



# Edmondsley Primary School



## Edmondsley Primary Science KS1 and KS2 Long-term plan

Continuous Provision

Eco School

Healthy Schools initiative

Timetabled use of outdoor environment – pond, grounds, allotment for learning about living things, animals, plants and habitats.

Whole school subject assembly each term about a significant scientist

Annual whole school Science week and Science Fayre (alternating years)

Visits linking to Science subject learning – e.g. visits to Centre of Life, Durham Federation Farm

Visitors coming into school to share knowledge and expertise - e.g. Jays animal encounters (local travelling zoo),

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
1	<b>What is the world around us made of?</b>  Identifying, naming and grouping basic materials. Exploring simple properties of materials.		<b>Which animals can we discover at Edmondsley?</b>  Identifying, naming and grouping animals. Exploring simple classification of animals by type and diet. Name key physical features of animals, including humans.		<b>Which plants can we discover at Edmondsley?</b>  Identifying, naming and grouping plants. Exploring the key requirements for plants to grow.	
	<b>How does the world around us change over the year?</b>  Observing changes in weather, plants and animals across the four seasons. Beginning to make simple comparisons.					
2	<b>Which materials are the best?</b>  Exploring properties of materials and what uses this makes them suitable for.	<b>How can we stay healthy?</b>  Exploring key features and impact of a healthy lifestyle – diet and exercise.	<b>Can we grow plants in the dark?</b>  Investigating requirements of plants for survival and growth. Naming the parts of a flowering plant and understanding the function of each part.		<b>What will happen if all the trees are cut down?</b>  Understand what is needed for something to be classified as living thing. Simple food chains and webs and how changing one aspect of a habitat has an impact on others.	





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<p><b>Year 3-5 Cycle A</b></p>	<p><b>Why are bees so important?</b></p> <p>Investigating requirements of plants for survival and growth (more complexity than Y2). Reproductive structures and processes of plants.</p>	<p><b>Why don't humans photosynthesise like plants?</b></p> <p>The digestive system structures and process. Exploring a healthy balanced diet.</p>	<p><b>How do we know that fossils were once living organisms and not a particular type of rock?</b></p> <p>Identifying, naming and comparing different types of rocks and soils. Investigating how fossils are formed.</p>	<p><b>How do our shadows change over a day and over a year?</b></p> <p>Exploring light – reflections, shadows and how shadows change over time. Understand how to stay safe from sunlight.</p>	<p><b>How can we get a pile of eggs from the bottom to the top of a hill?</b></p> <p>Investigate motion of objects. Explore magnetic poles, magnetic materials and their uses.</p>	<p><b>Are we drinking water that we have drunk before?</b></p> <p>Introduction to solids, liquids and gasses – states of matter. The water cycle stages and process.</p>
<p><b>Year 3-5 Cycle B</b></p>	<p><b>Why could the platypus be a bird?</b></p> <p>Comparing animals, classifying and learning about life cycles and reproduction in animals. Describing differences and similarities and their importance.</p>	<p><b>What would our diet and bodies be like if humans had never had teeth?</b></p> <p>Investigating skeletons, muscle structures and teeth. Food chains and webs. Exploring how animals are adapted to their environment/diet and why this is important.</p>	<p><b>How can you purify water from a stream?</b></p> <p>Applying knowledge of solids, liquids and gasses to explore dissolving, crystallising and filtering.</p>	<p><b>What can affect the sounds we hear?</b></p> <p>Researching the structure and working of the ear. Investigating variables which affect pitch and volume of sound.</p>	<p><b>How can we be safe around electricity?</b></p> <p>Working safely with electricity and identifying electrical inputs and outputs.</p> <p><b>How can we design a system to detect a burglar in a shop?</b></p> <p>Exploring simple series circuits, using switches. Draw circuits using standard symbols.</p>	<p><b>How can we get an object up and down a hill using the least amount of effort?</b></p> <p>Measuring forces and Investigating pulleys, levers, uses of gravity. Explore the effects of air resistance, water resistance and friction, that act between moving surfaces.</p>
<p><b>Year 3-5 Cycle C</b></p>	<p><b>Why don't we make saucepans out of tin or magnesium?</b></p> <p>Compare and group together everyday materials. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials. Link this to reversible and irreversible changes.</p>	<p><b>Which Scientist's changed the world?</b></p> <p>A stand-alone unit to explore some of the most important scientists and their theories. A chance to explore, research and raise aspirations.</p>	<p><b>How can we organise and classify living things?</b></p> <p>Comparing animals, classifying and learning about life cycles and reproduction in animals. Describing differences and similarities and their importance.</p>	<p><b>How can we be safe around electricity?</b></p> <p>Working safely with electricity and identifying electrical inputs and outputs.</p> <p><b>How does a doorbell work?</b></p> <p>Exploring simple series circuits, using switches. Draw circuits using standard symbols.</p>	<p><b>What could happen if the Earth keeps warming?</b></p> <p>Impact of climate change and losing species on food chains and webs. Exploring how animals are adapted to their environment/diet and why this is important.</p>	<p><b>Why do we see so much variation in plants?</b></p> <p>Investigating requirements of plants for survival and growth (more complexity than Y2). Reproductive structures and processes of plants.</p>





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<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Year 5/6 Cycle A</b></p>	<p><b>Which came first – the chicken or the egg?</b></p> <p>Classifying and identifying living things. Research differences in reproduction in different plant and animal groups</p>	<p><b>What would happen if all our blood was replaced with water?</b></p> <p>Investigating the role of blood as a transport and defence mechanism. Understanding the effects of exercise and drugs on the circulatory system and body.</p>	<p><b>In Are Kipling's 'Just So' stories based on facts?</b></p> <p>Investigate changes in animals/plants over millions of years by looking at fossil records. Observing skeletons and the development of teeth over time and linking this to Darwin's theory of evolution.</p>	<p><b>How can we see around corners?</b></p> <p>Safely Investigate light and shadows using mirrors, kaleidoscopes, periscopes, curved surfaces, binoculars.</p>	<p><b>How can you change the brightness of a bulb without using a dimmer switch?</b></p> <p>Exploring and comparing series and parallel circuits. Investigating the impact of altering number of cells and positions of switches. Draw circuits using standard symbols.</p>	<p><b>Would we still have seasons if the sun was switched off?</b></p> <p>Modelling the solar system to show rotation, day and night, the changes that happen to the sun and the moon as seen from the Earth. Investigating Eclipses and why they occur.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);"><b>Year 5/6 Cycle B</b></p>	<p><b>How can we classify life?</b></p> <p>Classifying and identifying living things. Research differences in reproduction in different plant and animal groups.</p>	<p><b>How are things transported around our bodies?</b></p> <p>Investigating the role of blood as a transport and defence mechanism. Understanding the effects of exercise and drugs on the circulatory system and body.</p>	<p><b>Who would win in a game of survival?</b></p> <p>Investigate changes in animals/plants over millions of years by looking at fossil records. Observing skeletons and the development of teeth over time and linking this to Darwin's theory of evolution.</p>	<p><b>How can we see things which are far away?</b></p> <p>Safely Investigate light and shadows using mirrors, kaleidoscopes, periscopes, curved surfaces, binoculars.</p>	<p><b>How can you change the volume of a buzzer?</b></p> <p>Exploring and comparing series and parallel circuits. Investigating the impact of altering number of cells and positions of switches. Draw circuits using standard symbols.</p>	<p><b>Can we prove Galileo was right?</b></p> <p>Modelling the solar system to show rotation, day and night, the changes that happen to the sun and the moon as seen from the Earth. Investigating Eclipses and why they occur.</p>





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## NATIONAL CURRICULUM OVERVIEW

Year	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
1	<b>What is the world around us made of?</b>  Distinguish between an object and the material from which it is made  Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock  Describe the simple physical properties of a variety of everyday materials  Compare and group together a variety of everyday materials on the basis of their simple physical properties		<b>Which animals can we discover at Edmondsley?</b>  Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals  Identify and name a variety of common animals that are carnivores, herbivores and omnivores  Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)  Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense		<b>Which plants can we discover at Edmondsley?</b>  Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees  Identify and describe the basic structure of a variety of common flowering plants, including trees	
	<b>How does the world around us change over the year?</b>  Observe changes across the 4 seasons Observe and describe weather associated with the seasons and how day length varies					
2	<b>Which materials are the best?</b>  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	<b>How can we stay healthy?</b>  Find out about and describe the basic needs of animals, including humans, for survival (water, food and air)  Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	<b>Can we grow plants in the dark?</b>  Observe and describe how seeds and bulbs grow into mature plants  Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy		<b>What will happen if all the trees are cut down?</b>  Explore and compare the differences between things that are living, dead, and things that have never been alive  Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other  Identify and name a variety of plants and animals in their habitats, including microhabitats  Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food	





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<b>Year 3-5 Cycle A</b>	<b>Why are bees so important?</b>	<b>Why don't humans photosynthesise like plants?</b>	<b>How do we know that fossils were once living organisms and not a particular type of rock?</b>	<b>How do our shadows change over a day and over a year?</b>	<b>How can we get a pile of eggs from the bottom to the top of a hill?</b>	<b>Are we drinking water that we have drunk before?</b>
	<p>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</p> <p>Investigate the way in which water is transported within plants</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p>	<p>Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat</p> <p>Describe the simple functions of the basic parts of the digestive system in humans</p> <p>Identify the different types of teeth in humans and their simple functions</p>	<p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>Recognise that soils are made from rocks and organic matter</p>	<p>Recognise that they need light in order to see things and that dark is the absence of light</p> <p>Notice that light is reflected from surfaces</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>Recognise that shadows are formed when the light from a light source is blocked by an opaque object</p> <p>Find patterns in the way that the size of shadows change.</p>	<p>Recognise that they need light in order to see things and that dark is the absence of light</p> <p>Notice that light is reflected from surfaces</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>Recognise that shadows are formed when the light from a light source is blocked by an opaque object</p> <p>Find patterns in the way that the size of shadows change.</p>	<p>Compare how things move on different surfaces</p> <p>Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance</p> <p>Observe how magnets attract or repel each other and attract some materials and not others</p> <p>Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials</p> <p>Describe magnets as having 2 poles</p> <p>Predict whether 2 magnets will attract or repel each other, depending on which poles are facing</p>





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<p style="text-align: center;"><b>Year 3-5 Cycle B</b></p>	<p><b>Why could the platypus be a bird?</b></p> <p>Recognise that living things can be grouped in a variety of ways</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <p>Describe the life process of reproduction in some animals</p>	<p><b>What would our diet and bodies be like if humans had never had teeth?</b></p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey</p> <p>Identify the different types of teeth in humans and their simple functions</p>	<p><b>How can you purify water from a stream?</b></p> <p>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</p>	<p><b>What can affect the sounds we hear?</b></p> <p>Identify how sounds are made, associating some of them with something vibrating</p> <p>Recognise that vibrations from sounds travel through a medium to the ear</p> <p>Find patterns between the pitch of a sound and features of the object that produced it</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it</p> <p>Recognise that sounds get fainter as the distance from the sound source increases</p>	<p><b>How can we be safe around electricity?</b></p> <p>Identify common appliances that run on electricity</p> <p><b>How can we design a system to detect a burglar in a shop?</b></p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>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</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p> <p>Recognise some common conductors and insulators, and associate metals with being good conductors</p>	<p><b>How can we get an object up and down a hill using the least amount of effort?</b></p> <p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect</p>
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<b>Year 3-5 Cycle C</b>	<p><b>Why don't we make saucepans out of tin or magnesium?</b></p> <p>Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes</p> <p>Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of sod</p>	<p><b>Which Scientist's changed the world?</b></p> <p>(From upper KS2 non-statutory guidance)</p> <p>Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time.</p>	<p><b>How can we organise and classify living things?</b></p> <p>Recognise that living things can be grouped in a variety of ways</p> <p>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p> <p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <p>Describe the life process of reproduction in some animals</p>	<p><b>How can we be safe around electricity?</b></p> <p>Identify common appliances that run on electricity</p> <p><b>How does a doorbell work?</b></p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>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</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p> <p>Recognise some common conductors and insulators, and associate metals with being good conductors</p>	<p><b>What could happen if the Earth keeps warming?</b></p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey</p> <p>Identify the different types of teeth in humans and their simple functions</p>	<p><b>Why do we see so much variation in plants?</b></p> <p>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers</p> <p>Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</p> <p>Investigate the way in which water is transported within plants</p> <p>Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p>





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<p style="text-align: center;"><b>Year 5/6 Cycle A</b></p>	<p><b>Which came first – the chicken or the egg?</b></p> <p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird</p> <p>Describe the life process of reproduction in some plants and animals</p> <p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals</p> <p>Give reasons for classifying plants and animals based on specific characteristics</p>	<p><b>What would happen if all our blood was replaced with water?</b></p> <p>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans</p>	<p><b>Are Kipling’s ‘Just So’ stories based on facts?</b></p> <p>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p>	<p><b>How can we see around corners?</b></p> <p>. Recognise that light appears to travel in straight lines</p> <p>Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye</p> <p>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</p>	<p><b>How can you change the brightness of a bulb without using a dimmer switch?</b></p> <p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p> <p>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</p> <p>Use recognised symbols when representing a simple circuit in a diagram</p>	<p><b>Would we still have seasons if the sun was switched off?</b></p> <p>Describe the movement of the Earth and other planets relative to the sun in the solar system</p> <p>Describe the movement of the moon relative to the Earth</p> <p>Describe the sun, Earth and moon as approximately spherical bodies</p> <p>Use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky</p>
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<b>Year 5/6 Cycle B</b>	<b>How can we classify life?</b>	<b>How are things transported around our bodies?</b>	<b>Who would win in a game of survival?</b>	<b>How can we see things which are far away?</b>	<b>How can you change the volume of a buzzer?</b>	<b>Can we prove Galileo was right?</b>
	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago	Recognise that light appears to travel in straight lines	Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit	Describe the movement of the Earth and other planets relative to the sun in the solar system
	Describe the life process of reproduction in some plants	Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function	Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents	Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye	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	Describe the movement of the moon relative to the Earth
	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals	Describe the ways in which nutrients and water are transported within animals, including humans	Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes	Use recognised symbols when representing a simple circuit in a diagram	Describe the sun, Earth and moon as approximately spherical bodies
	Give reasons for classifying plants and animals based on specific characteristics			Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them		Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky

## NATIONAL CURRICULUM OBJECTIVES:

YEAR 3 OBJECTIVES

YEAR 4 OBJECTIVES

YEAR 5 OBJECTIVES

YEAR 6 OBJECTIVES

