

	AI	A2	SPI	SP2	SUI	SU2
FS	<p>In Early Years Foundation Stage (EYFS) children will start to gain the science knowledge that they'll build on throughout their primary school years, such as developing their skills of observation, prediction, critical thinking and discussion.</p> <p>Science at Foundation Stage is introduced indirectly through activities that encourage the children to explore, problem solve, observe, predict, think, make decisions and talk about the world around them.</p>					
	<p>AUTUMN TERM:</p> <p>Our body How to stay healthy/looking after our bodies How we have changed from a baby to now</p> <p>Seasons Autumn - what has changed? Weather Clothing</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> Asking questions Making predictions Observing and measuring Interpreting and communicating results <p>Enquiry Types:</p> <ul style="list-style-type: none"> Observing over time Pattern Seeking Research using secondary sources 		<p>SPRING TERM:</p> <p>Changes in states Changing states of matter - water, freezing Observations over time</p> <p>Seasons Winter - what has changed? Weather Comparing to autumn - what is different? What is the same? Sorting and matching items to seasons</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> Asking questions Making predictions Observing and measuring Interpreting and communicating results Setting up tests 		<p>SUMMER TERM:</p> <p>Growing - minibeast/plants Lifecycles, sequences Observations over time</p> <p>Seasons Spring - what has changed? Weather comparing to autumn and winter- what is the same and what is different?</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> Asking questions Observing and measuring Interpreting and communicating results Making predictions Setting up tests Evaluating 	

Enquiry Types:

- Observing over time
- Identifying, classifying and grouping
- Research using secondary sources

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Working Scientifically

During Years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

Seasonal Changes

Focus Scientists:

- Liam Dutton (Weatherperson/Meteorologist)
- John Dalton (British Weather pioneer)

We will investigate the four seasons of the year across the year, focussing on how each season transitions into the next and comparing and contrasting the seasons as we continue with our learning. We will investigate day and night and how the length of the day changes throughout the year as well record the differences in weather at different times of the year.

Disciplinary (Working Scientifically) Concepts:

- Asking questions
- Making predictions
- Observing and measuring
- Recording data
- Interpreting and communicating results

Scientific Enquiry Types:

- Identifying, Classifying and grouping
- Observing over time
- Research using secondary sources
- Pattern seeking

TAPS Assessment Activity (ies):

- Shades of colour (Do)
- Seasonal change (Record)

Science Trails: How do different seasons change my local environment?

Everyday Materials

Focus Scientists:

- William Addis (Inventor of the toothbrush)
- Dr Pearl Agyakwa (Materials scientist)

We will investigate objects and distinguish the materials that these are made from. During this learning, we will identify and name a variety of

Animals including humans

Focus Scientists:

- Chris Packham (Animal Conservationist, Wildlife photographer, ASD)
- Malaika Vaz (Wildlife Videographer and National Geographic Explorer)
- Mya-Rose Craig (ornithologist - studier of birds)

Plants

Focus Scientists:

- Beatrix Potter (Author and Botanist)
- Arit Anderson (Garden Designer and presenter of Gardeners World)

We will look at a variety of common wild and garden plants, including deciduous and evergreen trees.

everyday materials including wood, plastic, glass, metal, water and rock as well as describe the simple physical properties of these. We will then compare, classify and group together these materials since their properties.

Disciplinary (Working Scientifically) Concepts:

- Asking question
- Making predictions
- Observing and measuring
- Recording data
- Interpreting and communicating results

Scientific Enquiry Types:

- Identifying, Classifying and grouping
- Observing over time
- Comparative and fair testing
- Research using secondary sources
- Pattern seeking

TAPS Assessment Activity (ies):

- Transparency (Plan)
- Bridge Testers (Record)
- Float and Sink (Do)

Science Trails: What materials have been used to make everyday buildings in our local area?

We will identify the features of each type of animal and classify them into birds, reptiles, amphibians, mammals and fish. We will also identify and name a variety of animals that are carnivores, herbivores and omnivores. We will describe and compare the structure of a variety of common animals whilst also identifying, naming, drawing and labelling basic parts of the human body. We will say which part of the body is associated with each sense.

Disciplinary (Working Scientifically) Concepts:

- Asking question
- Making predictions
- Setting up tests
- Observing and measuring
- Interpreting and communicating results

Scientific Enquiry Types:

- Identifying, Classifying and grouping
- Observing over time
- Comparative and fair testing
- Research using secondary sources
- Pattern seeking

TAPS Assessment Activity (ies):

We will identify and describe the basic structure of a variety of common flowering plants, including trees.

Children become detectives when we go on a leaf hunt in the school grounds.

Disciplinary (Working Scientifically) Concepts:

- Asking question
- Setting up tests
- Recording data
- Interpreting and communicating results
- Evaluating

Scientific Enquiry Types:

- Identifying, Classifying and grouping
- Observing over time
- Comparative and fair testing
- Research using secondary sources
- Pattern seeking

TAPS Assessment Activity (ies):

- .Leaf Look (Do)
- Plant structure (Do)

Science Trails: What types of plants can we find in our local area?

- Animal classification (Review)
 - Body parts (Review)
- Science Trails:** How do different senses change in my local environment?

Y2

Working Scientifically

During Years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking simple questions and recognising that they can be answered in different ways
- observing closely, using simple equipment
- performing simple tests
- identifying and classifying
- using their observations and ideas to suggest answers to questions
- gathering and recording data to help in answering questions

Uses of everyday Materials

- Focus Scientists:
- Charles Macintosh (Inventor of waterproof material)
 - Danial Azahan (Mechanical engineer)

Animals including humans

- Focus Scientists:
- Dr Donald Palmer (researches the ageing of the immune system)
 - Bear Grylls (Survival Expert)
 - Florence Nightingale (nurse in the Crimean war)

These are two questions we will be looking into: How do animals grow?

Living things in their habitat

- Focus Scientists:
- Rachel Carson (Marine Biologist)
 - Tanesha Aleen (Zoologist)

We will learn to identify living organisms, things that have once been alive and things that have never been alive.

We will identify a range of habitats as where living organisms live and

Plants

- Focus Scientists:
- George Washington Carver (Botanist)
 - Agnes Arber (1879-1960) Botanist

We will research how a seed develops into a plant. We will investigate what a

	<p>As a class, we will be investigating the properties of materials and determining how suitable these materials are for a particular use? We will explore how the shape of materials are changed when they are squashed, bent, twisted and stretched.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> • Asking question • Making predictions • Interpreting and communicatin 	<p>What does an animal need to survive? We will be looking at patterns over time and discussing changes between offspring and adult animals as well as determining what living organisms need in order to stay alive and healthy such as water, food and air.</p> <p>We will investigate how humans grow and learn about the importance of a healthy diet.</p> <p>We will also explore different methods of exercise and the impact that exercise has on our bodies. We will learn about different hygiene techniques including handwashing and teeth brushing.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> • Asking question • Making predictions • Setting up tests • Observing and measuring • Recording data • Interpreting and communicating results • Evaluating 	<p>determine how they are suited to living in these environments. We will also learn about how each habitat provides for the basic needs of living organisms so that they can survive. Within these habitats, we will identify and name a variety of plants and animals, as well as including examples of microhabitats. We will also be using the ideas of simple food chains to understand how different animals source their food and how this contributes to the habitat in which a living thing can survive in.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> • Asking question • Setting up tests • Observing and measuring • Recording data • Interpreting and communicating results • Evaluating <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> • Identifying, Classifying and grouping 	<p>seed needs to grow and carry out fair tests to determine this.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> • Asking question • Making predictions • Setting up tests • Observing and measuring • Recording data • Interpreting and communicating results • Evaluating <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> • Identifying, Classifying and grouping • Observing over time • Comparative testing
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- g results
- Evaluating

Scientific Enquiry Types:

- Identifying, Classifying and grouping
- Research using secondary sources
- Pattern seeking

TAPS Assessment Activity (ies):

- Waterproof (Plan)
- Materials hunt (Do)

Science Trails: What materials are used for making everyday objects in our world and why have they been used?

Scientific Enquiry Types:

- Identifying, Classifying and grouping
- Comparative testing
- Research using secondary sources
- Pattern seeking

TAPS Assessment Activity :

- Handspan (Review)

- Observing over time
- Comparative testing
- Research using secondary sources
- Pattern seeking

TAPS Assessment Activity (ies):

- Nature spotters (Review)
- Living and Non-living (Review)

Science Trails: What things are alive, were once alive or have never been alive?

How can we investigate what animals live in our school grounds?

- Research using secondary sources
- Pattern seeking

TAPS Assessment Activity (ies):

- Plant Growth (Do)

Working Scientifically

During Years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

Rocks and Soils

Focus Scientists:

- Mary Anning (Fossilist)
- Christopher Jackson (geologist)

In science, we will be learning about the different types of

Forces and Magnets

Focus Scientists:

- William Gilbert (Magnetism and electricity)
- Jyoti Sehdev (Senior civil engineer)

Animals including humans

Focus Scientists:

- Wilhelm Röntgen (Invented the X-Ray)^[SEP]
- Zubair Haleem^[SEP] (Academy physio at Arsenal)

In science, we will start by identifying vertebrates and invertebrates and sub categorising the animals within these groups. We will then identify the

Plants

Focus Scientists:

- Ahmed Mumin Warfa (Somali Botanist)^[SEP]
- Maria Sibylla Merian (1647-1717) (Documented the relationship between plants and insects)

Light

Focus Scientists:

- Ibn al-Haytham (Mathematician and astronomer)
- Patricia Bath (Ophthalmologist and

	<p>rocks and how these are formed. We will then identify and classify a range of rocks using a variety of tests and their properties, linking this to their everyday uses. We will describe the formation of fossils when living organisms that have once lived are trapped between layers of rock. We will then investigate soil as a combination of rock, organic matter and sand.</p> <p>Disciplinary (Working Scientifically) Concepts:</p>	<p>We will begin our science learning by building on our knowledge of push and pull forces using a range of investigations, focussing on movements across surfaces. We will then focus on magnetic forces, how they act at a distance, how we can compare magnet strength and use magnets to sort materials. We will also learn in more detail about a magnet, identifying the poles and predicting outcomes using repel and attract forces.</p>	<p>skeletons on humans and compare and contrast these to other vertebrates before moving onto labelling the bones of the human body. We will finish our learning by focussing on muscles and how they help us move and how nutrition contributes to the health of animals and correlates with their adaptations to their habitat.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> • Observing and measuring • Recording data • Interpreting and communicating results <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> • Identifying, Classifying and grouping • Observing over time • Comparative and fair testing • Research using secondary sources • Pattern seeking <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> • Skeleton Questions (Plan) 	<p>We will build on our knowledge of plants to label and then identify the function of each part of a flowering plant. We will look in more detail at the flowering part of a plant and how they help with the process of fertilisation, seed formation, seed dispersal and pollination. We will also discover how water is transported in plants through observing over time. We will then collate our knowledge of a plants requirements for life and growth to identify plants that are adapted to living in extreme climates, linking back to the</p>	<p>inventor)</p> <p>We will be recognising dark as the absence of light and then identifying a range of light sources in today's world. We will also learn about the dangers of light from the sun and discuss ways to protect ourselves from these light rays. We will also learn about how light travels and is reflected off surfaces and investigate how shadows are formed, before then tracking the sun's light in shadow formation.</p>
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	<ul style="list-style-type: none"> Recording data Interpreting and communicating results <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> Identifying, Classifying and grouping Observing over time Research using secondary sources Pattern seeking <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> Rocks Report (Review) 	<p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> Setting up tests Observing and measuring Recording data Interpreting and communicating results Evaluating <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> Identifying, Classifying and grouping Comparative and fair testing Research using secondary sources Pattern seeking <p>TAPS Assessment</p>	<p>Science Trails: What kinds of food do shops sell and how can food affect our health?</p>	<p>rainforest and deserts.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> Recording data Interpreting and communicating results Evaluating <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> Identifying, Classifying and grouping Observing over time Comparative and fair testing Research using secondary sources <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> Function of a 	<p>across a day to identify patterns.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> Making predictions Setting up tests Observing and measuring Interpreting and communicating results <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> Identifying, Classifying and grouping Observing over time
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	<p>Science Trails: How are rocks used in the world around us?</p>	<p>Activity (ies):</p> <ul style="list-style-type: none"> Balloon rocket (Review) Car ramps (Do) Magnet Tests (Plan) 		<p>stem (Review)</p> <ul style="list-style-type: none"> Measuring Plants (Do) <p>Science Trails: How many types of plants can we find in our local area?</p>	<ul style="list-style-type: none"> Comparative and fair testing Research using secondary sources Pattern seeking <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> Make shadows (Do) <p>Science Trails: What is a light source and where can I find one?</p> <p>How do shadows change throughout the day?</p>
Y4	Working Scientifically				

During Years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- asking relevant questions and using different types of scientific enquiries to answer them
- setting up simple practical enquiries, comparative and fair tests
- making systematic and careful observations and , where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

<p>Animals including humans</p> <p>Focus Scientists:</p> <ul style="list-style-type: none"> • Ivan Pavlov (Physiologist) • Charlotte Armah (nutritional biochemist - looking at the effect of diet on 	<p>Living things and their habitats</p> <p>Focus Scientists:</p> <ul style="list-style-type: none"> • Prem Singh Gill (Polar scientist) • Gladys West (Mathematician/GPS - link to Hampstead Heath topic) 	<p>Electricity</p> <p>Focus Scientists:</p> <ul style="list-style-type: none"> • Thomas Edison (scientist involved in the creation of the light bulb) • Michael Faraday (Physicist) • Chi Onwurah (Electrical engineer) <p>We will start by identifying the use of electricity in everyday life, identifying</p>	<p>States of Matter</p> <p>Focus Scientists:</p> <ul style="list-style-type: none"> • Daniel Fahrenheit (Inventor of the thermometer) • Dr Fangxian Fang (Earth scientist) <p>We will first start by identifying and grouping materials according to their state and whether they are solids, liquids or gases. We will observe that some materials can change state when they are cooled and heated and we will describe these changes as well as</p>	<p>Sound</p> <p>Famous Scientist: Alexander Graham Bell</p> <p>Focus Scientists:</p> <ul style="list-style-type: none"> • Alexander Graham Bell (invented the telephone) • Evelyn Glennie (Deaf
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	<p>human health)</p> <p>We will be focussing our learning on the digestive system, describing the simple functions of the different basic parts and organs. We will identify the different types of teeth in humans and outline their functions when we eat. We will then construct our own and interpret already made food chains, identifying the producers, predators and prey and identifying patterns shown using these food chains.</p>	<p>We will recognise that animals can be grouped and classified in a variety of ways and explore classification keys in order to help us group, identify and name a variety of living things in their local and wider environment. We will discover how environments change and what threat this poses to the living things.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> • Asking questions • Observing and measuring • Recording data • Interpreting and communicating results 	<p>common appliances and their functions. We will construct a simple series electrical circuit, identifying and naming its basic parts including cells, wires, bulbs, switches and buzzes. We will use our knowledge to predict whether given circuits will work resulting in a lamp being lit, spotting errors and adjusting these. We will also learn about the role of a switch within a circuit and how these contribute to whether a lamp lights up or not. Finally, we will identify and investigate materials that are conductors and insulators.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> • Asking questions • Making predictions • Setting up tests • Observing and measuring • Recording data • Interpreting and communicating results • Evaluating 	<p>measure and research the temperature at which this happens. We will then identify and understand how evaporation and condensation are vital processes in the water cycle and make links between the rate of evaporation with changes in temperature.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> • Making predictions • Setting up tests • Observing and measuring • Recording data • Interpreting and communicating results • Evaluating <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> • Identifying, Classifying and grouping • Observing over time • Comparative and fair testing • Pattern seeking <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> • Drying (Plan) 	<p>percussionist)</p> <ul style="list-style-type: none"> • Karrie Keyes (Audio engineer) <p>We will identify how sound is made by vibration and how we can hear these due to them travelling through a medium to the ear. We will find and identify patterns between the pitch and the object that produced the sound as well as patterns between volume and the strength of the vibrations. We will also recognise that sound gets fainter as the distance from the sound source increases.</p>
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	<p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> • Making predictions • Setting up tests • Observing and measuring • Recording data • Interpreting and communicating results • Evaluating <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> • Identifying, Classifying and grouping • Observing over time • Comparative and fair testing 	<p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> • Identifying, Classifying and grouping • Comparative and fair testing • Research using secondary sources • Pattern seeking <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> • Local environmental survey (Do) <p>Science Trails: Can we find a home for animals in our local area?</p>	<p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> • Identifying, Classifying and grouping • Observing over time • Comparative and fair testing • Research using secondary sources • Pattern seeking <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> • Conductors (Review) <p>Science Trails: What electricity is in our world?</p>	<ul style="list-style-type: none"> • Cornflour slime (Review) <p>Science Trails: What does water look like outside?</p>	<p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> • Asking questions • Making predictions • Observing and measuring • Recording data • Interpreting and communicating results <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> • Identifying, Classifying and grouping • Comparative and fair testing • Research using secondary sources
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	<ul style="list-style-type: none"> • Research using secondary sources • Pattern seeking <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> • Teeth in liquid (Review) 				<ul style="list-style-type: none"> • Pattern seeking <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> • String Telephones (Review) • Pitch (Plan) <p>Science Trails: What's that noise, where did it come from and why is it there?</p>
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Y5	<p style="text-align: center;">Working Scientifically</p> <p>During Years 5 and 6, pupils will be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:</p> <ul style="list-style-type: none"> • planning different types of scientific enquiries to answer questions, including recognising and controlling variables where
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necessary

- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs,
- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations results, explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments.

<p>Animals including humans</p> <p>Focus Scientists:</p> <ul style="list-style-type: none"> • Sigmund Freud (Created psychoanalysis) • Olive Guthrie Smith (physiotherapist) <p>We will focus on the changes that human beings</p>	<p>Properties/changes of materials</p> <p>Focus Scientists:</p> <ul style="list-style-type: none"> • Becky Schroeder (Inventor of the glow sheet) • Dr Nira Chamberlain (polymath/mathematician who studies applied mathematics in science) <p>As a class, we will investigate different materials, their uses and their properties</p>	<p>Forces</p> <p>Focus Scientists:</p> <ul style="list-style-type: none"> • Isaac Newton (Discovered gravity) • Rafsan Chowdhury (Mechanical Engineer) <p>We will learn about balanced and unbalanced forces, gravity,</p>	<p>Earth and Space</p> <p>Famous Scientist: Galileo</p> <p>Focus Scientists:</p> <ul style="list-style-type: none"> • Mai Jemison (Astronaut) • Dr Helen Mason (Solar scientist) • Katherine Johnson (mathematician and space scientist) <p>We will be exploring the movement of the Earth</p>	<p>Living things and their habitats</p> <p>Focus Scientists:</p> <ul style="list-style-type: none"> • Malaika Vaz (National Geographic explorer) • Maria Sibylla Merian (naturalist) <p>We will learn about the process of reproduction</p>	<p>Living Things (Y6 unit)</p> <p>Famous Scientist: Carl Linnaeus</p> <p>Focus Scientists:</p> <ul style="list-style-type: none"> • Carl Linnaeus (Naturalist and botanist) • Nazifa Tabassum (Microbiologist and Science Communicator)
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<p>experience as they develop to old age. We will tackle some sensitive subjects including puberty and death. Children will learn about the life cycle of a human being. We will investigate the development of babies and compare the gestation period of humans and other animals. We will learn about the changes experienced during puberty and why these occur.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> • Observing and measuring 	<p>and learn how to classify and group materials based on these properties. We will use our knowledge gained from comparative and fair tests to give evidence for the particular uses of everyday materials including metals, wood and plastic. We will investigate dissolving, separating mixtures and irreversible changes and recognise how some materials can be separated across different states of matter (liquid, solid and gas). We will use a range of techniques in order to separate a range of materials such as sieving, filtering and evaporating. We will also learn about dissolving, mixing and changes of state in reference to reversible change. The children will then learn about</p>	<p>friction and the use of mechanisms such as levers, gears and pulleys. We will investigate Isaac Newton and his discoveries about gravity. The children will look for patterns and links between the mass and weight of objects, using newton metres to measure the force of gravity. We will collaboratively investigate air and water resistance, participating in challenges to design the best parachute and boat.</p> <p>Disciplinary (Working Scientifically) Concepts:</p>	<p>and other planets in our solar system relative to the sun as well as the movement of the moon around the Earth.</p> <p>We will discover how, because of their spherical nature, rotation and orbit, the Sun appears to move across the Earth's sky creating day and night.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> • Asking question • Setting up tests • Observing and measuring • Recording data • Interpreting and communicating results <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> • Identifying, Classifying and grouping • Observing over time 	<p>and the life cycles of plants, mammals, amphibians, insects and birds. The children will explore reproduction in different plants, including different methods of pollination and asexual reproduction.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> • Recording data • Interpreting and communicating results • Evaluating <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> • Identifying, Classifying and grouping 	<p>We will describe how living things are classified into broad groups according to similar observable characteristics, including micro-organisms, plants and animals. We will compare animals in these groups, identifying similarities and differences. We will classify plants and animals based on characteristics and give reasons for our choices.</p> <p>Disciplinary (Working Scientifically) Concepts:</p>
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	<ul style="list-style-type: none"> Recording data Interpreting and communicating results <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> Observing over time Research using secondary sources Pattern seeking <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> Growth Survey (Do) <p>Science Trails: What can observing people in our local area tell us about the human life cycle?</p>	<p>irreversible changes, and participate in two exciting investigations to create new materials, including casein plastic and carbon dioxide.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> Asking question Making predictions Setting up tests Observing and measuring Recording data Interpreting and communicating results Evaluating <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> Identifying, Classifying and grouping Observing over time Comparative and fair testing 	<ul style="list-style-type: none"> Asking question Making predictions Setting up tests Observing and measuring Recording data Interpreting and communicating results Evaluating <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> Comparative and fair testing Research using secondary sources Pattern seeking 	<ul style="list-style-type: none"> Comparative and fair testing Research using secondary sources Pattern seeking <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> Craters (Do) Solar System research (Review) 	<ul style="list-style-type: none"> Observing over time Research using secondary sources Pattern seeking <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> Life Cycles (Review) <p>Science Trails: What are the similarities and differences between different types of flowering plants?</p>	<ul style="list-style-type: none"> Asking question Making predictions Setting up tests Observing and measuring Recording data Interpreting and communicating results Evaluating <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> Identifying, Classifying and grouping Observing over time Comparative and fair testing Research using
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	<ul style="list-style-type: none"> Research using secondary sources Pattern seeking <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> Nappies (Plan) Insulation Layers (Do) Dissolving (Plan) 	<p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> Rocket Mice (Review) Aquadynamics (Review) <p>Science Trails: How can we see forces in action in everyday life?</p>			<p>secondary sources</p> <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> Invertebrate research (Review) Outdoor keys (Do) <p>Science Trails: How can we find out about the animals that live in our school grounds?</p>
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Working Scientifically

Y6

During Years 5 and 6, pupils will be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate
- recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs,

- using test results to make predictions to set up further comparative and fair tests
- reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations results, explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
- identifying scientific evidence that has been used to support or refute ideas or arguments.

Animals including humans

Focus Scientists:

- Elizabeth Anionwu (Sickle cell and thalassemia specialist)
- Barouh Berkovits (invented the pacemaker and defibrillator)
- William Harvey (Discovered how blood moves through the body)

We will be learning about the circulatory system in the human body,

Electricity

Focus Scientists:

- Mo Ibrahim (Pioneer in the mobile phone industry)
- Hertha Ayrton (Engineer, physicist, mathematician and inventor)

We will build upon learning in Year 4 on how symbols can be used to represent electrical components in a simple circuit diagram. We will then compare and give variations in

Light

Focus Scientists:

- CV Raman (Physicist)
- Professor Colin Webb (Professor of Laser Physics)

We will be recognising and investigating how light travels and use these ideas to explain that objects are seen because they give out or reflect light into the eye. We will also use our knowledge to explain how we see things by light entering our eyes and how shadows have the same shape as the object that casts them.

- How light travels
- How we see things

Evolution and Inheritance

Focus Scientists:

- Rosalind Franklin (Discovered the structure of DNA)
- Charles Darwin (Naturalist, developed the theory of evolution.)
- Jane Goodall (primatologist)

We will recognise that living things produce offspring of the same kind but offspring can vary in characteristics and are therefore not identical to parents. We will discuss the term inheritance and what this means in direct reference to characteristics. We will learn about how fossils are formed and then used as an information source for how

STEM Challenges

Throughout this half term, children will have the opportunity to apply knowledge from across the primary curriculum to complete a range of STEM challenges. They will use different working scientifically skills to independently and collaboratively follow lines of scientific enquiry including different enquiry approaches.

Disciplinary (Working Scientifically)

Concepts:

- Asking question
- Making predictions
- Setting up tests

	<p>identifying and describing the functions of the heart, blood vessels, blood and the lungs and how these collectively contribute to the same function. We will then learn about the importance of maintaining a healthy lifestyle and the impact diet, exercise, drugs and other lifestyle choices have on the way our body functions. We will also learn about water and nutrient transport in animals, including humans.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> Asking question 	<p>how these components function, including brightness of bulbs, loudness of buzzers and the on/off position of switches. We will then use our knowledge to make connections between the rightness of a lamp or the volume of a buzzer with the number and voltage of cells.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> Asking question Making predictions Setting up tests 	<ul style="list-style-type: none"> How light reflects off surfaces <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> Asking question Making predictions Setting up tests Observing and measuring Recording data Interpreting and communicating results Evaluating <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> Observing over time Comparative and fair testing Research using secondary sources Pattern seeking <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> Light Questions (Plan) Investigating shadows (Do) 	<p>living things have changed over time and the animals and organisms that inhabited the Earth millions of years ago. We will then collate this information to determine how animals are adapted to suit their environment in different ways and how this contributes to the scientific concept of evolution.</p> <p>Disciplinary (Working Scientifically) Concepts:</p> <ul style="list-style-type: none"> Asking question Making predictions Setting up tests Observing and measuring Recording data Interpreting and communicating results Evaluating <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> Identifying, Classifying and grouping Comparative and fair testing 	<ul style="list-style-type: none"> Observing and measuring Recording data Interpreting and communicating results Evaluating <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> Identifying, Classifying and grouping Comparative and fair testing Research using secondary sources Pattern seeking Observing over time
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	<ul style="list-style-type: none"> • Making predictions • Setting up tests • Observing and measuring • Recording data • Interpreting and communicating results • Evaluating <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> • Identifying, Classifying and grouping • Observing over time • Comparative and fair testing • Pattern seeking <p>TAPS Assessment Activity (ies):</p>	<ul style="list-style-type: none"> • Observing and measuring • Recording data • Interpreting and communicating results • Evaluating <p>Scientific Enquiry Types:</p> <ul style="list-style-type: none"> • Comparative and fair testing • Pattern seeking <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> • Conductive dough (Do) • Bulb Brightness (Plan) 	<p>Science Trails: Why are materials chosen for different things depending on how transparent they are?</p>	<ul style="list-style-type: none"> • Research using secondary sources • Pattern seeking <p>TAPS Assessment Activity (ies):</p> <ul style="list-style-type: none"> • Fossil habitats (Review) • Egg Strength (Review) 	
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	<ul style="list-style-type: none">• Heartrate pose (Plan) <p>Science Trails: What effects does exercise have on my body internally and externally?</p>				
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