

St. Katharine's Science Knowledge Overview

E Y	ELG: The Natural World Explore the natural world around them, making observations and drawing pictures of animals and plants	The Natural World Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.		The Natural World Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.	Creating with Materials Explore a variety of materials	
1	Plants 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.	Animals, including humans identify, name, draw and label the basic parts of the human body say which part of the body is associated with each sense.	Animals, including humans 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).	Everyday materials 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.	Seasonal changes observe changes across the four seasons; observe and describe weather associated with the seasons and how day length varies.	
2	Living things & their habitats 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, describe how different habitats provide for the basic needs of different animals and plants, and how they depend on each other; identify and name a variety of plants and animals in their habitats, including micro-habitats; describe how animals obtain their food from plants and other animals, using a simple food chain, and identify and name different sources of food.		Plants 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.	Animals including humans notice that animals, including humans, have offspring which grow into adults; find out about and describe the basic needs of animals, including humans, for survival (water, food and air); describe the importance for humans of eating the right amounts of different types of food. describe the importance for humans of exercise and hygiene.	Uses of everyday materials identify and compare the suitability of a variety of everyday materials (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.	
3	Magnets notice that some forces need contact between two objects, but magnetic forces can act at a distance; observe how magnets attract or repel each other and attract some materials and not others; compare and group a variety of materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials; describe magnets as having two poles; predict whether two magnets will attract or repel each other, depending on which poles are facing.	Animals incl humans identify that animals and humans need the right types & amount of nutrition; they can't make their own food; they get nutrition from what they eat; identify the different types of teeth in humans and their simple functions.	Rocks compare and group together different kinds of rocks on the basis of their appearance and simple physical properties; describe in simple terms how fossils are formed when things that have lived are trapped within rock; recognise that soils are made from rocks and organic matter.	Materials compare and group together everyday materials on the basis of their properties, including hardness. give reasons, based on comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.	Plants identify and describe the functions of different parts of flowering plants: roots, stem / trunk, leaves and flowers; explore the requirements of plants for life & growth (air, light, water, soil nutrients, room to grow) and how they vary from plant to plant; investigate the way in which water is transported within plants; explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	Light recognise that they need light in order to see things and that dark is the absence of light; notice that light is reflected from surfaces; recognise that light from the sun can be dangerous and that there are ways to protect their eyes; recognise that shadows are formed when the light from a light source is blocked by an opaque object; find patterns in the way that the size of shadows change; compare and group together everyday materials on the basis of their transparency.

4	Living things & habitats recognise that living things can be grouped in a variety of ways; explore & use classification keys to help group, identify & name a variety of living things in their local and wider environment; recognise that environments can change & that this can sometimes pose dangers to living things;	Animals, Humans identify that humans & some animals have skeletons & muscles for support, protection and movement; construct and interpret a variety of food chains, identifying producers, predators & prey.	States of Matter compare and group materials together, according to whether they are solids, liquids); observe that some materials melt or freeze / solidify when heated or cooled and measure / research the temperature in °C at which this happens.	Electricity identify common appliances that run on electricity; construct simple series electrical circuits, identifying & naming basic parts: cells, wires, bulbs, switches & buzzers; identify whether or not a lamp will light in a simple series circuit, based on whether 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; compare and group together everyday materials on the basis of their electrical conductivity.		Forces compare how things move on different surfaces; explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth & the falling object; identify the effects of air resistance, water resistance & friction, that act between moving surfaces.	Space describe the movement of the Earth, & other planets, relative to the Sun in the solar system; describe the movement of the Moon relative to the Earth; describe the Sun, Earth and Moon as approximately spherical bodies; use the idea of the Earth's rotation to explain day & night & the apparent movement of the Sun across the sky.
5	Living things & habitats describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird; describe the life process of reproduction in some plants and animals. Plants explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	Humans describe the functions of the basic parts of the digestive system in humans; describe the changes as humans develop to old age.	States of matter compare and group materials, according to whether they are solids, liquids or gases; identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature; demonstrate that changes of state are reversible changes.	Electricity associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit; compare & give reasons for variations in how components function (brightness of bulbs, loudness of buzzers, on/off position of switches); use recognised symbols when representing a simple circuit in a diagram.	Light recognise that light appears to travel in straight lines; 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; 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 the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them; find patterns in the way that the size of shadows change.		Sound identify how sounds are made, associating some of them with something vibrating; recognise that vibrations from sounds travel through a medium to the ear; find patterns between the pitch of a sound and features of the object that produced it; find patterns between the volume of a sound and the strength of the vibrations that produced it; recognise that sounds get fainter as the distance from the sound source increases.
6	Living things & habitats describe how living things are classified into broad groups according to common observable characteristics & based on similarities & differences, including micro-organisms, plants & animals; give reasons for classifying plants and animals based on specific characteristics.	Humans identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood; recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function; describe the ways in which nutrients and water are transported within animals, including humans.	Evolution & Inheritance 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 living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents; identify how animals and plants are adapted to suit their environment and that adaptation may lead to evolution.		Properties & changes of materials know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution; use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating; demonstrate that dissolving and mixing are reversible changes; 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.		Forces recognise that some mechanisms, including levers, pulleys & gears, allow a smaller force to have a greater effect.

St. Katharine's Working Scientifically Skills Overview

					Analyse and present data in				
	Ask Questions	Answer questions	Observe data using equipment	Measure data using equipment	Labelled Diagrams	Classification keys	Tables	Graphs	Communicate conclusions orally and in writing
E Y									
1	Ask simple scientific questions	Carry out different types of scientific enquiry: 1. observing changes over time; 2. grouping, identifying and classifying; 3. comparative and fair testing; 4. noticing patterns; 5. researching using secondary sources;	Magnifiers Microscopes binoculars	Rulers 1cm Counting leaves Counting vertebrates	Human body Animals Plant		3 columns for herbivore, omnivore and carnivore 5 columns for vertebrates 2 columns for plant height		Say / write what they found out, pronouncing and spelling scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge.
2	Ask simple scientific questions	Carry out different types of scientific enquiry: 1. observing changes over time; 2. grouping, identifying and classifying; 3. comparative and fair testing; 4. noticing patterns; 5. researching using secondary sources;	microscopes magnifiers binoculars	Rulers 0.5 cm Counting pipette drops	Food chains Life cycles	Use classification keys	3 columns for Living, dead, never alive 2 columns for absorbency		Write what they found out, spelling scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge.
3	Write relevant questions	Set up and carry out different types of scientific enquiry: 1. observing changes over time; 2. grouping, identifying and classifying; 3. comparative and fair testing; 4. noticing patterns; 5. researching using secondary sources;	microscopes magnifiers	Digital scales – 1g Beakers & measuring cylinders– 10 ml Rulers – 0.5 cm Data loggers – light lux	Plant with functions teeth	Draw a classification key for 2 birds	2 columns for data	Bar charts – scale of 1	Write simple conclusions identifying similarities and differences and suggesting improvements using correctly spelled, simple scientific vocabulary.

					Analyse and present data in				
	Ask Questions	Answer questions	Observe data using equipment	Measure data using equipment	Labelled Diagrams	Classification keys	Tables	Graphs	Communicate conclusions orally and in writing
4	Write relevant questions	Set up and carry out different types of scientific enquiry: 1. observing changes over time; 2. grouping, identifying and classifying; 3. comparative and fair testing; 4. noticing patterns; 5. researching using secondary sources;	microscopes magnifiers	Length: rulers 1mm Metre sticks 0.01m Time: Stopwatch 0.01s Temperature data loggers & thermometers 0.1°C	Detailed labelled diagram of skeleton Food chains	Draw a classification key for 3 or 4 animals	Begin to repeat results, calculating the median average and recording in 4 columns	Bar charts and scatter graphs – scale not in ones	Identify differences, similarities or changes; use scientific evidence to support their findings; suggest improvements; make predictions for new values; raise further questions; using correctly spelled, simple scientific vocabulary.
5	Write relevant questions	Plan and carry out different types of scientific enquiry: 1. observing changes over time; 2. grouping, identifying and classifying; 3. fair tests - identify and control at least 4 variables 4. noticing patterns; 5. researching using a range of secondary sources;	microscopes magnifiers	Length: rulers 1mm Metre sticks 0.01m Volume: measuring cylinders 0.1ml Data loggers – light lux Sound dB	Detailed labelled diagram of: human and flower organs with functions, water cycle, Light diagrams Circuit diagrams Life cycles	Draw a classification key for 4 or more animals	Precise, repeated results with median average in 5 columns	Bar charts and line graphs – scale to fit page Excel	Identify relationships, explain results, explain the degree of trust, use test results to make predictions about how to set up further tests; using correctly spelled, scientific vocabulary.
6	Write relevant questions	Plan and carry out different types of scientific enquiry: 1. observing changes over time; 2. grouping, identifying and classifying; 3. fair tests - identify and control at least 6 variables 4. noticing patterns; 5. researching using a range of secondary sources;	Fair tests identify and control at least 6 variables	Newton meters 0.1 N Pulse meters Length: Rulers 1mm Metre sticks 0.01m Tape measures	Detailed labelled diagram of pats of the heart	Draw a classification key for 6 or more animals or plants	Precise, repeated results with mean or median average in 5 columns	Choose appropriate graph: bar, line, scatter graphs Equally space the scale to fit the page Excel	Identify relationships, explain results, explain the degree of trust, use test results to make predictions about how to set up further tests, identify scientific evidence that has been used to support or refute ideas or arguments; using correctly spelled, scientific vocabulary.



St. Katharine's Primary School Science Curriculum Overview Early Years

Focus	Curriculum Content	Working Scientifically Skills	Vocabulary
Autumn 1 Rhyme Time	<ul style="list-style-type: none"> Understand some important processes and changes in the natural world around them, including the seasons 		Cold, rain, wind, cloud, leaves, colour, change, oak tree, acorn,
Spring 1 Yo Ho Ho a pirating we will go!	<ul style="list-style-type: none"> Explore a variety of materials. Ogden 14 <i>The Gruffalo's Child</i> 	<ul style="list-style-type: none"> Talk about similarities and differences in children following visit to Life Education Van. Talk about similarities and differences when exploring materials Size of shadows 	Bumpy, hard, soft Material, fabric, wood, plastic, metal, foil, paper, card
Spring 2 Run, run as fast as you can	<ul style="list-style-type: none"> Explore a variety of materials. Understand some important processes and changes in the natural world around them, including the seasons 	<ul style="list-style-type: none"> Talk about similarities and differences when choosing the materials for the different roofs. Observe changes in the weather. 	Shadow, torch, light, taller, shorter
Summer 1 Read around the world	<ul style="list-style-type: none"> Explore the natural world around them, making observations and drawing pictures of animals and plants; Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. 	<ul style="list-style-type: none"> Talk about similarities and differences between the natural world around them and contrasting environments for example – Polar, Africa and ours; Talk about similarities and differences with healthy and unhealthy foods. 	Hotter, colder, healthy food, unhealthy food, coral, food chain
Summer 2 What's beneath my feet?	<ul style="list-style-type: none"> Explore the natural world around them, making observations and drawing pictures of animals and plants; 	<ul style="list-style-type: none"> Observe animals and plants carefully using magnifiers; Record observations in drawings. 	Animals, caterpillar, butterfly, Life Cycle, Chrysalis, Mini beast, Cocoon Hatch, Caterpillar Leaf, Magnifying glass



St. Katharine's Primary School Science Curriculum Overview Year 1

Y1 Focus	Curriculum Content	Working Scientifically Skills	Vocabulary
<p>Autumn 1 To the Rescue</p> <p>Everyday materials</p> <p>Humans</p> <p>Seasonal Changes</p>	<ul style="list-style-type: none"> • 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. • identify, name, draw and label the basic parts of the human body; • say which part of the body is associated with each sense. • observe and describe weather associated with autumn. 	<ul style="list-style-type: none"> • To ask simple scientific questions about the physical properties of materials; • To name objects and materials; • To use a magnifier and microscope to observe materials closely; • To classify objects according to their materials. Record in a table, using scientific vocabulary spelled at a level consistent with word reading and spelling knowledge; • To name the parts of the human body (Record in a labelled diagram); • To ask simple scientific questions about the senses and answer them in different ways using their observations and ideas; • To match senses to body parts (Record in writing and drawing); • To record observations of the weather (Record in writing and pictures). 	<p>material, plastic, fabric, rough, smooth, shiny, dull, magnetic, transparent, flexible, waterproof</p> <p>sense</p> <p>season, autumn, temperature</p>
<p>Autumn 2 Traditional Tales</p> <p>Plants</p> <p>Seasonal Changes</p>	<ul style="list-style-type: none"> • identify and name a variety of common wild and garden plants, including deciduous and evergreen trees; • observe changes between autumn and winter, describe weather associated with autumn and winter, and how day length varies. 	<ul style="list-style-type: none"> • To ask (simple scientific) questions about plants; • To identify trees (Record in writing and pictures); • To classify trees as deciduous and evergreen (Record in tables); • To observe changes between autumn and winter (Record in writing and pictures.); • To record observations of day length in a class table; • To describe how day length varies (oral conclusion). 	<p>deciduous, evergreen</p>

<p>Spring 1 Jurassic Giants</p> <p>Animals</p> <p>Seasonal Changes</p>	<ul style="list-style-type: none"> • identify and name a variety of common animals including mammals, birds, fish, amphibians and reptiles, including pets; • 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; • observe and describe weather associated with winter. 	<ul style="list-style-type: none"> • To ask (simple scientific) questions about animals; • To identify animals, (recording observations in writing and picture)s; • To draw a labelled diagram of an animal; • To classify animals as mammals, birds, fish, amphibians and reptiles (Record in tables); • To classify animals as carnivores, herbivores and omnivores (Record in tables); • To observe (invertebrates) using microscopes and magnifiers; 	<p>mammal, amphibian, reptile, carnivore, herbivore, omnivore</p>
<p>Spring 2 Julia Donaldson</p> <p>Plants</p> <p>Seasonal Changes</p>	<ul style="list-style-type: none"> • identify and name a variety of deciduous and evergreen trees; • observe changes between winter and spring, describe weather associated with spring and how day length varies. 	<ul style="list-style-type: none"> • observe deciduous and evergreen trees closely using binoculars, recording observations in writing and pictures; • To identify trees; To record observations of the weather (Record in writing and pictures). • record observations of winter and spring in writing and pictures; • record observations of day length in a class table. 	<p>deciduous, evergreen</p>
<p>Summer 1 Sunny Southbourne</p> <p>Plants</p>	<ul style="list-style-type: none"> • identify and describe the basic structure of a variety of common flowering plants, including trees. 	<ul style="list-style-type: none"> • observe plants closely using magnifiers and microscopes; • record observations of the structure of plants in labelled diagrams; • measure the height of a plant using a ruler in cm over several weeks, recording data in own table. 	<p>centimetres, height, increase</p>
<p>Summer 2 Planet Phonics</p> <p>Seasonal changes</p>	<ul style="list-style-type: none"> • observe changes between spring and summer; • describe weather associated with summer and how day length varies. 	<ul style="list-style-type: none"> • record observations of spring and summer in writing and pictures; • record observations of day length in a class table; • record observations of the weather in writing and pictures in a weather diary. • create class table to demonstrate pattern of daylight hours- sugar paper and cubes. 	<p>season, summer, temperature</p>

St. Katharine's Primary School Science Curriculum Overview Year 2

Y2 Focus	Curriculum Content	Working Scientifically Skills	Vocabulary
<p>Autumn 1 The BIG Adventure</p> <p>Animals, including humans</p> <p>All living things & their habitats</p>	<ul style="list-style-type: none"> • explore and compare the differences between things that are living, dead, and things that have never been alive; • identify and name a variety of plants and animals in their habitats, including micro-habitats. • find out about and describe the basic needs of animals, including humans, for survival (water, food & air). • 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; 	<p>1. To classify</p> <ul style="list-style-type: none"> • Memory Minute: Materials • Starter: Rugged ridges – Explorify or Animal remains – Explorify • Explain new vocab: Living, Dead, Never Alive • Observe / collect things in the school grounds. Write a class list (include living: animals, plants; dead: leaves, sticks, shells, feathers, wooden objects; never alive: stone, brick, metal, glass). • Record (draw / stick and write) in their own table with the headings: Living, Dead Never Alive. <p>2. To identify woodland animals and plants</p> <p>Memory Minute: Y1 mammal, bird, fish, amphibian, reptile, deciduous, evergreen</p> <ul style="list-style-type: none"> • observe animals and plants closely using magnifiers and microscopes; • use classification charts to identify them, • record findings in a table of micro habitats: leaf, leaf litter, bark, branches (squirrel, birds); <p>3. To research</p> <ul style="list-style-type: none"> • Ask and answer their own simple scientific questions about the basic needs of animals for survival; <p>4. To observe the conditions in different habitats</p> <ul style="list-style-type: none"> • Record in labelled diagrams (light/dark, shady/sunny, cold/hot, wet/damp/dry, food, air) <p>5. To record in a table</p> <ul style="list-style-type: none"> • perform simple comparative tests to investigate how the conditions in different habitats affect the number and type of plants and animals that live there. 	<p>living dead never alive</p> <p>habitat micro-habitat woodland</p> <p>conditions</p> <p>suited, suitable, basic needs, food, shelter, move, feed, water, air, survive, survival,</p>

Focus	Curriculum Content	Working Scientifically Skills	Vocabulary
<p>Autumn 2 Animal Magic</p> <p>Animals, including humans</p>	<ul style="list-style-type: none"> 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; notice that animals, including humans, have offspring which grow into adults. 	<ul style="list-style-type: none"> To write a question Write simple, scientific questions about food chains; To draw a food chain Draw a simple, labelled food chain using the scientific vocabulary: producer, consumer, prey, predator. Revisit: carnivore, omnivore, herbivore from Y1; To write a question Write simple, scientific questions about food animal offspring; To draw a life cycle Draw a simple, labelled life cycle using scientific vocabulary such as: pupa, spawn. Revisit: mammal, bird, fish, amphibian and reptile from Y1. 	<p>Tadpole, food chain, producer, pupa, consumer, prey, predator, spawn, carnivore, omnivore, herbivore,</p>
<p>Spring Sparks Will Fly</p> <p>Fantastic Mr Dahl</p> <p>Uses of materials</p>	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> To write a question Write simple, scientific questions about the physical properties of materials; To use a microscope Use microscopes and magnifiers to observe materials closely; To compare materials Perform simple comparative tests to compare waterproofness, flexibility, strength, etc. Measure volume using pipettes. Draw a simple table (one horizontal and vertical line) and record data. Write a conclusion, stating which material was most suitable for the particular use, using scientific vocabulary spelled at a level consistent with word reading and spelling knowledge; 	<p>material, flexible, rigid, waterproof, absorbent</p>
<p>Summer 1 Colour Me Happy</p> <p>Plants</p>	<ul style="list-style-type: none"> 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. 	<ul style="list-style-type: none"> ask simple scientific questions about plant growth; observe and measure growing plants closely using magnifiers, microscopes and rulers; record their data in tables; perform simple comparative tests to show that plants need light and water to stay healthy recording their findings in writing and pictures. 	<p>root, germinate, centimetres, height, increase</p>
<p>Summer 2 Fit for Life</p> <p>Animals, including humans</p>	<ul style="list-style-type: none"> describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 	<ul style="list-style-type: none"> ask simple scientific questions about of exercise, diet and hygiene; answer their scientific questions in different ways using their observations, data, research and ideas; draw labelled diagrams of healthy diets. 	<p>diet, healthy, unhealthy</p>



St. Katharine's Primary School Science Curriculum Overview Year 3

Focus	Curriculum Content	Working Scientifically Skills	Vocabulary
Autumn 1 Magnets	<ul style="list-style-type: none"> notice that some forces need contact between two objects, but magnetic forces can act at a distance; observe how magnets attract or repel each other and attract some materials and not others; 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; describe magnets as having two poles; predict whether two magnets will attract or repel each other, depending on which poles are facing. 	<ul style="list-style-type: none"> write relevant questions about magnets; set up a comparative test to group materials as magnetic or non-magnetic, recording their findings in a table; predict whether two magnets will attract or repel each other and set up a pattern seeking enquiry to test their predictions, recording their findings in labelled diagrams; set up a fair test to investigate which magnetic is the strongest, using a ruler to accurately measure the maximum distance a magnet can attract a paper clip from, recording data in their own table and bar chart (given axis – scale going up in ones); write a conclusion of their findings using simple scientific language and suggesting improvements. 	North, south, pole, attract, repel, magnetic, metal, aluminium, brass, bronze, copper, iron, nickel, steel, zinc
Autumn 2 Living Planet Plants	<ul style="list-style-type: none"> identify and describe the functions of different parts of flowering plants: roots, stem / trunk, leaves and flowers; 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; investigate the way in which water is transported within plants; explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. 	<ul style="list-style-type: none"> write relevant questions about plant growth; To identify parts of a plant Observe using magnifiers and microscopes to identify the different parts of a flowering plant, recording their findings and describing the functions in a labelled diagram; To set up a comparative test Investigate the requirements of plants for life and growth, draw a table and record findings and data; To write a conclusion Write a simple conclusion, identifying the differences and similarities, and suggesting improvements, using simple scientific vocabulary; To explain how water is transported within plants Set up a comparative test to investigate the way in which water is transported in carnations or celery, reporting their conclusions orally; To observe the life cycle of a flowering plant Observe and research the life cycle of a flowering plant from flowering to seed dispersal, recording their findings in a labelled life cycle using the scientific vocabulary: pollination, seed formation and seed dispersal. 	function, nutrition, support, reproduction, nutrients, fertiliser, pollination, seed, formation, seed dispersal
Spring 1 Stig of the Dump	<ul style="list-style-type: none"> Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties; 	<ul style="list-style-type: none"> observe rocks using magnifiers and microscopes and group them according to what they contain (grains, crystals, fossils, etc) recording their findings in tables; set up a comparative test to investigate the permeability of different rocks, using beakers to accurately measure the volume of water and electronic 	appearance, physical properties, absorbent, fossils,

Rocks	<ul style="list-style-type: none"> describe in simple terms how fossils are formed when things that have lived are trapped within rock; recognise that soils are made from rocks and organic matter. 	<p>weighing scales to measure the mass of the rocks, recording their data in their own tables and bar charts (axis may be given - going up in ones);</p> <ul style="list-style-type: none"> write a conclusion of their findings using simple scientific language and suggesting improvements; write relevant questions about how soil and fossils are formed and research to answer them, recording their answers in labelled diagrams. 	sedimentary rock, organic matter, crystals
Spring 2 Ruthless Romans Materials	<ul style="list-style-type: none"> compare and group together everyday materials on the basis of their properties, including their hardness; give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metal and wood. 	<ul style="list-style-type: none"> write relevant questions about the properties of materials; set up a comparative test to group materials according to their hardness, recording their data in their own table and bar chart (axis not given – scale going up in ones); write a conclusion of their findings using simple scientific language and suggesting improvements. 	Fabric, rough, hard, smooth, brittle, waterproof
Summer 1 Varjak Paw Light	<ul style="list-style-type: none"> recognise that they need light in order to see things and that dark is the absence of light; notice that light is reflected from surfaces; recognise that light from the sun can be dangerous and that there are ways to protect their eyes; recognise that shadows are formed when the light from a light source is blocked by an opaque object; find patterns in the way that the size of shadows change; compare and group together everyday materials on the basis of their properties, including their transparency. 	<ul style="list-style-type: none"> write relevant questions about light and shadows; use data loggers to accurately measure how light it is in different locations, recording their data in their own table; compare which materials reflect light, recording their findings in a drawing or photograph of most reflective to least reflective; set up a pattern seeking enquiry to investigate the size of shadows, using rulers to accurately measure the length of shadows (to the nearest 0.5cm), recording their data in their own table and bar chart (axis not given – scale going up in ones); write simple conclusions about the pattern and suggest improvements; set up a comparative test to group materials according to their transparency, using data loggers to accurately measure how much light the materials let through, recording their data in their own table; report their conclusions orally and suggest improvements. 	Shadow, transparent, translucent, opaque, reflect, reflection, data
Summer 2 Fuel for school Teeth & Nutrition	<ul style="list-style-type: none"> 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; identify the different types of teeth in humans and their simple functions. 	<ul style="list-style-type: none"> write relevant questions about teeth and nutrition; research different food groups, using their findings to design healthy meals, recording them in labelled diagrams; research the different types of teeth and their functions, recording their findings in a labelled diagram; set up an observing over time enquiry to investigate which drink dissolves teeth the most, accurately measuring the volume of liquid using measuring cylinders, recording findings in their own tables and bar charts; report their conclusions orally, identifying the differences and similarities, using simple scientific language and suggest improvements. 	Diet, nutrition, protein, carbohydrate, vitamin, mineral, healthy, unhealthy, molar, premolar, canine, incisor

St. Katharine's Primary School Science Curriculum Overview Year 4

Focus	Curriculum Content	Working Scientifically Skills	Vocabulary
<p>Autumn 1</p> <p>Firework Maker's Daughter</p> <p>Electricity</p>	<ul style="list-style-type: none"> • identify common appliances that run on electricity; • construct simple series electrical circuits, identifying & naming basic parts: cells, wires, bulbs, switches & 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; • compare and group together everyday materials on the basis of their electrical conductivity. 	<ul style="list-style-type: none"> • Research, using a range of secondary sources of information, to identify common appliances that run on electricity and how to work safely with electricity, reporting their findings orally; • write relevant questions about circuits, construct different circuits observing patterns about the brightness of lamps and report conclusions orally; • set up a comparative test to investigate which materials are the most effective for making a switch in a circuit; • write a conclusion in which they use scientific evidence to answer questions and support their findings, use scientific language and suggest improvements. 	<p>circuit, cell, lamp, switch, metal, insulator, conductor, aluminium, brass, bronze, cell, circuit, component, copper, current, electric, iron, nickel, steel, zinc</p>
<p>Autumn 2</p> <p>What's the Matter?</p> <p>States of Matter</p>	<ul style="list-style-type: none"> • compare and group materials together, according to whether they are solids, liquids (or gases); • observe that some materials melt or freeze / solidify when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). 	<ul style="list-style-type: none"> • Write relevant questions about materials changing state; • research to classify materials as solids or liquids, recording results in tables; • set up an observing changes over time investigation to observe the temperatures at which solids (chocolate, butter, ice) melt and solidify /freeze; • measure temperature accurately using thermometers (to the nearest 1°C) and data loggers(to the nearest 0.1°C), recording data in their own tables and bar charts; • write a conclusion that reflect their findings • research, using a range of secondary sources of information, the temperature at which materials change state melt and solidify / freeze. 	<p>Solidify Evaporation condensation, solid, liquid, gas Water vapour, Changing state, Degree Celsius, °C, thermometer Temperature</p>
<p>Spring 1</p> <p>Out of This World</p> <p>Space</p>	<ul style="list-style-type: none"> • describe the movement of the Earth, and other planets, relative to the Sun in the solar system; • describe the movement of the Moon relative to the Earth; • describe the Sun, Earth and Moon as approximately spherical bodies; • use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. 	<ul style="list-style-type: none"> • Research, using a range of secondary sources of information, to find out about the movement of the Earth, and other planets, relative to the Sun and the movement of the Moon relative to the Earth, recording their findings in a labelled diagram; • write questions about and observe the apparent movement of the Sun over a day, recording their data a labelled diagram; • write a conclusion and use scientific evidence to answer questions and support their findings. 	<p>Orbit, axis, spheres, spherical,</p>

<p>Spring 2 Invaders and Settlers</p> <p>Forces</p>	<ul style="list-style-type: none"> • compare how things move on different surfaces; • explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object; • identify the effects of air resistance, water resistance and friction, that act between moving surfaces. • • To investigate friction • To investigate air resistance • To investigate water resistance • Water resistance is a type of friction which acts on an object moving through water 	<ul style="list-style-type: none"> • write relevant questions about friction, air resistance, water resistance and gravity and set up comparative and fair tests to answer them including investigating different surfaces, falling shapes and boats of different shapes ; • measure time accurately, recording data in their own tables and bar charts; • write a conclusion in which they raise further questions, identify differences, similarities or changes related to forces, make predictions for new values, use scientific language, suggest improvements; and use scientific evidence to answer questions and support their findings. • 	<p>Gravity, air resistance, water resistance, friction, accelerate, decelerate, force, surface</p>
<p>Summer 1 Rio to Rainforest</p> <p>Living things and their habitats</p>	<ul style="list-style-type: none"> • 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; • recognise that environments can change and that this can sometimes pose dangers to living things; • construct and interpret a variety of food chains, identifying producers, predators and prey. 	<ul style="list-style-type: none"> • Observe using magnifiers and microscopes, or research, using simple guides and keys, to identify animals and plants found in the two different habitats, recording their findings in their own classification keys; • research, using a range of secondary sources of information, to classify these animals as vertebrates: mammals, birds, fish, amphibians, reptiles, and invertebrates: snails and slugs, worms, spiders, and insects; and plants as flowering and non-flowering plants, recording results in tables; • research, using a range of secondary sources of information, food chains in these habitats, recording their findings in labelled food chains; • write relevant questions and research to explore how human impact (both positive and negative) affects environments. 	<p>Habitat, food chain, producer, consumer, prey, predator, carnivore, omnivore, herbivore,</p>
<p>Summer 1 Seashore</p> <p>Living things and their habitats</p>			
<p>Summer 2 Unique Me</p> <p>Animal Skeletons</p>	<ul style="list-style-type: none"> • identify that humans and some animals have skeletons and muscles for support, protection and movement. 	<ul style="list-style-type: none"> • write relevant questions about skeletons and muscles; • research, using a range of secondary sources of information, to answer them; • report findings, in written form, using a range of simple scientific language and labelled diagrams; • measure accurately using rulers, recording data in their own tables and scatter graphs. 	<p>Skull, protection skeleton, support, movement,</p>

St. Katharine's Primary School Science Progression Pathway Year 4 – 1 Electricity

Y4 Electricity	Curriculum Content	Knowledge / Working Scientifically Skills	Vocabulary
<p>Inspirational Scientist: Thomas Edison</p> <p>Prior Learning Y3 Materials Y3 Magnets</p> <p>Resources (See Y4 Science folder) Y4 Smart Notebooks</p> <p>Curriculum Links Maths: bar graphs, decimals (tenths & hundredths), median average</p>	<p>NC Physics</p> <ul style="list-style-type: none"> • identify common appliances that run on electricity; • construct simple series electrical circuits, identifying & naming basic parts: cells, wires, bulbs, switches & 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; • compare and group together everyday materials on the basis of their electrical conductivity. <p>• NC Working Scientifically</p> <ul style="list-style-type: none"> • ask relevant questions and use different types of scientific enquiries to answer them; • set up simple practical enquiries, comparative and fair tests; • make systematic and careful observations and take accurate measurements in seconds using stopwatches; • record data in their own tables and bar charts; • write a conclusion in which they draw simple conclusions, use scientific evidence to answer questions and support their findings, use scientific language, identify differences, similarities or changes related to forces, make predictions for new values, suggest improvements and rise further questions. 	<p>1. To research electrical appliances Memory Minute: Y3 Magnets 1. Research, using a range of secondary sources of information, to identify common appliances that run on electricity and how to work safely with electricity, reporting their findings orally;</p> <p>2. To construct an electrical circuit Memory Minute: Y4 Gravity Investigate constructing circuits. Talk about observations. Record in a labelled diagram Write relevant questions about circuits, construct different circuits observing patterns about the brightness of lamps and report conclusions orally; Use scientific language: cell, battery, volts, electrical current, complete circuit, wire, lamp, buzzer, motor,</p> <p>3. To use a switch to turn components on and off</p> <p>4. To investigate electrical conductors Memory Minute: Y3 Magnets & Materials Set up a comparative test to investigate which materials are the most effective for making a switch in a circuit; Explain that electrical conductors is Set up a fair test using the stopwatch on an iPad to accurately measure the time taken (to the nearest 0.01 second) for spinners with different length arms to fall to the ground. Write a prediction using scientific language (length, area, air resistance, air particle, gravity). Record data in their own 2 column table and bar graph with a scale of 0.1 second intervals. Write a conclusion identifying which spinner has the most and least air resistance. Explain why using scientific language. Give reasons why data may be wrong and suggest improvements. Make predictions for spinners with arms of 5, 10, 15, 20 cm etc.</p> <p>5. To write a conclusion Memory Minute: Y4 Gravity, Friction & Air Resistance 4. Write a conclusion in which they use scientific evidence to answer questions and support their findings, use scientific language and suggest improvements.</p>	<p>circuit, cell, lamp, switch, metal, insulator, conductor, aluminium, brass, bronze, cell, circuit, component, copper, current, electric, iron, nickel, steel, zinc</p> <p>CEW Words</p>

St. Katharine's Primary School Science Progression Pathway Year 4

Y4 Forces	Curriculum Content	Knowledge / Working Scientifically Skills	Vocabulary
<p>Inspirational Scientist: Sir Isaac Newton</p> <p>Prior Learning Y3 Magnets Y4 Space</p> <p>Resources (See Y4 Science folder) Y4 Smart Notebooks</p> <p>Curriculum Links Maths: bar graphs, decimals (tenths & hundredths), median average</p>	<p>NC Physics</p> <ul style="list-style-type: none"> compare how things move on different surfaces; explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object; identify the effects of air resistance, water resistance and friction, that act between moving surfaces. <p>NC Working Scientifically</p> <ul style="list-style-type: none"> ask relevant questions and use different types of scientific enquiries to answer them; set up simple practical enquiries, comparative and fair tests; make systematic and careful observations and take accurate measurements in seconds using stopwatches; record data in their own tables and bar charts; write a conclusion in which they draw simple conclusions, use scientific evidence to answer questions and support their findings, use scientific language, identify differences, similarities or changes related to forces, make predictions for new values, suggest improvements and rise further questions. 	<p>1. To explain why objects fall towards the Earth Memory Minute: Y3 Magnets Jump and throw Anglo-Saxon spears. Discuss observations. Write an explanation of gravity using scientific vocabulary (gravity, force, pull, centre, Earth). Discuss why planets, stars and moons are spherical. Research Sir Isaac Newton's discovery of gravity. The work of Sir Isaac Newton - BBC Teach</p> <p>2. To investigate friction Memory Minute: Y4 Gravity Explain that friction is a force that acts between moving surfaces. Set up a fair test using the stopwatch app on iPads to accurately measure the time taken (to the nearest 0.01 second) for Anglo-Saxon boats (mini board rubbers) to move down the four different friction ramps. Write a prediction using scientific language (surface, smooth, bumpy, friction). Record data in their own 2 or 5 column table, explain how to find the median data (ignore the greatest and least) and bar graph with a scale of 5 second intervals. Write a conclusion identifying which surface has the most and least friction. Explain why using scientific language. Give reasons why data may be wrong and suggest improvements.</p> <p>3. To investigate air resistance Explorify – What goes up must come down Explain that air resistance is a type of friction that acts on objects moving through the air. Demonstrate that the spinner has to move through air particles. Set up a fair test using the stopwatch on an iPad to accurately measure the time taken (to the nearest 0.01 second) for spinners with different length arms to fall to the ground. Write a prediction using scientific language (length, area, air resistance, air particle, gravity). Record data in their own 2 or 5 column table and bar graph with a scale of 0.1 second intervals. Write a conclusion identifying which spinner has the most and least air resistance. Explain why using scientific language. Give reasons why data may be wrong and suggest improvements. Make predictions for spinners with arms of 5, 10, 15, 20 cm etc.</p> <p>4. To investigate water resistance Memory Minute: Y4 Gravity, Friction & Air Resistance Explain that water resistance is a type of friction that acts on objects moving through water. Explain, using a force diagram, the difference between upthrust and water resistance Set up a fair test using the stopwatch on an iPad to accurately measure the time taken (to the nearest 0.01 second) for different shaped playdoh boats to reach the bottom of a 500ml measuring cylinder. Write a prediction using scientific language (streamlined, gravity, upthrust, water resistance). Record data in their own 2 or 5 column table and bar graph with a scale of 0.1 second intervals. Write a conclusion identifying which shape had the most and least water resistance. Explain why using scientific language. Give reasons why data may be wrong and suggest improvements. Write a further question which could be investigated with a reasoned prediction.</p>	<p>force gravity friction air resistance water resistance accelerate decelerate force surface</p> <p>CEW Words push pull earth centre</p>

St. Katharine's Primary School Science Progression Pathway Year 4

Y4 Living Things and their Habitats	Curriculum Content	Knowledge / Working Scientifically Skills	Vocabulary
<p>Inspirational Scientist:</p> <p>Prior Learning Y3 Magnets Y4 Space</p> <p>Resources (See Y4 Science folder) Y4 Smart Notebooks</p> <p>Curriculum Links Maths: bar graphs, decimals (tenths & hundredths), median average</p>	<p>NC Biology</p> <ul style="list-style-type: none"> • 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; • recognise that environments can change and that this can sometimes pose dangers to living things; • construct and interpret a variety of food chains, identifying producers, predators and prey. <p>NC Working Scientifically</p> <ul style="list-style-type: none"> • ask relevant questions and use different types of scientific enquiries to answer them; • set up simple practical enquiries, comparative and fair tests; • make systematic and careful observations and take accurate measurements in seconds using stopwatches; • record data in their own tables and bar charts; • write a conclusion in which they draw simple conclusions, use scientific evidence to answer questions and support their findings, use scientific language, identify differences, similarities or changes related to forces, make predictions for new values, suggest improvements and raise further questions. 	<p>1. To classify animals found on Hengistbury Head Memory Minute: Y2 Classification</p> <p>2. To draw a classification key for 2 animals</p> <p>3. To draw a food chain for Hengistbury Head</p> <p>4. To draw a classification key for gulls</p> <p>5. To draw a food chain for the beach</p>	<p>Habitat, food chain, producer, consumer, prey, predator, carnivore, omnivore, herbivore, vertebrate, invertebrate</p> <p>CEW Words push pull earth centre</p>

St. Katharine's Primary School Science Progression Pathway Year 4

Y4 Skeletons	Curriculum Content	Knowledge / Working Scientifically Skills	Vocabulary
<p>Inspirational Scientist:</p> <p>Prior Learning Y3 Magnets Y4 Space</p> <p>Resources (See Y4 Science folder) Y4 Smart Notebooks</p> <p>Curriculum Links Maths: bar graphs, decimals (tenths & hundredths), median average</p>	<p>NC Biology</p> <ul style="list-style-type: none"> • identify that humans and some animals have skeletons and muscles for support, protection and movement. • <p>NC Working Scientifically</p> <ul style="list-style-type: none"> • ask relevant questions and use different types of scientific enquiries to answer them; • set up simple practical enquiries, comparative and fair tests; • make systematic and careful observations and take accurate measurements in seconds using stopwatches; • record data in their own tables and bar charts; • write a conclusion in which they draw simple conclusions, use scientific evidence to answer questions and support their findings, use scientific language, identify differences, similarities or changes related to forces, make predictions for new values, suggest improvements and rise further questions. 	<ul style="list-style-type: none"> • 1. write relevant questions about skeletons and muscles; • 2. research, using a range of secondary sources of information, to answer them; <p>3. To draw a labelled diagram of a skeleton</p> <ul style="list-style-type: none"> • • 4. report findings, in written form, using a range of simple scientific language and labelled diagrams; <p>4. To investigate patterns in height and length of femur measure accurately using rulers, recording data in their own tables and scatter graphs. Assessment focus: to record accurate measurements in a table</p>	<p>Skull, protection skeleton, support, movement,</p> <p>CEW Words</p>



St. Katharine's Primary School Science Curriculum Overview Year 5

Focus	Curriculum Content	Working Scientifically Skills		Vocabulary
<p>Autumn 1 Kensuke's Kingdom</p> <p>Light: Investigate how Michael can use his knowledge of light to escape from the island.</p>	<ul style="list-style-type: none"> recognise that light appears to travel in straight lines; 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; 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 the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. 	<ul style="list-style-type: none"> take precise, repeated measurements using data loggers and record them in tables and bar charts with scales which increase in increments of 1,000, 2,500 etc. ; record information in light diagrams; plan a fair test, including recognising and controlling variables, to investigate the size of shadows; To record data in a line graph Take precise, repeated measurements using metre rulers and 30cm rulers to the nearest mm, recording them in their own tables and line graphs with scales which increase in increments of 2, 5, 10 etc.; report conclusions, in written forms, in which they identify relationships and explain the degree of trust in results; draw a labelled scientific diagram to explain why shadows have the same shape as the objects that cast them. 		<p>opaque, translucent, transparent, lux, data, data logger, variable, median average, axes, relationship, degree of trust.</p>
<p>Autumn 2 Rooftoppers</p> <p>Electricity: Investigate how to make the lights brighter and the call to prayer louder.</p>	<ul style="list-style-type: none"> associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit; 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; use recognised symbols when representing a simple circuit in a diagram. 	<ul style="list-style-type: none"> To plan a fair test including recognising and controlling variables, to investigate the brightness of lamps and the volume of buzzers; To use a data logger to take precise, repeated measurements Record them in tables and bar or line graphs; To write a conclusion in which they identify relationships, explain results and explain the degree of trust in results, and use test results to make predictions about how to set up further fair tests; To draw a circuit diagram 		<p>aluminium, brass, bronze, cell, circuit, component, copper, current, decibels, electric, electrons, flow, insulator, iron, nickel, steel, symbol, volts, zinc</p>
<p>Spring 1 Tomb Raiders</p> <p>Animals including humans</p>	<ul style="list-style-type: none"> describe the functions of the basic parts of the digestive system in humans; 	<ul style="list-style-type: none"> To draw a labelled diagram of human organs; To research the functions of the digestive system organs. 		<p>bile, bladder, carbon dioxide, digest, digestive, enzymes, excretory, faeces, filter, gullet, hydrochloric, intestines, kidneys, liver, lungs, nutrients, organ, oxygen, oesophagus, protein, pulse, respiration, saliva, starch, stomach, trachea, urine.</p>

<p>Spring 2 KICK</p> <p>Sound: Investigate how to change pitch and volume.</p>	<ul style="list-style-type: none"> • identify how sounds are made, associating some of them with something vibrating; • recognise that vibrations from sounds travel through a medium to the ear; • find patterns between the pitch of a sound and features of the object that produced it; • find patterns between the volume of a sound and the strength of the vibrations that produced it; • recognise that sounds get fainter as the distance from the sound source increases. 	<ul style="list-style-type: none"> • carry out comparative tests to investigate how to change the pitch and volume of a sound; • orally report conclusions in which they identify relationships. 	<p>conductor, decibel, insulator, pitch, spherical, taut, tension, vibrate, vibrations, volume, waves.</p>
<p>Summer 1 Cycles & Circles</p> <p>States of Matter: Investigate the water cycle.</p>	<ul style="list-style-type: none"> • compare and group materials together, according to whether they are solids, liquids or gases; • identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature; • demonstrate that changes of state are reversible changes. 	<ul style="list-style-type: none"> • Research to classify materials as solids liquids or gases, recording results in tables; • record the water cycle in a labelled scientific diagram; • plan an observing changes over time investigation, to investigate their own question about the rate of evaporation; • take precise, repeated measurements using measuring cylinders, recording them in tables and bar or line graphs; • report conclusions, in written forms, in which they identify relationships, explain results and explain the degree of trust in results, and use test results to make predictions about how to set up further fair tests. 	<p>Solid, liquid, gas, vapour, evaporate, evaporation, condense, condensation, solidify, particle, atom, molecule, nitrogen, oxygen, carbon dioxide, argon, hydrogen, helium</p>
<p>Summer 2 Cycles & Circles</p> <p>Animals including Humans: Research to compare the lifecycles of humans, other animals and plants.</p>	<ul style="list-style-type: none"> • describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird; • describe the life process of reproduction in some plants and animals; • describe the changes as humans develop to old age; • recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. 	<ul style="list-style-type: none"> • Research, using a range of secondary sources of information, to classify animals as vertebrates: mammals, birds, fish, amphibians, reptiles, and invertebrates recording results in a table; • observe using microscopes and research, using a range of secondary sources of information, to identify and describe the functions of the reproductive organs of a flowering plant, recording findings in a labelled diagram; • research and compare the life cycles of a flowering plant, a mammal, an amphibian, an insect and a bird, recording findings in labelled diagrams; • research, using a range of secondary sources of information, to investigate the impact of diet, exercise, drugs and lifestyle on the way their bodies function, reporting their findings orally. 	<p>absorb, amphibian, anther, dispersal, disperse, excretion, fertilisation, filament, germinate, germination, invertebrates, mammal, ovary, photosynthesis, pollen, pollination, reproduction, reptile, sepal, stamen, stigma, style</p>



St. Katharine's Primary School Science Curriculum Overview Year 6

Focus	Curriculum Content	Working Scientifically Skills	Vocabulary
<p>Autumn 1</p> <p>Wonder</p> <p>Evolution & Inheritance</p>	<ul style="list-style-type: none"> 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 living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents; identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. 	<ul style="list-style-type: none"> Research, using a range of secondary sources of information, the work of palaeontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution, identifying scientific evidence that has been used to support or refute ideas or arguments; research, using a range of secondary sources of information, their own question about how variation in offspring over time leads to adaptation to environment, recording their findings in labelled diagrams and reporting their conclusions orally. 	<p>Characteristics, inheritance, offspring, palaeontologist, variation.</p>
<p>Autumn 2</p> <p>Pig Heart Boy</p> <p>Animals including humans</p>	<ul style="list-style-type: none"> identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood; describe the ways in which nutrients and water are transported within animals, including humans. 	<ul style="list-style-type: none"> To research the human circulatory system Use a range of secondary sources of information, to identify, name and describe the functions of the circulatory system organs, recording the findings in a labelled diagram. To plan a pattern seeking investigation to investigate their own question about pulse rate; To record data in a scatter graph Take precise, repeated measurements using pulse meters, metre rulers and tape measures and record them in tables and scatter graphs; To write a conclusion in which they identify relationships, explain the degree of trust in results and make predictions about how to set up further tests. 	<p>aorta, atrium, arteries, capillaries, carbon dioxide, circulatory, correlation, deoxygenated, filter, heart, muscles, nutrients, oxygen, oxygenated, protein, pulmonary, pulse, respiration, scatter graph, vein, ventricle, vessels</p>
<p>Spring 1</p> <p>Because There's No Planet B</p> <p>Living things & their habitats</p>	<ul style="list-style-type: none"> 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; give reasons for classifying plants and animals based on specific characteristics; 	<ul style="list-style-type: none"> Research, using a range of secondary sources of information, the work of scientists such as Carl Linnaeus; observe using microscopes and research, using a range of secondary sources of information, to identify animals and plants found in the immediate environment; classify animals as vertebrates: mammals, birds, fish, amphibians, reptiles, and invertebrates: protozoa, coelenterates, flatworms, annelid worms, molluscs, echinoderms or arthropods (arachnids, crustaceans, insects and myriapods) and plants as: flowering plants, conifers, ferns and mosses, recording results in tables and classification keys. 	<p>Vertebrate, mammal, amphibian, reptile, invertebrate, protozoa, coelenterates, flatworms, annelid molluscs, echinoderms, arthropods, arachnids, crustaceans, myriapods, moss, fern, conifer</p>

<p>Spring 2</p> <p>The Boy in the Striped Pyjamas</p> <p>Forces</p>	<ul style="list-style-type: none"> • recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. 	<ul style="list-style-type: none"> • Independently plan a noticing patterns investigation to investigate their own question about levers, pulleys or gears; • take precise, repeated measurements using force meters, recording them in tables and line graphs with equally spaced, labelled scales that fit the page; • report conclusions, in written form, in which they: identify relationships, explain results, explain the degree of trust in results, identify the scientific evidence that has been used to support or refute ideas or arguments, and use test results to make predictions to set up further comparative and fair tests. 	<p>Force, lever, pulley, gear, mechanism, Newtons</p>
<p>Summer 2</p> <p>Ancient Greece</p> <p>Properties and changes of materials</p>	<ul style="list-style-type: none"> • know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution; • use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating; • demonstrate that dissolving and mixing are reversible changes; • 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. 	<ul style="list-style-type: none"> • independently plan a fair test investigation, including recognising and controlling variables, to investigate their own question about the rate of dissolving; • take precise, repeated measurements using stopwatches, thermometers and data loggers, recording them in tables and line graphs with equally spaced, labelled scales that fit the page; • report their conclusions, in written form, in which they: identify relationships, explain results, explain the degree of trust in results, identify the scientific evidence that has been used to support or refute their ideas or arguments, and use test results to make predictions to set up further comparative and fair tests; • independently plan an investigation, to investigate their own question about separating mixtures reporting their conclusions in a labelled diagram; • independently plan an observing changes over time investigation to classify changes as reversible or irreversible, recording results in tables and reporting their conclusions orally, identifying the scientific evidence that has been used to support or refute their ideas. 	<p>Dissolve, solute, solvent, saturated, evaporate, filtration, reversible, irreversible, carbon dioxide, bicarbonate of soda, anomaly</p>