



St Mary's CofE Primary School



Believe and Achieve Together

Science Overview

Intent: To stimulate the natural curiosity, knowledge and understanding of all children about the world they live in.

Disciplines in Science at St Mary's Hawkshaw

Disciplines in Science at St Mary's Hawkshaw		
<u>Biology</u> Animals Including Humans Plants Living Things and Their Habitats Evolution and Inheritance	<u>Chemistry</u> Materials Rocks and Fossils States of Matter	<u>Physics</u> Earth and Space Forces and Magnets Light Sound Electricity Materials

Key Skills in Science at St Mary's Hawkshaw

Key Skills in Science at St Mary's Hawkshaw			
Identifying, classifying and grouping	Pattern Seeking	Observing over time	Comparative and fair testing

Cycle A Science in Class 1: EYFS

	Autumn	Spring	Summer
Unit	Nocturnal Animals	Staying Healthy & Hygiene Plants	The Seasons and Weather Taking care of animals
Primary Skill	Identifying, classifying and grouping Pattern Seeking	Pattern Seeking Identifying, classifying and grouping Comparative and fair testing	Identifying, classifying and grouping Observations over time

Cycle B Science in Class 1: EYFS

	Autumn	Spring	Summer
Unit	Space The Seasons and Weather	How to take care of animals Healthy Diet & Hygiene	Plants Minibeasts
Primary Skill	Identifying, classifying and grouping Observations over time	Pattern Seeking Identifying, classifying and grouping Comparative and fair testing	Observations over time Identifying, classifying and grouping

Cycle A Science in Class 2: Year 1 & 2

Seasons Throughout the Year

- observe changes across the four seasons.
- observe and describe weather associated with the seasons and how day length varies.

	Autumn	Spring	Summer
Unit	<p style="text-align: center;"><u>Everyday Materials (Physics)</u></p> <ul style="list-style-type: none"> • I can identify and name different materials • I can tell the difference between an object and the materials it is made from. • I can identify which materials have certain properties. • I can sort objects by their properties. 	<p style="text-align: center;"><u>Plants (Biology)</u></p> <ul style="list-style-type: none"> • To describe and compare plants, seeds and bulbs. • To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees To identify and name some common trees. To design and set up a test to find out what plants need to stay healthy. • To name and compare the parts of a flowering plant or tree. • To describe the life cycle of a plant. • To describe what happens if plants don't get all the things they need. 	<p style="text-align: center;"><u>Animals Including Humans (Biology)</u></p> <ul style="list-style-type: none"> • I can identify and name some common animals. • I can describe and compare the structure of a variety of common animals. • I can identify, name and sort animals that are herbivores, carnivores and omnivores. • I can identify, name and label the parts of the human body • I can name the five senses and to perform simple tests to compare different textures, sounds and smells.
Primary Skill	Identifying, classifying and grouping	Observing over time	Identifying, classifying and grouping

Cycle B Science in Class 2: Year 1 & 2

Seasons Throughout the Year

- observe changes across the four seasons.
- observe and describe weather associated with the seasons and how day length varies.

	Autumn	Spring	Summer
Unit	<u>Living things and Their Habitats (Biology)</u> <ul style="list-style-type: none"> • I can compare the differences between things that are living, dead and have never been alive. • I can classify objects as those that are living, dead and those that have never been alive. • I can map and describe a habitat and identify what is in it. • I can ask and answer questions about habitats. • I can identify how an animal is suited to its habitat. • I can explain how living things in a habitat depend on each other. • I can describe how animals get their food. 	<u>Animals Including Humans (Biology)</u> <ul style="list-style-type: none"> • I can match, sort and group young animals and their adults. • I can find out how animals change as they grow into adults. • I can research and describe what animals, including humans, need to survive. • I can test the effects of exercise on the human body. • I can investigate the importance of healthy eating and hygiene. 	<u>Everyday Materials (Physics)</u> <ul style="list-style-type: none"> • I can identify and name different materials. • I can compare the suitability of different everyday materials. • I can perform a simple test - (What is the best material for...?) • I can explain how the shapes of objects made from some materials can be changed.
Primary Skill	Identifying, classifying and grouping	Pattern Seeking	Comparative and fair testing

Cycle A Science in Class 3: Year 3 & 4

	Autumn	Spring	Summer
Unit	<p style="text-align: center;"><u>Forces and Magnets (Physics)</u></p> <ul style="list-style-type: none"> I can compare how things move on different surfaces, using <u>different types of scientific enquiry and evidence to answer questions.</u> I can notice that some forces need contact between 2 objects, but magnetic forces can act at a distance. I can describe magnets as having 2 poles. I can observe how magnets attract or repel each other and attract some materials and not others. I can 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. I can predict whether 2 magnets will attract or repel each other, depending on which poles are facing. <p style="text-align: center;"><u>Light (Physics)</u></p> <ul style="list-style-type: none"> I understand that we need light to see things and that dark is the absence of light. I observe how light is reflected from surfaces. I recognise that light from the sun can be dangerous and that there are ways to protect my eyes. I can explain how shadows are formed when the light from a light source is blocked by an opaque object. I can find patterns in the way that the size of shadows change. 	<p style="text-align: center;"><u>Animals Including Humans (Biology)</u> (Teeth & Digestion)</p> <ul style="list-style-type: none"> I can describe the simple functions of the basic parts of the digestive system in humans. I can identify the different types of teeth and their simple functions. I can construct and interpret a variety of food chains, identifying producers, predators and prey. I can use a scientific method to collect and record facts and <u>report my findings, giving oral and written explanations.</u> <p style="text-align: center;"><u>Sound (Physics)</u></p> <ul style="list-style-type: none"> I can identify how sounds are made, associating some of them with something vibrating. I recognise that vibrations from sounds travel through a medium to your ear. <u>I can find patterns</u> between the pitch of a sound and features of the object that produced it. <u>I can find patterns between the volume of a sound and the strength of the vibrations that produced it.</u> I recognise that sounds get fainter as the distance from the sound source increases. 	<p style="text-align: center;"><u>Rocks and Soils (Chemistry)</u></p> <ul style="list-style-type: none"> I can compare and group together different kinds of rocks using their appearance and physical properties, <u>making systematic and careful observations.</u> <u>I can set up a simple practical enquiry about rocks, ensuring that it is a fair test, using results to draw simple conclusions.</u> I can describe how fossils are formed when things that have lived are trapped within rocks. I can explain how soils are made from rocks and organic matter.
Primary Skill	Identifying, classifying and grouping	Pattern Seeking	Identifying, classifying and grouping

Cycle B Science in Class 3: Year 3 & 4

	Autumn	Spring	Summer
Unit	<p style="text-align: center;"><u>Electricity (Physics)</u></p> <ul style="list-style-type: none"> I can identify common appliances that run on electricity. I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. I can 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. I can recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit and I can <u>record my findings using scientific language and label diagrams.</u> I can recognise some common conductors and insulators, and associate metals with being good conductors. <p><u>Living Things and Their Habitats (Biology)</u></p> <ul style="list-style-type: none"> I can recognise that living things can be grouped in a variety of ways. I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. I can recognise that environments can change and that this can sometimes pose dangers to living things. 	<p style="text-align: center;"><u>States of Matter (Chemistry)</u></p> <ul style="list-style-type: none"> I know that the different states of matter are solids, liquids or gases. I understand the properties of each state of matter. <u>I can make systematic and careful observations, identifying that some materials change state when they are heated or cooled.</u> <u>I can take accurate measurements and make predictions for new values using thermometers to measure and research</u> the temperature at which materials change state (in degrees celcius) <u>I can identify the similarities and differences</u> related to the process of evaporation and condensation in the water cycle. 	<p style="text-align: center;"><u>Plants (Biology)</u></p> <ul style="list-style-type: none"> I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. I know what plants need to live and grow, (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant. I can investigate the way in which water is transported in plants. I can explore the life cycle of a flowering plant, <u>recording my findings using drawings and labelled diagrams,</u> (including pollination, seed formation and seed dispersal) <p style="text-align: center;"><u>Animals Including Humans (Biology)</u> (Skeletons & Nutrition)</p> <ul style="list-style-type: none"> I understand the use of a skeleton. I understand the function and importance of joints and muscles to allow us to move. I can 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.
Primary Skill	Identifying, classifying and grouping	Comparative and fair testing	Observing over time

Cycle A Science in Class 4: Year 5 & 6

	Autumn	Spring	Summer
Unit	<p style="text-align: center;"><u>Forces (Physics)</u></p> <ul style="list-style-type: none"> • I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and falling objects. • I can identify the effect of friction between moving surfaces. • I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables. • I can identify the effect of air resistance. • I can identify the effect of water resistance. • I can recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. <p style="text-align: center;"><u>Evolution and inheritance (Biology)</u></p> <ul style="list-style-type: none"> • I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. • I can identify how plants are adapted to their environment. • I can identify how animals are adapted to their environment. • I can explain natural selection and how it may lead to evolution. • I can explain how adaptations may lead to evolution. • I can 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 style="text-align: center;"><u>Light (Physics)</u></p> <ul style="list-style-type: none"> • I can recognise that light appears to travel in straight lines. • I can use the idea that light travels in straight lines to explain that we can see objects because they give out or reflect light into the eye. • I can 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. • I can predict which materials make good reflectors. • I can use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. • I can explain how shadows change during the day. <p style="text-align: center;"><u>Living Things and Their Habitats (Biology)</u></p> <ul style="list-style-type: none"> • I can discuss the seven life processes. • I can explain how mammals reproduce. • I can explain how birds reproduce. • I understand reproduction in plants. • I can describe the differences in the life cycles of mammals, amphibians, reptiles, insects and birds. • I can explain the life cycle of plants. 	<p style="text-align: center;"><u>Animals Including Humans (Biology)</u></p> <ul style="list-style-type: none"> • I can identify and name the main parts of the human circulatory system. • I can identify the functions of the heart, blood vessels and blood. • I can investigate which activity increases my heart rate the most. • I can describe how water and nutrients are transported in humans. • I can recognise the impact of diet, exercise, drugs and lifestyle on the way our bodies function.
Primary Skill	Comparative and fair testing	Identifying, classifying and grouping	Pattern Seeking

Cycle B Science in Class 4: Year 5 & 6

	Autumn	Spring	Summer
Unit	<p style="text-align: center;"><u>Electricity (Physics)</u></p> <ul style="list-style-type: none"> • I can recognise and use symbols when drawing a simple circuit diagram. • I can associate the brightness of a lamp or the loudness of a buzzer with the number and voltage of cells used in the circuit. • I can investigate and compare variations in how components function and write a conclusion. Including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. • I can name renewable and non-renewable sources of energy. <p style="text-align: center;"><u>Earth and Space (Physics)</u></p> <ul style="list-style-type: none"> • I can identify and describe the planets in the solar system • I can describe the Sun, Earth and Moon as approximately spherical bodies. • I can describe the movement of the Earth, and other planets, relative to the Sun in the solar system. • I can describe the movement of the Moon relative to the Earth. • I can use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. 	<p style="text-align: center;"><u>Materials and their properties (Chemistry)</u></p> <ul style="list-style-type: none"> • I can compare and group everyday materials based on their properties. (e.g. hardness, solubility, transparency, conductivity and response to magnets). • I know that some materials dissolve in a liquid to make a solution, and describe how to recover a substance from a solution. • I can use my knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. • I can give reasons, based on evidence from comparative and fair tests, for the particular use of everyday materials, including metals, wood and plastic. • I can demonstrate that dissolving, mixing and changes of state are reversible changes. • I can 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 soda. 	<p style="text-align: center;"><u>Animals Including Humans (Biology)</u></p> <ul style="list-style-type: none"> • I can describe the human life cycle. • I understand how a foetus develops in the womb. • I can describe what happens when I am a teenager. • I can describe what happens when I am a senior. <p style="text-align: center;"><u>Living Things and Their Habitats (Biology)</u></p> <ul style="list-style-type: none"> • Be able to describe the characteristics of animals and micro-organisms. • Describe how living things are classified into broad groups according to common features. • Compare the similarities and differences of animals using observable characteristics. • Compare the similarities and differences of plants using observable characteristics. • Give reasons for classifying plants and animals based on specific characteristics
Primary Skill	Identifying, classifying and grouping	Comparative and fair testing	Observing over time

