**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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