Holy Family Catholic Primary School – Science Topic Overviews - Autumn

EYFS – Reception					
Me and my small world	**What's in my basket?**	**Senses**	**Let's go outside**	**What's changed?**	**Night and day**
Links to the curriculum	**Links to the curriculum**	**Links to the curriculum**	**Links to the curriculum**	**Links to the curriculum**	**Links to the curriculum**
Development matters – Reception • Explain the natural world around them **Birth to 5 Matters** • Range 5 - Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world • Range 6 – Knows about similarities and differences in relation to places, objects, materials and living things **Characteristics of a scientist** • Make links between ideas • Identify, sort and group	**Development Matters – Reception** • Talk about the differences between materials and changes they notice **Birth to 5 Matters** • Range 5 – Talks about why things happen and how things work • Range 6 – Knows about similarities and differences in relation to places, objects, materials and living things **Characteristics of a scientist** • Explore and test own ideas • Children investigate and experience things	**Development Matters – Reception** • Explore the natural world around them **Birth to 5 Matters** • Range 6 - Knows about similarities and differences in relation to places, objects, materials and living things **Characteristics of a scientist** • Have a go • Shows curiosity using their senses	**Development Matters – Reception** • Explore the natural world around them. • Describe what they see, hear and feel whilst outside. • Understand the effect of changing seasons on the natural world around them. **Birth to 5 Matters** Range 6 • Looks closely at similarities, differences, patterns and change in nature Characteristics of a scientists • Children concentrate and keep on trying if they encounter difficulties. • Collect simple information and mark make.	**Development Matters – Reception** • Talk about the differences between materials and changes they notice **Birth to 5 Matters** • Range 5 − Talks about why things happen and how things work • Range 6 − Knows about similarities and differences in relation to places, objects, materials and living things **Characteristics of a scientist** • Children investigate and experience things • Talk about what they have done and found out.	**Development Matters – Reception** • Understand the effect of changing seasons on the natural world around them. **Birth to 5 Matters** • Range 5 – Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world • Range 6 – Makes observations of animals and plants and explains why some things occur, and talks about changes **Characteristics of a scientist** • Develop strategies for doing things. • Ask questions to find out more.
Lesson Objectives	**Lesson Objectives**	**Lesson Objectives**	**Lesson Objectives**	**Lesson Objectives**	**Lesson Objectives**
Lesson Objectives: To identify and names simple body parts To know where certain body parts are in relation to each other To identify and name some farm animals To talk about key features including the sound they may make	**Lesson Objectives:** To explore real life examples of fruit and vegetables To name common fruits and vegetables To compare features of fruits and vegetables including size, shape and colour	**Lesson Objectives:** To explore the senses of sight, touch, sound, smell and taste To identify which parts of the body they use for each sense	**Lesson Objectives:** To explore the natural world around them To investigate, describe and compare a range of natural materials including appearances and textures To notice the changes outside at this time of year	**Lesson Objectives:** To investigate what happens when water is added to cornflower To investigate what happens when heat is added to chocolate	**Lesson Objectives:** To learn about the word 'nocturnal' and that nocturnal animals are awake at night and asleep during the day To recognise that in the winter, it gets darker earlier To use light sources to understand how they help us see in the dark To explore how shadows can be made when using torches

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<table>
<tr><th colspan="3">Cycle B – Key Stage 1 – Years 1 and 2</th></tr>
<tr><th colspan="3">AUTUMN</th></tr>
<tr><th>Animals’ needs for survival</th><th>Humans</th><th>Materials</th></tr>
<tr><th>National Curriculum Objectives</th><th>National Curriculum Objectives</th><th>National Curriculum Objectives</th></tr>
<tr>
<td>Animals, including humans
Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).
Working scientifically
Asking simple questions and recognising that they can be answered in different ways.
Gathering and recording data to help in answering questions.
Identifying and classifying</td>
<td>Animals, including humans
Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene
Working scientifically
Gathering and recording data to help in answering questions
Identifying and classifying
Observing closely, using simple equipment</td>
<td>Uses of everyday materials
Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching
Working scientifically
Identifying and classifying
Performing simple tests
Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them
Asking simple questions and recognising that they can be answered in different ways.
Observing closely, using simple equipment
Using their observations and ideas to suggest answers to questions.</td>
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<tr><th>Lesson Objectives</th><th>Lesson Objectives</th><th>Lesson Objectives</th></tr>
<tr>
<td>To know that all mammals and birds need air, water, food and shelter to survive
To know that fish have the same needs for survival as birds and mammals
To identify the needs for survival of amphibians and reptiles and compare these to other animal groups
To identify humans’ needs for survival and explore the similarities and differences between humans and other animal groups.</td>
<td>To know that exercise makes our hearts beat more (increases heart rate)
To know identify and sort healthy and unhealthy food
To understand why keeping clean (personal hygiene) is important</td>
<td>To identify objects that are made from natural, human-made and recyclable materials
To know that paper and cardboard are made from wood
To know that rocks are a natural material found on and underneath the Earth’s surface and that brick is a man-made building material
To explore simple properties of glass and plastic
To identify when metal would be a suitable/unsuitable material for an object
To identify and name a range of natural and man-made fabrics
To identify why objects are made from certain materials depending on their usage
To understand that some solid materials can change shape if a force acts upon them and some cannot
To plan and investigate: Which material would be best for an umbrella?
To understand that plastic can be both helpful and harmful</td>
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Cycle B – Lower Key Stage 2 – Years 3 and 4

AUTUMN

Group and classify living things including data collection	States of Matter
National Curriculum Objectives	**National Curriculum Objectives**
Living things and their habitats • 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. Working scientifically • Talk about criteria for grouping, sorting and classifying. • Asking relevant questions and using different types of scientific enquiries to answer them. • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables	States of Matter • 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 • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature Working scientifically • Talk about criteria for grouping, sorting and classifying • Identifying differences, similarities or changes related to simple scientific ideas and processes • Asking relevant questions and using different types of scientific enquiries to answer them • Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometer and data loggers • Setting up simple practical enquiries, comparative and fair tests • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
Lesson Objectives	**Lesson Objectives**
• To identify and sort animals (vertebrates/invertebrates) into groups based on their features. • To use simple classification keys to sort animals based on their physical features • To group plants based on different features • To use simple classification keys to classify plants based on their physical features • Enquiry (Autumn/Spring/Summer) To begin an enquiry to identify living things in the local area over time - *What living things do we have in our local area and how does this change over the year?*	• To know that materials and objects can be grouped into solids, liquids and gases. • To understand how materials can change states between a solid, liquid and gas. • To use a thermometer and a stop watch accurately. • To plan a fair test to investigate: How does the temperature of the water affect the time it takes for ice to melt? • To carry out a fair test to investigate: How does the temperature of the water affect the time it takes for ice to melt? • To look at the processes of evaporation and condensation as parts of the water cycle • To plan a fair test to investigate: How does the temperature of the air affect the rate of evaporation? • To carry out a fair test to investigate: How does the temperature of the air affect the rate of evaporation? • To analyse data, make conclusions and evaluate and experiment

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<table>
<tr><th colspan="2">Cycle B – Upper Key Stage 2 – Years 5 and 6</th></tr>
<tr><th colspan="2">AUTUMN</th></tr>
<tr><th>Living things and their habitats</th><th>Electricity including renewable energy</th></tr>
<tr><th>National Curriculum Objectives</th><th>National Curriculum Objectives</th></tr>
<tr><td>Living things and their habitats
• Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals
• Give reasons for classifying plants and animals based on specific characteristics.
Working scientifically
• Identifying scientific evidence that has been used to support or refute ideas or arguments.
• Use and develop keys and other information records to identify, classify and describe living things.
• Use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment.
• Reporting and presenting 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.
• Use relevant scientific language and illustrations to discuss, communicate and justify their ideas and should talk about how scientific ideas have developed over time.</td><td>Electricity
• Use recognised symbols when representing a simple circuit in a diagram.
• Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.
• Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.
Working scientifically
• Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
• Reporting and presenting 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.
• Planning 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.
• Using test results to make predictions to set up further comparative and fair tests.</td></tr>
<tr><th>Lesson Objectives</th><th>Lesson Objectives</th></tr>
<tr><td>• To explore requirements for life and the differences between living and non-living things
• To group animals and plants based on their features.
• To explore classification systems and discuss reasons why animals are placed in one category and not another.
• To use classification keys to create questions and classify plants
• To explore microorganisms, including bacteria, viruses and fungi,
• To understand how microorganisms can be identified, grouped and classified
• To learn about the work of Carl Linnaeus and his system of classifying organisms.</td><td>• To construct and draw series circuits using circuit symbols and understand the terms current and voltage.
• To look at complete and incomplete circuits, exploring reasons why a circuit may be incomplete.
• To explore variations within circuits and the effects of having fewer or more components.
• To plan a voltage experiment
• To carry out voltage experiment
• To look at and evaluate results of a voltage experiment</td></tr>
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