these in a range of activities.*
- *KS1 - participate in team games, developing simple tactics for attacking and defending.*

Geography

1	Use compass directions to help the aliens navigate their spacecraft through an asteroid field!
2	Use maps to locate the Kennedy Space Center and use the compass directions to describe its position within the state of Florida.

- *KS1 - use simple compass directions (north, south, east and west) and locational and directional language [for example, near and far, left and right], to describe the location of features and routes on a map.*
- *KS1 - use world maps, atlases and globes to identify the United Kingdom and its countries, as well as the countries, continents and oceans studied at this key stage.*

DT

1	Find out about the Lunar Rover which was part of the final three Apollo missions. Design and make a new version for NASA from junk modelling materials.
2	Practise making a moving picture of a space rocket launching and an astronaut waving using sliding and lever mechanisms. Then design and make a moving space picture!

- *KS1 - generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology.*
- *KS1 - select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing].*
- *KS1 - explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.*

Exploring Space

Teacher's Topic Planner

English

Science

4 Lessons

Maths

History

5 Lessons

Geography

2 Lessons

RE

Computing

Art

3 Lessons

DT

2 Lessons

Languages

Music

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Teacher's notes:

History	Science

Art	English

DT	PE	Geography

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	SCIENCE			
	Learning Objective	**Overview**	**Assessment Questions**	**Resources**
Lesson 1	To distinguish between an object and the material it is made from.	In this lesson, children will learn to name everyday materials and distinguish objects from the materials they are made from. They go on a materials hunt around the classroom to find and classify objects made from different materials.	• Can the children name some common materials? • Can the children distinguish between an object and the material(s) it is made from? • Can the children begin to use scientific vocabulary to describe properties of materials?	Slides Worksheets 1A/1B/1C Object Cards (FSD? activity only) Worksheet 1D (FSD? activity only)
Lesson 2	To group and sort materials by their properties.	In this lesson, children will learn to use scientific vocabulary to describe the properties of materials. They will then use Venn diagrams to sort materials according to their properties.	• Can the children use scientific vocabulary to describe materials? • Can the children use a Venn diagram to sort materials by their properties? • Can the children identify materials in the wrong place on a Venn diagram?	Slides Sorting Cards Object Cards Worksheets 2A/2B/2C Worksheet 2D (FSD? activity only)
Lesson 3	To understand how materials are chosen because of their properties.	In this lesson, children will learn how everyday objects are made from particular materials because of their properties. They will look, for example, at why car windscreens are made from glass. They will then learn about the different materials used to make a spacesuit. They will produce a labelled diagram of a spacesuit and the materials (with their properties) that are used to make it.	• Can the children use scientific vocabulary to describe the properties of materials? • Can the children explain why particular materials were chosen to make a spacesuit? • Can the children explain why certain materials would not be chosen to make particular objects?	Slides Material Property Cards Material Description Card Worksheets 3A/3B/3C Riddle Sheet (FSD? Activity only)
Lesson 4	To plan and carry out an investigation into the best material for a spacesuit.	In this lesson, children will plan and carry out a fair test investigation to find out which material (bubble wrap, cotton wool or foil) is the most insulating for an astronaut. They will make predictions and record their results in a table. They will then draw a simple conclusion.	• Can the children make a reasoned prediction? • Can the children explain why variables should be kept constant in a fair test? • Can the children use their results to draw a simple conclusion?	Slides Materials for investigation: bubble wrap, foil, cotton wool, cups, thermometers, hot (not boiling) water. Worksheets 4A/4B/4C Worksheet 4D (FSD? activity only)

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PlanBee

	HISTORY			
	Learning Objective	**Overview**	**Assessment Questions**	**Resources**
Lesson 1	To understand how Galileo's telescope advanced understanding our of space.	In this lesson, children will find out who Galileo was and how his telescope allowed him to discover many previously unknown things about space. At the end of the lesson, children will learn about more recent discoveries with the advancement in telescope technology and will reflect on how Galileo would feel to see how the telescope he improved has progressed.	• Can the children explain what a telescope is and what it is used for? • Can the children explain one or more of Galileo's discoveries about space? • Can the children explain how telescope technology has advanced since Galileo's time?	Slides Worksheet 1A/1B/1C Galileo Fact Sheet Moon Cards (FSD? activity only) Sticky notes (FSD? activity only)
Lesson 2	To use a variety of sources to understand the events of the Apollo 11 Moon landing.	Children will use historical sources to find out about the Apollo 11 mission which led to Neil Armstrong becoming the first human to set foot on the Moon. Children will reflect on what information could be gained from different sources and which was the most informative source they looked at in this lesson.	• Can the children explain what the space race was? • Can the children explain the main events of the Apollo 11 mission? • Can children identify different sources and what they might tell us about the space race or Apollo 11 mission?	Slides Worksheets 2A/2B Word Bank Source Cards 2A Apollo 11 Timeline Tablets to access QR codes
Lesson 3	To research significant individuals and their impact on space exploration.	In this lesson, children will learn about Neil Armstrong (the first human to ever step onto the moon) and Katherine Johnson (a brilliant mathematician whose calculations helped the Apollo 11 Moon landing to be a success). Children will produce a fact-file on one of these people or a British astronaut. At the end of the lesson will discuss who they think had the bigger impact on space exploration.	• Can children name a significant individual who had an impact on space exploration? • Can children describe how a significant individual had an impact on space exploration? • Can they explain who they think had the greater impact on space exploration and why?	Slides Fact-file Sheet 3A/3B/3C Information Pages Information sources e.g. topical non-fiction books, access to the internet Research Prompts (FSD? activity only) Sugar paper (FSD? activity only) (optional) Home Learning Card 3A
Lesson 4	To put key events in space exploration in chronological order.	Children will learn what is meant by chronological order. They will practise how to put events in chronological order by ordering events of the Apollo 11 mission on a timeline. They will then order cards about the history of space exploration using the years the events took place in.	• Can the children put events in chronological order? • Can the children explain what a timeline is? • Can the children create timelines showing the chronological order of events from history?	Slides Event Cards Timeline Cards 4A/4B/4C Worksheets 4A/4B/4C Timeline Display Cards (FSD? activity only) Access to the internet (FSD? activity only)
Lesson 5	To compare and contrast how missions to Mars have changed throughout history.	In this lesson, children will learn what a rover is and will look in detail at the Sojourner and Perseverance Mars rovers. They will compare them by identifying similarities and differences between them. At the end of the lesson, children will discuss what they predict the future of Mars exploration will be.	• Can children ask and answer questions about different Mars rovers? • Can the children order events in the history of Mars exploration chronologically? • Can the children identify similarities and differences between the Sojourner and Perseverance Mars rovers?	Slides Mars Timeline Cards Information Page: Sojourner Rover Information Page: Perseverance Rover Image Cards Worksheets 5A/5B/5C Venn Diagram Sheet (FSD? activity only)

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	GEOGRAPHY			
	Learning Objective	**Overview**	**Assessment Questions**	**Resources**
Lesson 1	To use compass directions to describe and follow routes.	Children will help the friendly alien characters fly their spacecraft through an asteroid field to safety! They will learn how to describe and follow routes on a grid using the four compass directions. At the end of the lesson, children will describe routes on a map to each other and they will try and guess the planet they have travelled to.	• Can the children remember the four compass directions? • Can the children follow a route using the four compass directions? • Can the children describe a route using the four compass directions?	Slides Worksheets 1A/1B/1C Map Sheets 1A/1B/1C Spacecraft Cut-Out Route Cards (FSD? activity only) Map Sheet 1D (FSD? activity only) Worksheet 1D (FSD? activity only)
Lesson 2	To use and create maps to locate the Kennedy Space Center.	Children will learn about the Kennedy Space Center and will find out that it is in North America. They will locate North America on a world map and will then look more closely at a map of Florida to locate its precise location in Cape Canaveral. They will apply their understanding of the four compass directions to describe the location of the Kennedy Space Center in relation to other places in Florida.	• Can the children name and locate the world's continents? • Can the children use maps to locate the Kennedy Space Center within the USA? • Can the children use maps to answer questions about the location of the Kennedy Space Center?	Slides Worksheets 2A/2B/2C Worksheet 2D (FSD? activity only)

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	ART			
	Learning Objective	**Overview**	**Assessment Questions**	**Resources**
Lesson 1	To understand how to shape and join clay.	In this lesson, children will learn some basic techniques for shaping and joining clay. They will also have a chance to use some clay tools to add pattern and texture. They will practise these skills in isolation first and will then design and make their own alien figure using the skills they have acquired.	• Can the children shape clay using their hands with precision and control? • Can the children use the correct method to join clay? • Can the children use clay tools to add pattern and texture to their work?	Slides Clay 500g per child approximately Clay boards Clay tools Rolling pins Alien Design Sheets 1A/1B/1C Alien Picture Cards (FSD? activity only)
Lesson 2	To design and make a space-themed clay tile picture.	Children will learn what relief means and they will design a space-themed clay tile which shows at least one element of relief. They will then apply the skills they learnt in the previous lesson to make their clay tile.	• Can the children join clay together correctly? • Can the children produce a high-quality design with annotations? • Can children evaluate their own and each other's work?	Slides Design Sheets 2A/2B/2C Ideas Page Clay (approximately 500g each) Clay tools Rolling pins Planet Cards (FSD? activity only)
Lesson 3	To use chalks to create a planet picture.	In this lesson, children will firstly find out about the planets of the solar system. They will look at images of them and identify any colours and shapes / patterns they can see. They will then use circular templates and chalks to create a picture of the planets on black paper.	• Can the children blend chalks together? • Can the children use a template correctly? • Can the children layer chalks?	Slides Black paper (black sugar paper is ideal) Circle Templates Planet Sheet

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	DT			
	Learning Objective	**Overview**	**Assessment Questions**	**Resources**
Lesson 1	To design and make a moon buggy.	Children will learn about the lunar rover that was created as part of the Apollo missions. They will then design their own new Moon buggy and construct it using junk modelling materials.	• Can the children produce an annotated design? • Can the children join materials together appropriately? • Can the children evaluate their work?	Slides Design Sheet 1A/1B/1C Junk modelling materials Sticky tape, masking tape, glue. Moon Buggy Card (FSD? activity only)
Lesson 2	To design and make a moving space picture.	Children will learn how to make sliders and lever mechanisms to create moving pictures. After practising these techniques in isolation, they will then design and make their own moving space picture.	• Can the children make a simple sliding mechanism? • Can the children make a simple lever mechanism? • Can the children produce an annotated design?	Slides Design Sheet 2A/2B/2C Card, paper, paper fasteners, colours, glue.

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	PE			
	Learning Objective	**Overview**	**Assessment Questions**	**Resources**
Lesson 1	To improve aiming and underarm throwing skills.	After a fun game of 'Meteor Ball' to warm the children up, children will then practise throwing balls (energy balls) at targets (meteors). They will use Skill Cards to develop their underarm throwing skills. They will then work in a team, imagining they are on a spacewalk. They will throw a ball (representing an important piece of equipment) between them, seeing how many times they can pass the ball without dropping it!	• Can the children look in the direction they are throwing? • Can the children step forwards as they throw? • Can the children follow through by pointing their throwing arm at the target?	Slides Skill Cards Beanbags, foam balls, tennis balls, skittles, hoops, cones
Lesson 2	To train like an astronaut!	After a fun game of big body rock, paper, scissors as a warm up, children will learn why astronauts and cosmonauts on the International Space Station need to exercise. They will then take part in various astronaut training exercises designed to improve their bone, muscle and heart health ready for an upcoming mission!	• Can the children explain why astronauts must exercise in space? • Can the children cooperate fairly with others? • Can the children reflect on their learning in PE, suggesting what they need to do to improve?	Slides Astronaut Training Cards Skipping ropes, mats, hoops, cones Exercise Cards (FSD? activity only)