Science Long Term Plan KS2
Planning is in a 2 year rotation
Rotation 2 - Starting September 2020, 2022, 2024, 2026, 2028, 2030, 2032…

Term		Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Natural Science		**Chemistry/ Physics**	**Chemistry**	**Biology**		**Physics**	
Scientist		Mary Anning & Graham Carter	Robert Boyle & Dorothy Hodgkin	Carl Linnaeus & Rachel Carson		Ibn al-Haytham	Alexander Graham Bell & Beth O'Leary
Year Group	**Knowledge Organiser**	**Rocks**	**States of Matter**	**Living things and their habitats**		**Light**	**Sound**
3 & 4	*Unit Aim*	*Children can describe rock formation.*	*Children know the 3 states of matter and how they can change.*	*Children can explain how living things survive in relation to their place in food chains.*	*Children can identify habitats and how they are changing.*	*Children explain how and why shadows form.*	*Children know what sound is, how it travels and how we hear.*
	Knowledge	To identify rocks.

To learn how rocks are formed.

Describe how fossils are formed.

To find out what soil is made from. | To understand the states of solid and liquid.

To understand the state of matter gas.

Changing states of matter - Solid to liquid.

To understand how water changes from a | To understand what makes something 'living' and to begin to know that living things can be grouped in a variety of ways.

To learn how animals survive - food chain focus. | To have an understanding of global habitats and that they are changing. | To understand darkness is the absence of light and we need light to see!

To understand light is reflected from surfaces in different ways

To know that light from the Sun can be dangerous and the | To understand how sound is made and how it travels.

To understand how humans hear and how to be ear safe.

To understand how different mediums affect our ability to hear sound. |

			liquid to a gas and back again. To understand the water cycle and the states of matter.				need to protect our skin and eyes.	
	Skills	To compare and group rocks. Understand how a rock formation impacts on properties.	To explore states of matter - Child lead options.	Recognise that living things can be grouped in a variety of ways. To explore the local environment and its micro habitats. To explore and use classification keys to help group animals.	To explore classification and observe and present data. To recognise that the environment can change and can pose dangers to living things. Recognise that environments can change - campaign for climate change.	To investigate reflection. To investigate how materials affect shadows. To investigate patterns in shadow.	To explore and think about the sounds around us. To observe and investigate how distance and strength of vibrations affect sound. Find patterns between the pitch of a sound and features of the object that produced it.
	Working Scientifically	- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. - Setting up simple practical enquiries, comparative and fair tests. - Asking relevant questions, using different types of scientific enquiries to answer them. - Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units. - Reporting on findings from enquiries, including oral explanations. - Display or present results and conclusions using straightforward scientific evidence to answer questions or to support their findings.						

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		● Observe and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers reporting on findings from enquiries. ● Setting up practical enquiries using a range of equipment and reporting on enquiries through oral and written methods. ● Observe closely, identify and classify objects. ● Identifying differences, similarities or changes related to simple scientific ideas and processes. ● Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. ● Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.				
Natural Science		**Chemistry/ Physics**		**Biology**			**Physics**
Scientist		Hypatia & Ahmed Zewail		Charles Darwin & Mary Anning	Carl Linnaeus		Isaac Newton, Galileo & Archimedes
5 & 6	**Knowledge Organiser**	**States of matter**		**Evolution and inheritance**	**Living things and their habitats**		**Forces**
	Unit Aim	*Children can describe the properties of materials.*	*Children can explain the reversible changes of melting and freezing.*	*Children can describe adaptations and the process of evolution.*	*Children can describe how flowering plants reproduce.*	*Children can describe what makes fungi different and why it is unusual.*	*Children can describe different forces.*
	Knowledge	To understand and investigate the property of different materials. To understand and investigate the property of different materials.	To understand that malting and freezing are examples of reversible changes.	To learn how variation can lead to adaptations.	Understand how flowering plants reproduce. To understand Asexual reproduction.	To look at unusual life cycles. To learn about the classification kingdom of Fungi. To look at classification of unusual species.	To understand how air resistance affects objects falling to Earth. To recognise that levers, pulleys and gears allow a smaller force to have a greater effect.

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		To understand how mixtures can be separated. To understand a solution and the evaporation technique for separation.					Recognise that gears allow a smaller force to have a greater effect. To understand water resistance.
	Skills		To work scientifically to plan and conduct a scientific enquiry to solve a problem. Explain that some changes result in new materials and are irreversible. To use results and data to answer a question.	To identify inherited characteristics in living things leads to variation. To investigate how adaptations can lead to extreme survival. To Investigate and Understand Evolution.	Describe the difference in the life cycles of amphibians and insects. Describe the difference in the life cycles of mammals and birds.	To investigate the classification of living things. To explore a classification of animals in depth. To use and make classification charts.	Explain that unsupported objects fall to Earth because the force of gravity is acting on them. Identify the effects of friction (surface friction) that act between moving surfaces.

				To look at evidence for the theory of evolution. To understand humans have evolved.			
	Working Scientifically	- Ask relevant questions and use different types of scientific enquiries to answer them. - Make systematic and careful observations gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. - Report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations. - Plan 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. - Use test results to make predictions to set up further comparative and fair tests, taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. - Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. - Identifying scientific evidence that has been used to support or refute ideas or arguments. - Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. - recording data and results using scientific diagrams and labels, classification keys, tables.					