Broadmayne First School Science Scheme of Work Yr 4

<table>
<tr><th>Term</th><th>Working Scientifically</th><th>Learning intentions</th></tr>
<tr><td rowspan="2">Autumn 1

States of Matter</td><td colspan="2">K+U skills:
• compare and group materials together, according to whether they are solids, liquids or gases
• observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)
• identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature

States of Matter</td></tr>
<tr><td>Asking Questions
• ask relevant questions and use different types of scientific enquiries to answer them
• set up simple practical enquiries, comparative and fair tests

Measuring and Recording
• make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
• record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
• gather, record, classify and present data in a variety of ways to help in answering questions

Concluding
• identify differences, similarities or changes related to simple scientific ideas and processes
• report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
• use straightforward scientific evidence to answer questions or to support their findings

Evaluating
• use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</td><td>• To group and classify materials
• To group and classify materials
• To record findings from practical tasks
• To observe that some materials change state
• To take accurate measurements and record results.
• To know that some materials change state when heated or cooled.
• To set up a fair test
• To know that water moves in a cycle.
• To know that temperature can affect materials and force a change of state
• To set up simple experiments and discuss findings.</td></tr>
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Autumn 2 Electricity	K+U skills • identify common appliances that run on electricity • construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers • identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery • recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit Electricity	
	Asking Questions • ask relevant questions and use different types of scientific enquiries to answer them • set up simple practical enquiries, comparative and fair tests **Measuring and Recording** • make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • gather, record, classify and present data in a variety of ways to help in answering questions **Concluding** • identify differences, similarities or changes related to simple scientific ideas and processes • report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • use straightforward scientific evidence to answer questions or to support their findings **Evaluating** • use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	• To know the sources of electrical energy (and identify its uses) • To understand the components of an electrical circuit • To identify a working circuit • To know that electricity can travel through certain materials • To understand the terms “conductor” and “insulator” • To investigate circuits (to know that a switch can turn on/off the flow of energy) • To investigate circuits (EQ: How can we make a bulb shine more brightly?)

Spring 1 Sound	K+U skills: • identify how sounds are made, associating some of them with something vibrating • recognise that vibrations from sounds travel through a medium to the ear • find patterns between the pitch of a sound and features of the object that produced it • find patterns between the volume of a sound and the strength of the vibrations that produced it • recognise that sounds get fainter as the distance from the sound source increases Sound	
	Asking Questions • ask relevant questions and use different types of scientific enquiries to answer them • set up simple practical enquiries, comparative and fair tests **Measuring and Recording** • make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • gather, record, classify and present data in a variety of ways to help in answering questions **Concluding** • identify differences, similarities or changes related to simple scientific ideas and processes • report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • use straightforward scientific evidence to answer questions or to support their findings **Evaluating** • use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	• To identify sounds in the environment • To identify how sounds are made • To make observations to explain scientific thinking • To know that sounds make vibrations in the environment • To know that sound travels in waves • To understand how sounds are heard • To describe the parts of a human ear • To analyse results

Spring 2 Animals as Humans	K+U skills: • describe the simple functions of the basic parts of the digestive system in humans • identify the different types of teeth in humans and their simple functions • construct and interpret a variety of food chains, identifying producers, predators and prey Animals as Humans - the Digestive System	
	Asking Questions • ask relevant questions and use different types of scientific enquiries to answer them • set up simple practical enquiries, comparative and fair tests **Measuring and Recording** • make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • gather, record, classify and present data in a variety of ways to help in answering questions **Concluding** • identify differences, similarities or changes related to simple scientific ideas and processes • report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • use straightforward scientific evidence to answer questions or to support their findings **Evaluating** • use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	• To describe the basic functions of the human digestive system. (*poss 2 sessions)* • To find out about the diets of animals • To understand and interpret a food web • To identify **predator, prey** and **producers** within a food web • To create a food web for a familiar environment (sea, woodland, desert) • To identify types of human teeth and describe their functions.

Summer 1 Living Things	K+U skills: • recognise that living things can be grouped in a variety of ways • explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment Living Things Part 1 - Classification	
	Asking Questions • ask relevant questions and use different types of scientific enquiries to answer them • set up simple practical enquiries, comparative and fair tests **Measuring and Recording** • make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • gather, record, classify and present data in a variety of ways to help in answering questions **Concluding** • identify differences, similarities or changes related to simple scientific ideas and processes • report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • use straightforward scientific evidence to answer questions or to support their findings **Evaluating** • use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	• To identify a variety of **habitats** • To recognise that living things can be grouped in different ways • To **classify** living things in a variety of ways (2 sessions) • To gather and record data • To design and use an identification key

Summer 2 Living Things	K+U skills: • recognise that environments can change and that this can sometimes pose dangers to living things Living Things Part 2 - Help our Habitats!	
	Asking Questions • ask relevant questions and use different types of scientific enquiries to answer them • set up simple practical enquiries, comparative and fair tests **Measuring and Recording** • make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • gather, record, classify and present data in a variety of ways to help in answering questions **Concluding** • identify differences, similarities or changes related to simple scientific ideas and processes • report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • use straightforward scientific evidence to answer questions or to support their findings **Evaluating** • use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	• To begin to consider how the local environment has changed and why these changes may have happened. • Recognise that environments can change and that this can sometimes pose dangers to living things • To consider some of the natural changes that could happen to an environment and to understand what some living things can do to survive such changes. • To use a simple enquiry to demonstrate the effect of a greenhouse and relate this to climate change. • To plan positive changes to a local environment and use evidence to answer questions about why they are making the changes