Science Medium Term Plan-Year 4

Our Changing World			
Lesson number and name	**National Curriculum**	**Working Scientifically Links**	**Scientific Enquiry Type**
1: How can we classify trees by looking at their leaves?	Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Grouping and classifying things
2: How can we classify and identify deciduous	Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	Looking for patterns
3: How can we classify plants by looking at their flowers?	Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Finding things out using secondary sources of information

Module 1: In A State			
Lesson number and name	**National Curriculum**	**Working Scientifically Links**	**Scientific Enquiry Type**
1: What are my properties?	Compare and group materials together according to whether they are solids, liquids or gases	Identifying differences, similarities or changes related to scientific ideas and processes	Grouping and classifying
2: What happens to the ice hands?	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	Setting up simple practical enquiries, comparative and fair tests	Observing over time leading to fair testing
3: What makes a difference to how fast ice melts?	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	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	Fair test
4: What are melting and freezing?	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	Identifying differences, similarities or changes related to simple scientific ideas and processes	Observing changes over time

5: Are spaces really empty?	Compare and group materials together, according to whether they are solids, liquids or gases	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers; reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Observing
6: What state am I in?	Compare and group materials together, according to whether they are solids, liquids or gases	Identifying differences, similarities or changes related to simple scientific ideas and processes	Comparing
7: How can we get it dry?	Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	Making systematic and careful observations and, where appropriate, measurements using standard units, using a range of equipment including thermometers and data loggers	Observing
8: What is evaporation?	Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Identifying and reporting
9: What is boiling?	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	Using straightforward scientific evidence to answer questions or to support their findings	Observing
10: Where did the water come from?	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	Identifying differences, similarities or changes related to simple scientific ideas and processes	Observing
11: Where does rain come from?	Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables	
12: What have we learned about changes of state?	Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	Identifying differences, similarities or changes related to simple scientific ideas and processes	
Enrichment Lesson 1: Which chocolate should we choose?	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	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	Fair Test
Enrichment Lesson 2: Why do we put salt on icy roads?	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	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	Observing over time and comparative test

Enrichment Lesson 3: How does the thermometer work?	Compare and group materials together according to whether they are solids, liquids or gases	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	Exploration
Enrichment Lesson 4: Why do we use graphs?	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	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	n/a

Module 2: Good Vibrations

Lesson number and name	National Curriculum	Working Scientifically Links	Scientific Enquiry Type
1: What do we know about sounds?	Identify how sounds are made, associating some of them with something vibrating	Identifying differences, similarities or changes related to simple scientific ideas and processes	Exploration
2: How are sounds made?	Identify how sounds are made, associating some of them with something vibrating	Record findings using drawings and labelled diagrams	Carrying out simple comparative and fair tests
3: How do sounds travel?	Recognise that vibrations from sounds travel through a medium to the ear	Using straightforward evidence to answer questions or to support their findings	Carrying out simple comparative and fair tests
4: How can we make a sound louder and quieter?	Find patterns between the volume of a sound and the strength of the vibrations that produced it	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions diagrams	Carrying out simple comparative and fair tests
5: How do sounds change as we move away from the source?	Recognise that sounds get fainter as the distance from the sound source increases	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including data loggers	Carrying out simple comparative and fair tests
6: How can we change the pitch of a plucked note?	Find patterns between the pitch of a sound and features of the object that produced it	Using results to draw simple conclusions	Noticing patterns
7: How can we use air to make music?	Find patterns between the pitch of a sound and features of the object that produced it	Reporting on findings from enquiries, including oral and written explanations	Noticing patterns
Enrichment 1: How can we make the best string telephone?	Identify how sounds are made, associating some of them with something vibrating	Setting up simple comparative and fair tests	Carrying out simple comparative and fair tests
Enrichment 2: How can we muffle sound?	Find patterns between the volume of a sound and the strength of the vibrations that produced it	Using results to draw simple conclusions	Carrying out simple comparative and fair tests

Enrichment 3: Can all animals hear?	Recognise that vibrations from sounds travel through a medium to the ear	Asking relevant questions and using different types of scientific enquiries to answer them	Finding things out using secondary sources of information
Enrichment 4: What is an echo?	Identify how sounds are made, associating some of them with something vibrating	Gathering, recording, classifying and presenting data in a variety of ways to answer questions	Finding things out using secondary sources of information

Module 3: Switched on

Lesson number and name	National Curriculum	Working Scientifically Links	Scientific Enquiry Type
1: What makes it work?	Identify common appliances that run on electricity	Identifying differences, similarities or changes related to simple scientific ideas and processes	Grouping and classifying
2: Can you light the bulb?	Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wire, bulbs, switches and buzzers	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Exploring
3: How does a circuit work?	Identify whether or not a lamp will light in a simple series circuit, based on whether a lamp is part of a complete loop with a battery	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Exploring
4: Why doesn't it work?	Identify whether or not a lamp will light in a simple series circuit, based on whether a lamp is part of a complete loop with a battery	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Exploration
5: What does a switch do?	Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Exploring
6: What can we use instead of wires?	Recognise some common conductors and insulators and associate metals with being good conductors	Setting up simple practical enquiries and recording, classifying and presenting data in a variety of ways to help answer questions	Grouping and classifying
7: What types of material conduct electricity?	Recognise some common conductors and insulators and associate metals with being good conductors	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	Grouping and classifying
8: How are electrical conductors and insulators used?	Recognise some common conductors and insulators and associate metals with being good conductors	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	n/a
9: What do we now know about electricity?	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	Using straightforward scientific evidence to answer questions or to support their findings	n/a

	a lamp lights in a simple series circuit; recognise some common conductors and insulators, and associate metals with being good conductors		
Enrichment 1: How can we connect up the quiz board?	Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers	Using straightforward scientific evidence to answer questions or to support their findings	n/a

Module 4: Where Does All That Food Go?

Lesson number and name	National Curriculum	Working Scientifically Links	Scientific Enquiry Type
1: What do we know about food?	Identify that animals, including humans, need the right type and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat (Year 3)	Asking relevant questions	Finding things out using secondary sources of information
2: Where does the food go inside your body?	Describe the basic functions of the main parts of the digestive system in humans	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	Finding things out using secondary sources of information
3: What sort of teeth do we have?	Identify the different types of teeth in humans and their simple functions	Making systematic and careful observations	Grouping and classifying things
4: Why do we have different types of teeth?	Identify the different types of teeth in humans and their simple functions	Using straightforward scientific evidence to answer questions or to support their findings	Grouping and classifying things
5: How can we look after our teeth?	Identify the different types of teeth in humans and their simple functions	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	Finding things out using secondary sources of information
6: What do animals eat?	Construct and interpret a variety of food chains, identifying producers, predators and prey	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	Finding things out using secondary sources of information
7: What do animals' teeth tell us?	Construct and interpret a variety of food chains, identifying producers, predators and prey	Identifying differences, similarities or changes related to simple scientific ideas and processes	Grouping and classifying things
8: How is food broken down?	Describe the simple functions of the basic parts of the digestive system in humans	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	Finding things out using secondary sources of information
9: How can we model the digestive system?	Describe the simple functions of the basic parts of the digestive system in humans	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	n/a

Enrichment 1: How good is toothpaste?	Identify the different types of teeth in humans and their simple functions	Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	Carrying out simple comparative and fair tests
Enrichment 2: Can we make a good toothpaste?	Identify the different types of teeth in humans and their simple functions	Setting up simple practical enquiries, comparative and fair tests	Carrying out simple comparative and fair tests

Module 5: Human Impact

Lesson number and name	National Curriculum	Working Scientifically Links	Scientific Enquiry Type
1: What impact do humans have locally?	Recognise that environments can change and that these changes can sometimes pose dangers to living things	Identifying differences, similarities or changes related to simple scientific ideas and processes	Grouping and classifying things
2: How can we find out about litter?	Recognise that environments can change and that these changes can sometimes pose dangers to living things	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	Grouping and classifying things
3: What types of litter are dropped locally?	Recognise that environments can change and that these changes can sometimes pose dangers to living things	Gathering, recording, classifying and presenting data in a variety of ways to help answer questions	Looking for patterns
4: Why does clearing litter matter?	Recognise that environments can change and that these changes can sometimes pose dangers to living things	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Finding things out using secondary sources of information
5: What happens when a food chain is broken?	Recognise that environments can change and that these changes can sometimes pose dangers to living things	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions; using straightforward scientific evidence to answer questions to support findings	Finding things out using secondary sources of information
6: What is the impact of habitat destruction in other parts of the world?	Recognise that environments can change and that these changes can sometimes pose dangers to living things	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions; using straightforward scientific evidence to answer questions to support their findings	Finding things out using secondary sources of information
Enrichment 1: What do zoos do?	Recognise that environments can change and that these changes can sometimes pose dangers to living things	Recognising statements that do and do not support an argument	Finding things out using secondary sources of information
Enrichment 2: Should we have zoos?	Recognise that environments can change and that these changes can sometimes pose dangers to living things	Using straightforward scientific evidence to answer questions or to support their findings	Finding things out using secondary sources of information

Module 5: Who Am I?

Lesson number and name	National Curriculum	Working Scientifically Links	Scientific Enquiry Type
1: Who are you?	Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment	Making systematic and careful observations. They should choose the challenge based on previous experience of using keys	Grouping and Classifying
2: Who lives here?	Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment	Making systematic and careful observations and recording findings using diagrams or keys	Grouping and classifying
3: How are vertebrates grouped?	Recognise that living things can be grouped in a variety of way	Identifying differences, similarities or changes related to simple scientific ideas and processes	Grouping and classifying
4: How are invertebrates grouped?	Recognise that living things can be grouped in a variety of ways	Identifying differences, similarities or changes related to simple scientific ideas and processes	Grouping and classifying