**Science Medium Term Plan-Year 4**

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| **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  |
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| **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 |
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| **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  |

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| **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 a lamp lights in a simple series circuit; recognise some common conductors and insulators, and associate metals with being good conductors  | Using straightforward scientific evidence to answer questions or to support their findings  | n/a |
| 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 |

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| **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  |
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| **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 |
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| **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  |
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