Science Curriculum Overview

Resources
Medium Term Plans - Science MTP - These provide the main objectives and key knowledge that should be taught. Switched On Science Plans - Medium Term Plans SOS - These provide some of the resources you may choose to use. **See Boost for resources** Knowledge Organisers - Science Knowledge Organisers - Used for vocabulary and as an overview. Please stick in before each unit. Working Scientifically Skills - Morgans Working Scientifically - These should be used in every lesson. Stick in and highlight the skills used. Quiz and Powerpoint Templates - Science Quiz Slides Templates - Please use these slides at the start of each lesson. Use questions linked to prior learning. Foundation Assessment Tool - Foundation Assessment 23/24 - Please modify this to be specific for each different topic. Delivered as Lesson 6 in each topic.

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	Seasons: Autumn Observing changes in the natural world All about ourselves - Differences and similarities.	Seasons: Winter Observing changes in the natural world	Senses	Seasons: Spring Observing changes in the natural world Planting & growing	Animals & minibeasts	Seasons: Summer Observing changes in the natural world
	<u>Understanding the World</u> Exploring properties of wet/dry sand Exploring water and the way it moves and can be transported Exploring properties of magnets Making playdough Exploring properties of different materials - fabric, wood, plastic, paper Exploring how colours change - colour mixing Workshop table - exploring how materials can be joined/changed. Exploring how sounds can change using instruments and natural objects. Construction - Exploring how pieces fit together. <u>Communication and Language</u> To begin to understand 'why' questions such as "Why do you think the mouse ran away?" To use talk to connect ideas, explain what is happening and anticipate what might happen next, recall and relive past experiences. <u>Personal, Social and Emotional Development</u> I know the names for some parts of my body and am starting to understand that I need to be active to be healthy. I can tell you some of the things I need to do to be healthy. I know what the word 'healthy' means and that some foods are			<u>Characteristics of Effective Learning - Playing and Exploring</u> Finding out and exploring • Showing curiosity about objects events and people • Using senses to explore the word around <u>Creating and Thinking Critically</u> Having their own ideas • Thinking of ideas • Finding ways to solve problems • Finding new ways to do things Making links • Making links and noticing patterns in their experience • Making prediction • Testing their ideas • Developing ideas of grouping, sequences, cause and effect Choosing ways to do things • Planning, making decisions about how to approach a task, solve a problem and reach a goal • Checking how well their activities are going • Changing strategy as needed • Reviewing how well the approach worked		

<table>
<tr><td></td><td colspan="3">healthier than others.</td><td colspan="3"></td></tr>
<tr><td rowspan="2">Reception</td><td>Seasons:
Autumn
-What do we notice?
-Changes in the natural world.
Senses
-Smell, hearing, touch, sight, taste. Listening walk, music.
Ourselves
-Differences and similarities</td><td>Seasons:
Winter
-What do we notice?
-Changes in the natural world.</td><td>Seasons:
Winter
-What do we notice?
-Changes in the natural world.</td><td>Seasons:
Spring
-What do we notice?
-Changes in the natural world.
Plants- planting and growing beans.
Noticing changes.</td><td>Minibeasts</td><td>Minibeasts
Seasons:
Summer
-What do we notice?
-Changes in the natural world.</td></tr>
<tr><td colspan="3"><u>Child Initiated Learning and Provision -</u>

Sand and water areas
Playdough and malleable area
Creative area - materials for a purpose
Variety of materials for construction
Exploring how colours change - colour mixing
Music - exploring a range of sounds, composing.

<u>Communication and Language</u>

• To listen and respond appropriately to multi-step instructions.
• To explore and use vocabulary related to topics they learn about.
• To use language imaginatively and accurately in their play.
• To be able to answer a variety of questions, developing resilience and confidence.</td><td colspan="3"><u>Characteristics of Effective Learning -</u> <u>Playing and Exploring</u>
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• Using senses to explore the word around
<u>Creating and Thinking Critically</u>
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<tr><td rowspan="2">Year 1</td><td>Working Scientifically</td><td>Animals, inc humans</td><td>Materials</td><td>Topic - Polar Places</td><td>Topic - Plants and animals where we live</td><td>Topic - On Safari</td></tr>
<tr><td>1. Distinguish between an object and the material it is made from.
2. Compare and group materials based on physical properties.</td><td>1. To identify and name basic parts of the human body.
2. To investigate the sense of smell and identify its body association.</td><td>1. Identify and classify different senses associated with body parts.
2. Use observations to suggest answers to questions about light and shadows.</td><td>1. Identify and describe the simple physical properties of materials.
2. Investigate materials suitable for a polar adventure.</td><td>1. Identify and name a variety of common wild and garden plants
2. Identify and describe the basic structure of</td><td>1. To identify and name common animals
2. To describe the structure of common animals
3. To identify and classify animals</td></tr>
</table>

	3. Understanding sun safety and materials that protect us. 4. Identify and classify common animals and their structures. 5. Observe and gather data on common animals. 6. Identify and name a variety of everyday materials and describe their properties.	3. To explore the sense of taste and its bodily link. 4. To understand the sense of sight and its importance. 5. To discover the sense of hearing and associated body parts.	3. Perform simple tests and describe properties of materials. 4. Perform simple tests on materials and describe their properties. 5. Identify and describe the basic structure of a variety of common flowering plants.	3. Perform tests on materials to determine suitability. 4. Identify common animals by carnivore, herbivore, or omnivore classifications. 5. Use observations to discuss animal adaptation to cold environments.	common flowering plants and trees 3. Observe and classify leaves through their shapes and textures 4. Identify and name common birds and describe their structures 5. Understand the importance of birds in the ecosystem	4. To ask simple questions about animals 5. To find answers to questions about animals
Year 2	Working Scientifically	Animals inc Humans	Materials	Topic - Our Local Environment	Living Things and their Habitat	Materials
	1. To understand the basic needs of animals, including humans 2. To identify and describe the role of a masterchef and understand hygiene in food preparation 3. To identify materials kitchen utensils are made from and classify these materials 4. To carry out simple tests and gather data 5. To understand healthy eating choices and food preparation	1. To understand what makes us happy and how we like to keep fit. 2. To describe how exercise helps our bodies and explore keeping fit. 3. To learn about the different types of food and their importance. 4. To analyse and modify snack choices for healthier alternatives. 5. To understand how germs spread and the importance of good hygiene.	1. Identify and compare the suitability of a variety of materials for particular uses. 2. Identify and classify materials based on their properties. 3. Observe materials using simple equipment and classify their properties. 4. Compare the suitability of materials found outdoors. 5. Perform simple tests on materials to explore their properties and suitability for different uses.	1. Explore and compare the differences between things that are living, dead, and things that have never been alive 2. Understand that most living things live in habitats to which they are suited 3. To conduct a micro-habitat survey 4. Identify animals and plants in different habitats 5. To identify and create a food chain	1. Identify a variety of plants 2. Understand what plants need for germination 3. Observe how seeds and bulbs grow 4. Investigate what plants need to grow 5. Learn about sustainable planting practices	1. To understand how materials can be deformed by different forces. 2. To investigate the flexibility of different materials. 3. To classify materials based on their properties. 4. To explore how air can allow some materials to change shape. 5. To investigate the concept of elasticity.
Year 3	Working Scientifically	Materials	Animals inc Humans	Light	Plants	Forces
	1. To understand the basic needs of animals and humans	1. To investigate and compare different types of rocks	1. To understand the basic needs of animals and humans	1. To understand the necessity of light for vision	1. Identify the different parts of a plant and their functions	1. To compare how things move on different surfaces

	2. To explore the diet of different animals and ourselves 3. To classify food into groups and understand their role 4. To understand the human skeleton 5. To explore how muscles work in conjunction with bones	2. To understand that rocks have different properties and to test these properties 3. To explore how soils are formed and what they are made of 4. To understand the process of fossilisation and recognise different types of fossils 5. To investigate soil composition through hands-on investigation	2. To explore the diet of different animals and ourselves 3. To classify food into groups and understand their role 4. To understand the human skeleton 5. To explore how muscles work in conjunction with bones	2. To recognise and explore the reflection of light 3. To investigate the formation of shadows 4. To explore the properties of mirrors and reflection 5. To determine the best materials for making shadows	2. Grow a seed and understand conditions for growth 3. Investigate water transportation in plants 4. Understand the needs of plants for life and growth 5. Explore the life cycle of flowering plants	due to pushes and pulls. 2. To observe and record how things move differently on various surfaces. 3. To compare and group materials based on their response to a magnet. 4. To experiment with and identify the strength of different magnets. 5. To investigate the ability of magnets to work through different materials and understand the concept of poles.
Year 4	Working Scientifically	Sound	Materials	Animals, including humans	Living things and their habitats	Electricity
	1. To ask relevant scientific questions. 2. To set up simple practical enquiries and comparative tests. 3. To make systematic and careful observations. 4. To gather, record, classify and present data in a variety of ways. 5. To apply results of enquiries to solve problems.	1. To understand how sounds are made 2. To explore pitch and volume 3. To identify how sound travels 4. To understand sound insulation 5. To investigate the ear and how we hear	1. To understand the three states of matter. 2. To explore and compare the properties of solids and liquids. 3. To explore and compare the properties of liquids and gases. 4. To understand and observe changes of state. 5. To learn about the water cycle and the states of matter within it.	1. Identify the types and functions of human teeth. 2. Explore the simple functions of the basic parts of the digestive system. 3. Understand how teeth are related to the digestive system. 4. Learn about tooth decay and how to prevent it.	1. Construct and interpret simple food chains. 2. To understand the characteristics that define living things. 3. To explore classification and group living things in a variety of ways. 4. To understand and use classification keys. 5. To explore a local habitat and the living things that reside there. 6. To recognise environmental changes and their impact on living things.	1. Identify common appliances that run on electricity. 2. To understand the precautions for working safely with electricity. 3. Construct a simple series electrical circuit. 4. Understand the role of switches in a circuit. 5. Investigate conductors and insulators.
Year 5	Working Scientifically	Materials	Earth and Space	Living Things and their Habitats	Forces	Animals including Humans

	1. Recognise irreversible changes and conduct scientific enquiries with controlled variables 2. Investigate gas production in chemical reactions 3. Recognise and explain the effects of thermal energy in chemical reactions 4. Explore polymerisation and report findings 5. Understand oxidation and its results	1. To sort materials based on their properties. 2. To investigate and explain why certain materials are used for specific purposes. 3. To test the strength of different materials for making carrier bags. 4. To identify materials as thermal conductors or insulators through testing. 5. To understand how materials can be separated through dissolving, filtering, sieving.	1. Understand the structure of the Solar System. 2. Model the movements of the Earth and other planets around the Sun. 3. Explain day and night through Earth's rotation. 4. Understand the movement of the Moon relative to the Earth. 5. Research and report on individual planets.	1. Describe plant reproduction through seed dispersal and growth. 2. Explain how new plants can grow from old parts of other plants. 3. Compare the life cycles of different animals: birds, butterflies, and frogs. 4. Investigate reproductive strategies such as egg-laying and unusual life cycles. 5. Discuss the impact of human activity on wildlife conservation.	1. To investigate gravity and its effects. 2. To understand the contributions of Galileo and Newton to the concept of gravity, and to comprehend the importance of gravity. 3. To examine the effects of air resistance and design fair tests. 4. To explore friction and its effects through enquiry. 5. To understand and investigate the mechanics of levers, pulleys and gears.	1. To understand how humans change as they grow. 2. To explore how a baby develops before and after birth. 3. To compare gestation periods of different animals. 4. To identify how we change physically and mentally as we grow. 5. To consider perceptions and the science of ageing and longevity.
Year 6	Working Scientifically	Living Things and their Habitats	Animals including Humans	Animals including Humans	Light	Electricity
	1. Investigate floating, sinking, and water forces 2. Understand the sinking of The Titanic 3. Explore the properties of ice and icebergs 4. Investigate how to beat hypothermia 5. Design and evaluate life-saving equipment	1. Explore classification through living things 2. Classify the local environment 3. Explore the work of Carl Linnaeus 4. Explore the characteristics of bacteria 5. Explore and classify different types of fungi	1. Identify the main parts of the human circulatory system and their functions. 2. Investigate the effects of exercise on heart and breathing rates. 3. Explore lung capacity and its measurement. 4. Understand the impact of diet and drugs on body functions. 5. Examine the specific effects of cigarettes and alcohol on the body.	1. Recognise that living things have changed over time. 2. Recognise the role of Mary Anning in palaeontology. 3. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. 4. Identify scientific evidence that has been used to support or refute ideas or arguments. 5. Identify how animals and plants	1. To understand that light travels in straight lines. 2. To explore patterns in shadows. 3. To investigate how light reflects off surfaces. 4. To explain how we see objects. 5. To understand the formation of rainbows.	1. Use recognised symbols when representing a simple circuit in a diagram 2. Use recognised symbols to identify and repair faults in a simple circuit diagram 3. Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit and report findings. 4. Compare and explain the variations in how

				are adapted to suit their environment.		circuit components function 5. Associate and compare variations in component functions in a circuit diagram context and apply it to design a game.