

William Leech CofE Primary - Science Overview



<p>By the end of the EYFS we would like our young scientists to:</p>	<p>Understanding the World</p> <ul style="list-style-type: none"> ● Be able to explore collections of things ● Be curious and ask questions ● Sort/classify according to different criteria ● Talk about the changes in the seasons and weather ● Observe carefully and talk about what they notice ● Know what plants need to be able to grow and to know the simple features of a plant ● Identify and be able to draw pictures of some plants and animals and talk about different habitats ● Know the life cycle of a butterfly and frog ● Know what different things are made of and name common materials and simple properties ● Understand simple forces eg. push and pull) ● Understand that some things float and sink ● Know similarities and difference between themselves and others
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Enquiry	Working Scientifically
<p>Y1</p>	<p><u>End points</u></p> <p>To ask simple questions</p> <p>To observe closely, using simple equipment, where all the numbers are marked on the scale</p> <p>To perform simple tests</p> <p>To sort objects into two groups</p> <p>To make observations linked to answering a question</p> <p>To record data in a prepared table or pictorially</p> <p>To be able to talk about they have found out</p>

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Y2	<p><u>End points</u></p> <ul style="list-style-type: none"> To ask simple questions and recognise they can be answered in different ways To begin to ask their own questions or choose a question from a range provided To observe closely, using simple equipment To begin to choose their own equipment and decide what to observe, what to do or what to measure To perform simple tests To be able to decide how to sort and group objects and living things To be able to compare objects on obvious observable features To make observations linked to answering a question To record data in a prepared table To be able to talk about what they have found and how they found it out To begin to notice patterns and relationships.
Y3	<p><u>End points</u></p> <ul style="list-style-type: none"> To ask a range of questions linked to an Enquiry To set up a simple practical enquiry To begin to decide what to change and what to measure or observe. To begin to look for naturally occurring patterns and relationships and take accurate measurements using standard units. To present what they have learned verbally, or using Venn diagrams, Carroll diagrams, labelling diagrams, tables, bar charts or graphs. To be able to draw simple conclusions and answer their question using simple scientific language. To use results from an investigation to make a prediction about a further result. To begin to suggest ways of improving what they have already done.
Y4	<p><u>End Points</u></p> <ul style="list-style-type: none"> To ask relevant questions and using different types of scientific enquiries to answer them To set up simple practical enquiries To decide what to change, what to measure or observe and how often to take a measurement To look for naturally occurring patterns and relationships and take accurate measurements using standard units, where not all numbers are marked on the scale and take repeat readings where necessary To use a range of equipment, including thermometers and data loggers To gather, record, classify and present data in a variety of ways to help in answering questions, such as labelled diagrams, keys, tables or graphs To be able to identify patterns, changes, similarities and differences in their data and refer directly to their evidence when answering their question To use results to draw simple conclusions and make predictions for new values. To suggest limitations and improvements to what they have already done. To suggest new questions arising from an investigation

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Y5	<p><u>End Points</u></p> <p>To select and plan the most appropriate type of scientific enquiry to use to answer scientific questions.</p> <p>To recognise and decide which variables to control where necessary.</p> <p>To take measurements, using a range of scientific equipment, which includes scales involving decimals,</p> <p>To record data, taking repeat readings where appropriate</p> <p>To record results of increasing complexity using a range of scientific diagrams and labels, classification keys, tables, scatter graphs, bar or line graphs</p> <p>To use test results to make predictions to set up further comparative and fair tests</p> <p>To provide oral and written reports for their findings, including explanations, conclusions and causal relationships</p> <p>To begin to use relevant scientific language to discuss, communicate and justify their scientific ideas</p>
Y6	<p><u>End points</u></p> <p>To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>To choose an appropriate form of presentation to present result and findings, such as using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>To use test results to make predictions to set up further comparative and fair tests</p> <p>To report and presenting findings from enquiries, including conclusions, causal relationships</p> <p>To be able to answer their questions using scientific evidence gained from a range of sources and then talk about their degree of trust in the sources they used</p>

Enquiry	Y1/2 and Y2/3 – Year A
<p>Autumn 1- Continuous Provision</p> <p>What's in our World?</p>	<p><u>Powerful Knowledge</u></p> <p>Recall: Name and identify a range of animals, e.g. pets, zoo, sea life</p> <p>Research: Name, identify and group animals that could live in a farm, as a house pet, in the wild and in the garden (mini-beasts)</p> <p>Research: Create a habitat that a mini-beast could live in.</p> <p>Recall- What are the 4 seasons?</p>

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	<p>Research- What are the changes across the 4 seasons?</p> <p>End points</p> <p>To name a variety of common animals</p> <p>_To know the four seasons</p> <p>To begin to know what the changes are across the four seasons</p> <p><u>Key Vocabulary</u></p> <p>spring, summer, autumn, winter, weather, season</p>	
<p>Local Study: Where do I live and what is my past?</p>	<p><u>Powerful Knowledge</u></p> <p><u>Biology</u></p> <p>Recall: Can you name the basic parts of the human body? (head / neck / arms / elbows / legs / knees / face / ears / eyes / hair / mouth / teeth)</p> <p>Recall: Can you name the five senses?.</p> <p>Research: Which part of the body is associated with each sense?</p> <p>Reasoning: Compare different textures, sounds and smells using the senses (when describing the area in which they live)</p> <p><u>Working scientifically</u></p> <p>Do people with longer arms have longer legs?</p> <p><u>End points</u></p> <p>To know basic parts of the human body</p> <p>To know the five senses</p> <p>To know which body part is associated with each sense</p> <p><u>Key vocabulary</u></p> <p>Taste, touch, sight, sound, smell, head, neck, arms, elbow, legs, knees, face, ears, eyes, hair, mouth teeth</p>	
<p>Assessment</p>	<p><u>WTS</u></p>	<p><u>GDS</u></p>

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<p>Plants and Leaves: Does everything change when the seasons change?</p>	<p><u>Powerful Knowledge</u> <u>Biology / Physics</u> Recall: Can you name the four seasons ? Recall: Can you name a variety of common wild and garden plants? Recall: What are the differences between deciduous trees and evergreen trees?. Research: What are the changes across the four seasons? Research: What is the basic structure of a common flowering plant? (leaves / flowers / petals / fruit / roots / bulb / seed / trunk / branches / stem). Reasoning: Compare how weather and day length changes with the seasons. Reasoning: Compare and contrast familiar plants and how they change over time.</p> <p><u>Working scientifically</u> Sort leaves, seeds and flowers in different ways. Take rain measurements and make observations over time.</p> <p><u>End points</u> To name a variety of common wild and garden plants To understand the terms ‘deciduous’ and ‘evergreen’ To know the basic structure of a common flowering plant To know how plants change over time To know the four seasons To know what are the changes across the four seasons To know how weather and day length changes with the seasons</p> <p><u>Key vocabulary</u> leaves, stem, petals, fruit, root, bulb, seed, branch, flower, trunk, deciduous, evergreen, spring, summer, autumn, winter, day, night, weather</p>	
<p>Assessment</p>	<p><u>WTS</u></p>	<p><u>GDS</u></p>
<p>Food: Where does our food come from?</p>	<p><u>Powerful knowledge</u> <u>Biology</u> Recall: Can you name a variety of common animals including fish, amphibians, reptiles, birds and mammals? Recall: What are the differences between herbivores, carnivores and omnivores? Research: Which common animals are a carnivore, a herbivore and an omnivore?</p>	

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	<p>Reasoning: Compare the structure of common animals including pets. (fish / amphibians / reptiles / birds / mammals)</p> <p><u>Working scientifically</u> Do all insects have 6 legs?</p> <p><u>End points</u> To name a variety of common animals To understand the difference between a herbivore, carnivore and omnivore To know the structure of a variety of common animals</p> <p><u>Key Vocabulary</u> fish, birds, mammals, reptiles, amphibian, herbivore, omnivore, carnivore</p>	
Assessment	<u>WTS</u>	<u>GDS</u>
<p>Toys: Which toys would I find in my Grandparent's Attic?</p>	<p><u>Powerful Knowledge</u></p> <p><u>Chemistry</u> Recall: Can you name a variety of everyday materials? (wood / plastic / glass / metal / water / rock) Recall: Can you name identify an object and the material from which it is made? Research: What are the properties of everyday day materials? (hard / soft / shiny / dull / rough / smooth / flexible /not flexible) Reasoning: Compare everyday materials on the basis of their properties. Reasoning: Compare and contrast materials for suitability of different jobs.</p> <p><u>Working scientifically</u> Test materials to see how effective they are. (Which is the most suitable material for Paddington's raincoat?)</p> <p><u>End points</u> To name some everyday materials To know the properties of these everyday materials To understand that certain materials are better suited than others when making objects</p> <p><u>Key vocabulary</u> metal, plastic, paper, wood, glass, rock, material, properties, suitable, flexible, non-flexible</p>	

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Assessment	<u>WTS</u>	<u>GDS</u>
<p>The Northumberland Coast : Why is Grace Darling admired by Northumbrians? What treasures can be found on our coastline?</p>	<p>No Science (Could look at materials - flotsam and jetsam - to prepare for or review materials in Toys enquiry))</p>	

Enquiry	Y1/2 and Y2/3 – Year B
<p>Do polar bears and penguins ever meet?</p>	<p><u>Powerful Knowledge</u> <u>Biology</u> <u>Recall:</u> What is the difference between a habitat and a microhabitat? <u>Recall:</u> Can you name a variety of plants and animals and their habitats? <u>Research:</u> How do animals obtain their food from plants or other animals? (simple food chains) <u>Reasoning:</u> Explain how 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. How do they depend on each other? <u>Reasoning:</u> Compare animals in familiar habitats with animals in less familiar habitats. (seashore / woodland / ocean / rainforest)</p> <p><u>Working scientifically</u> How are penguins suited to their home? What living things can be found in muddy microhabitats?</p> <p><u>End points</u> To know the difference between a habitat and a microhabitat To know a variety of plants and animals and their habitats To know how habitats are suited to the plant or animal that lives there To know what a simple food chain is and explain how it works</p> <p><u>Key vocabulary</u></p>

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	microhabitat, habitat, food chain, seashore, woodland, ocean, rainforest	
Assessment	<u>WTS</u>	<u>GDS</u>
The Great Fire of London: What happened in Pudding Lane?	<p><u>Powerful Knowledge</u></p> <p><u>Chemistry</u> Recall: What are the uses of everyday materials? (wood / metal / plastic / glass / brick / rock / paper / cardboard) Recall: What are the properties of everyday materials? Research: How can the shape of solid objects be changed? (squashing / bending / twisting / stretching) Research: Who is John Dunlop / Charles Macintosh / John McAdam? What did they develop? Reasoning: Explain the suitability / unsuitability of everyday materials for particular uses.</p> <p><u>Working scientifically</u> Test materials to see how effective they are. (Which material is most suitable for the maids mop?)</p> <p><u>End points</u> To know the uses of everyday materials To know the properties of everyday materials To know that the shape of a solid object can be changed by squashing, bending, twisting, stretching To be able to explain the suitability or unsuitability of everyday materials for a particular use To know who John McAdam, John Dunlop or Charles Macintosh is and know the material they developed</p> <p><u>Key vocabulary</u> properties, suitability, compare, solid, squash, bend, twist, stretch</p>	
Assessment	<u>WTS</u>	<u>GDS</u>
Health How do I live a healthy life?	<p><u>Powerful Knowledge</u></p> <p><u>Biology</u> Recall: Do all animals, including humans, have offspring which grow into adults?. Recall: What do animals need to survive? Research: What do humans need to stay healthy? Research: How do humans stay fit and healthy? (exercise / good hygiene / eating the right amounts of different types of food) Reasoning: Explain and compare the life cycles of a frog / butterfly / human.</p> <p><u>Working scientifically</u> What happens to my body during and after exercise?</p>	

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	<p><u>End points</u> To know that animals including humans have offspring that grow into adults To know animals including humans need water, food and air to survive To know what humans need to exercise, eat a balanced diet and have good hygiene to stay fit and healthy To understand the differences in life cycles between a frog, butterfly and a human.</p> <p><u>Key vocabulary</u> offspring, baby, toddler, child, teenager,, adult, survival, healthy, life cycle</p>	
<p>Assessment</p>	<p><u>WTS</u></p>	<p><u>GDS</u></p>
<p>Plants: How does your garden grow?</p>	<p><u>Powerful knowledge</u> <u>Biology</u> Recall: Can you describe how seeds and bulbs grow into flowering plants? Research: What do plants need to grow and stay healthy? Reasoning: Compare similar plants at different stages of growth. What is the same? What is different? Reasoning: Observe and explain how the growth of a variety of plants changes over time. <u>Working scientifically</u> Do big seeds germinate more quickly?</p> <p><u>End points</u> To know that seeds and bulbs grow into flowering plants To know what plants need to grow and be healthy To understand how the growth of a plant changes over time</p> <p><u>Key vocabulary</u> water, light, nutrients, warmth, germination</p>	
<p>Assessment</p>	<p><u>WTS</u></p>	<p><u>GDS</u></p>
<p>Explorers: Who was the best explorer - Columbus or Armstrong?</p> <p>NO LINK - TEACH DISCREETLY</p>	<p><u>Powerful Knowledge</u> <u>Biology</u> Recall: Can you name the seven life processes?. (MRS GREN) Recall: What is the difference between a living organism, a dead organism and an organism that has never been alive?. Research: What things are living, dead or never been alive? Reasoning: Explain the differences between things that are living, dead and things that have never been alive.</p>	

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	<p><u>End points</u> To know the seven life processes To know the difference between a living, dead and never alive organism To name things that are living, dead or have never been alive</p> <p><u>Key vocabulary</u> alive, dead, movement, respiration, sensitivity, growth, reproduction, excretion, nutrition, life process</p>	
Assessment	<p><u>WTS</u></p>	<p><u>GDS</u></p>

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Enquiry	Y1/2 and Y2/3 – Year C	
<p>Ancient Greece What were the wonders of Ancient Greece? <i>Key concept: Civilisation</i></p>	<p><u>Powerful Knowledge</u> <u>Physics</u> Recall: Where were magnets discovered? (loadstones/Magnesia) Recall: Can magnets attract or repel each other. Recall: Do magnets have two poles? Recall: What are the everyday uses of magnets? Research: Do forces need contact or can they act at distance? Research: Which materials are attracted to a magnet? Research: Which is the strongest magnet? Reasoning: Compare how things move on different surfaces. Reasoning: Explain whether two magnets will attract or repel each other, depending which pole they are facing.</p> <p><u>Working scientifically</u> Does the size of a magnet affect its power?</p> <p><u>End points</u> To know that magnets can attract or repel each other To know which materials are attracted to a magnet To know that magnets have two poles To know everyday uses of magnets To understand that a magnetic force can act at distance To understand that things move differently on different surfaces</p> <p><u>Key vocabulary</u> force, magnet, attract, repel, magnetic, non-magnetic, poles</p>	
<p>Assessment</p>	<p><u>WTS</u></p>	<p><u>GDS</u></p>
<p>Volcanoes</p>	<p><u>Powerful Knowledge</u></p>	

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<p>Could you live near a volcano?</p>	<p>Chemistry Recall: What is a fossil? Recall: What is soil made up of? Research: How are fossils formed? Reasoning: Compare and contrast different rocks on the basis of their appearance and simple physical properties. Reasoning: Compare and contrast different types of soil.</p> <p>Working scientifically Which soil would a farmer or a gardener prefer?</p> <p>End points To know what a fossil is and how they are formed To know how soil is made To name different types of rocks and soil To know similarities and differences between different rocks and soils.</p> <p>Key vocabulary rock, sedimentary, igneous, metamorphic, fossil, soil</p>	
<p>Assessment</p>	<p>WTS</p>	<p>GDS</p>
<p>George Stephenson: How did transport change because of George Stephenson?</p>	<p style="text-align: center;">(Could include Forces)</p>	
<p>Plants How do plants adapt to their surroundings?</p>	<p>Powerful Knowledge Biology Recall: What are the functions of the different parts of a flowering plant?. (roots / stem / trunk / leaves / flower) Recall: What is the life cycle of a flowering plant? Research: How is water transported within plants? Reasoning: Explain what plants need for life and growth and how this varies from plant to plant. Reasoning: Explain and compare the effect of different factors on plant growth. (the amount of light given or fertiliser used)</p> <p>Working scientifically What do plants need to grow and thrive? Investigate what happens when conditions are changed (light/dark/ cold/hot wet/dry/ food/no food)</p>	

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	<p><u>End points</u> To know the functions of different parts of flowering plants To explain the life cycle of a flowering plant To know how water is transported within plants To explain what plants need for life and growth and how this changes from plant to plant</p> <p><u>Key vocabulary</u> pollination, seed formation, seed dispersal, life cycle</p>	
Assessment	<u>WTS</u>	<u>GDS</u>
<p>Local Study Why are fishing/coal at the heart of our community: now and in the past?</p>	<p><u>Powerful Knowledge</u></p> <p><u>Physics</u> Recall: What is the difference between light and dark? Recall: How is light reflected off surfaces?. Research: Why should we protect our eyes from light from the sun? Research: How are shadows formed? Research: Do shadows change in size or are they always the same? Reasoning: Find and explain patterns in the way that the size of a shadow changes.</p> <p><u>Working scientifically</u> What is the most suitable material for a cyclist to stay safe in the dark?</p> <p><u>End points</u> To know the difference between light and dark To understand why we should protect our eyes from light from the sun To know how shadows are formed To explain changes in shadows</p> <p><u>Key vocabulary</u> light, dark, shadow, opaque, translucent, transparent, reflect</p>	

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Assessment	<u>WTS</u>	<u>GDS</u>
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Enquiry	Y4/5 and Y5/6 – Year A	
<p>Stone Age to Iron Age: How did people survive in the prehistoric ages?</p>	<p><u>Powerful Knowledge</u> <u>Biology</u></p> <p>Recall: How do food and drink provide the energy and nutrients you need to be healthy. (animals and humans can not make their own) Research: What makes up a healthy, balanced diet? (How was food sourced in the prehistoric age? Was it a healthy diet?) Research: What are the main body parts associated with the skeleton and muscles? Recall: Why humans and some animals have skeletons. Reasoning: Compare animals with and without skeletons. Reasoning: Explain what would happen if humans didn't have skeletons.</p> <p><u>Working scientifically</u> Do people with longer arms throw further?</p> <p><u>End points</u> To know that humans and some animals have skeletons and muscles for support, protection and movement To understand that food and drink provide energy and nutrients to animals and humans so they can be healthy To know animals, including humans can not make their own food To know what a balanced diet is made up of To know the main body parts associated with the skeleton and muscles</p> <p><u>Key vocabulary</u> skull, jaw, spine, vertebrate, humerus, ulna, radius, tibia, fibula, sternum, femur, rib cage, pelvis, skeleton, muscle, support, protection, movement, energy, healthy, diet</p>	
<p>Assessment</p>	<p><u>WTS</u></p>	<p><u>GDS</u></p>

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<p>Ancient Egypt: What are the secrets of Ancient Egypt as an early civilisation?</p> <p><i>Key concept: Rich and Poor (Peasantry)</i></p> <p>NO LINK - TEACH DISCREETLY</p>	<p><u>Powerful Knowledge</u></p> <p><u>Physics</u></p> <p>Recall: How is a sound made? Recall: How do vibrations from sounds travel through a medium to the ear?. Research: What happens to a sound as the distance from the sound source increases? (gets fainter) Research: How can the pitch and volume of sound be changed? Reasoning: Explain patterns between the pitch of a sound and features of the object that produced it. Reasoning: Explain patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p><u>Working scientifically</u> Which material would be most suitable for ear defenders?</p> <p><u>End points</u> To know how sounds are made To understand that vibrations from sounds travel through the medium of the ear To understand the link between sound and distance (If the distance increases the sound gets fainter) To know how the pitch and volume of a sound can be changed To explain patterns between pitch of a sound and the features of the object that produced it To explain patterns between volume of a sound and the strength of the vibrations that produced it</p> <p><u>Key Vocabulary</u> vibration, loud, quiet, volume, pitch</p>	
<p>Assessment</p>	<p><u>WTS</u></p>	<p><u>GDS</u></p>
<p>Electricity and sound: In a world of powering up, how can we power down?</p>	<p><u>Powerful Knowledge</u></p> <p><u>Physics</u></p> <p>Recall: What are some common appliances that run on electricity?. Recall: Can you name the basic parts of an electrical circuit? (cell / wire / bulb / switches / buzzer). Recall: Can you name some common conductors and insulators? Research: How can we get the lamp to light? Research: How can we make the lamp brighter? Research: What does a switch do to a simple series circuit? Reasoning: Explain why some materials can be used and some can not be used to connect a gap in a circuit.</p> <p><u>Working Scientifically</u></p>	

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	<p>Which materials conduct an electrical current?</p> <p><u>End points</u> To name common appliances that run on electricity To name the basic parts of an electrical circuit To name some common conductors and insulators To understand how to get a lamp to light in a simple series circuit To know the role of a switch in a simple series circuit</p> <p><u>Key vocabulary</u> electricity, wire, bulb, buzzer, cell, battery, switch, conductor, insulator, series circuit</p>	
Assessment	<u>WTS</u>	<u>GDS</u>
<p>Romans: How did the Roman Empire develop, grow and fall?</p> <p><i>Key concept: Empire</i></p>	<p>No Science</p>	
<p>Habitats: What makes a home habitable?</p>	<p><u>Powerful Knowledge</u> <u>Biology</u> Recall: Can you name a variety of living things in their local and wider environment?. (using classification keys to help with identification) Research: How do habitats change throughout the year? Research: How can living things be grouped? (vertebrate / invertebrates / fish / amphibians / reptiles / birds / mammals / insects / flowering plants / non-flowering plants) Reasoning: Explain how changes in the environment can pose dangers to living things. (population and developments / litter / deforestation) Reasoning: Explain how human impact on the environment can have a positive effect. (nature reserve / ecologically planned parks / garden ponds)</p> <p><u>Working scientifically</u> How can living things in our local environment be classified?</p> <p><u>End points</u></p>	

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	<p>To be able to use classification keys to identify a variety of living things in their local and wider environment To understand how living things can be grouped To know how environments and habitats can change To understand that changes (population, developments, litter, deforestation) can pose dangers to living things To know that human impact can have a positive effect on the environment (nature reserve, ecologically planned parks, garden ponds)</p> <p><u>Key vocabulary</u> environment, classification, identification, vertebrate, invertebrate, human impact</p>	
Assessment	<u>WTS</u>	<u>GDS</u>
<p>Britain's Settlement by the Anglo-Saxons and Scots: Raid, abandon, settle and convert?</p> <p><i>Key concept: Christian Conversion</i></p> <p>NO LINK - TEACH DISCREETLY</p>	<p><u>Powerful knowledge</u> <u>Biology</u> Recall: Can you name the main body parts associated with the digestive system? Recall: Can you name the different types of teeth in humans? Recall: What are the difference between a producer, a predator and prey? Research: How does the digestive system work? Research: What is the function of our different teeth? Research: How can we look after our teeth?</p> <p><u>Working scientifically</u> What happens to the food we eat?</p> <p><u>End points</u> To know the main body parts associated with the digestive system To understand how the digestive system works To know the different types of human teeth To know the functions of the different teeth To understand how you can look after your teeth To know the difference between a producer, prey and a predator</p> <p><u>Key vocabulary</u> digestive system, mouth, oesophagus, stomach, small intestine, large intestine, teeth, canine, incisor, molar, food chain, producer, prey, predator</p>	
Assessment	<u>WTS</u>	<u>GDS</u>

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Enquiry	Y4/5 and Y5/6 – Year B	
<p>The Viking and Anglo-Saxon struggle for the Kingdom of England to the time of Edward the Confessor</p> <p>How did the Kingdom of England come to be?</p>	<p><u>Powerful Knowledge</u></p> <p><u>Physics</u></p> <p>Recall: Which star is at the centre of the Solar System? Recall: Can you name the eight planets in our Solar System? Recall: Are the Sun, Earth and Moon spherical bodies? Research: How do we get day and night? Reasoning: Describe the movement of the Earth and other planets, relative to the Sun in the Solar System. Reasoning: Describe the movement of the Moon relative to the Earth.</p> <p><u>Working Scientifically</u></p> <p>Investigate what happens to the number of daylight hours during the year.</p> <p><u>End points</u></p> <p>To know the sun is a star at the centre of our solar system To know the eight planets in our solar system To know the Sun, Moon and Earth are spherical bodies To understand how we get day and night To be able to describe the movement of the Earth and other planets in our solar system in relation to the sun To be able to describe the movement of the Moon in relation to the Earth</p> <p><u>Key vocabulary</u></p> <p>solar system, space, Sun, Moon , Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune</p>	
<p>Assessment</p>	<p><u>WTS</u></p>	<p><u>GDS</u></p>
<p>European Country Study: Who are our European neighbours?</p> <p>NO LINK - TEACH DISCREETLY</p>	<p><u>Powerful Knowledge</u></p> <p><u>Biology</u></p> <p>Recall: What is reproduction?. Recall: What is the difference between sexual and asexual reproduction. Research: How do some plants and animals reproduce? Reasoning: Describe the differences in life cycles of a mammal, an amphibian, an insect and a bird.</p> <p><u>Working scientifically</u></p>	

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	<p>How can you grow a plant without a seed?</p> <p><u>End points</u> To know what reproduction is To know the difference between sexual and asexual reproduction To know how some plants and animals reproduce To know the difference in life cycles between a mammal, an amphibian, an insect and a bird To understand that characteristics from parents are passed to their offspring</p> <p><u>Key vocabulary</u> sexual, asexual, pollen, stigma, style, ovary, ovule, filament, anther, reproduction</p>	
Assessment	<u>WTS</u>	<u>GDS</u>
<p>Plastic Materials Has Leo Baekeland's invention become a climate disaster?</p>	<p><u>Powerful Knowledge</u></p> <p><u>Chemistry</u> Recall: Do some materials dissolve in a liquid and form a solution? Research: How can mixtures be separated? Research: Which changes are reversible and which are not usually reversible? Reasoning: Compare everyday materials on the basis of their properties. (hardness / solubility / transparency / conductivity / response to magnets) Reasoning: Give reasons (using evidence from comparative tests) for the particular uses of everyday materials.</p> <p><u>Working scientifically</u> What factors affect the rate of evaporation? Size/shape of container, starting temperature of water etc What is the best materials for keeping liquids hot or ice cold?</p> <p><u>End points</u> To know some materials will dissolve in a liquid to form a solution To know how to separate a mixture To know how to recover a substance from a solution To understand that some changes are reversible and some are not usually reversible (formation of a new material) To be able to compare everyday materials on the basis of their properties</p>	

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	<p>To give reasons (based on comparative testing) for uses of everyday materials</p> <p>Key vocabulary reversible, irreversible, melt, dissolve, sieve, filter, evaporate, solution, mixture</p>	
Assessment	WTS	GDS
<p>Women’s Impact on British History: How have women shaped and influenced our nation and beyond?</p> <p>NO LINK - TEACH DISCREETLY</p>	<p>Powerful Knowledge</p> <p>Physics Recall: What are the differences between gravity, friction, water resistance and air resistance? Research: How does air resistance, water resistance and friction act between moving surfaces? Reasoning: Explain how levers, pulleys and gears allow smaller forces to have a greater effect.</p> <p>Working Scientifically Does the size/shape/material of a parachute affect the rate in which it falls? Investigate and identify the effect of boat shapes on water resistance</p> <p>End points To know the difference between gravity, friction, water resistance and air resistance To understand how air resistance, water resistance and friction act between moving surfaces To be able to explain how levers, pulleys and gears allow smaller forces to have a greater effect</p> <p>Key vocabulary gravity, air resistance, water resistance, friction, force, lever, pulley, gear</p>	
Assessment	WTS	GDS
SRE Should I be the same or unique?	<p>Powerful Knowledge</p> <p>Biology</p>	

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	<p>Recall: What are the main phases in human development? Research: What happens during puberty? Reasoning: Describe the changes as humans develop into old age. Reasoning: Compare gestation periods of different animals. Recall: Which characteristics are passed from parents to their offspring?. (living things produce offspring of the same kind - normally these vary and are not identical to their parents)</p> <p><u>Working scientifically</u> Compare and contrast gestation period, average number of offspring and the life span of different animals. Is there a relationship between the size of the animal and the gestation period?</p> <p><u>End points</u> To know what happens during puberty To know and describe the different phases in human development To know gestation periods of different animals</p> <p><u>Key vocabulary</u> puberty, menstruation, hormones, childhood, adulthood, gestation, pregnancy</p>	
Assessment	<u>WTS</u>	<u>GDS</u>

<p>Rivers: Does a river always travel from source to sea?</p>	<p><u>Powerful Knowledge</u> <u>Chemistry</u> Recall: What are the differences between a solid, a liquid and a gas?. Research: How do some materials change when they are heated or cooled? Research: What is the role of evaporation and condensation in the water cycle? Reasoning: Compare and contrast different solids, liquids and gases. Reasoning: Explain how the rate of evaporation in the water cycle changes with temperature.</p> <p><u>Working scientifically</u> What affects the melting rate of ice? (size of pieces, temperature of water)</p> <p><u>End points</u></p>	
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	To know the difference between a solid, liquid and a gas To understand that some materials change when they are heated or cooled To understand the role of evaporation and condensation in the water cycle To understand the link between evaporation and condensation with temperature <u>Key vocabulary</u> solid, liquid, gas, state, evaporation, condensation, water cycle	
Assessment	<u>WTS</u>	<u>GDS</u>

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Enquiry	Y4/5 and Y5/6 – Year C	
<p>Power, Law, Crime and Punishment: What are the key trends and changes to laws and the impact of parliament since 1066?</p> <p><i>Key concept: Parliament</i></p> <p>NO LINK - TEACH DISCREETLY</p>	<p><u>Powerful Knowledge</u> <u>Physics</u> Recall: What are the recognised symbols when representing a simple circuit diagram?. (lamp, buzzer / wire / cell / switch / motor) Research: How does the brightness of a lamp or volume of a buzzer change with the number and voltage of cells used in a circuit? Reasoning: Compare and give reasons for variation in how components function. (brightness of bulb, loudness of buzzer and the on/off position of switches)</p> <p><u>Working scientifically</u> Which is the most suitable circuit for Christmas Tree lights? What happens to the brightness of the bulbs if I add more bulbs? What happens to the brightness of the bulbs if I add more cells? What happens to the buzzer if I add more cells?</p> <p><u>End points</u> To know the symbols that represent that main parts in a series circuit To know how the brightness of a lamp or volume of a buzzer changes with the number of voltage of cells used in a circuit To be able to give reasons for variations in how components function (brightness of bulbs, loudness of buzzers and the on/off position of switches)</p> <p><u>Key vocabulary</u> circuit, current, voltage, symbol, variation</p>	
<p>Assessment</p>	<p><u>WTS</u></p>	<p><u>GDS</u></p>
<p>Mayans Why are they ‘written’ into our History books?</p> <p><i>Key concept: Civilisation</i></p>	<p><u>Powerful Knowledge</u> <u>Physics</u> Recall: How does light travel? Research: How do we see objects? Research: How does a periscope work? Reasoning: Explain how we see things. Reasoning: Explain why shadows have the same shape as the object that cast them.</p> <p><u>Working scientifically</u></p>	

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	<p>Investigate what affects the size/ shape or direction of a shadow?</p> <p><u>End points</u> To know that light appears to travel in straight lines To know how we see objects To know how a periscope works To be able to explain why shadows have the same shapes as the object that cast them</p> <p><u>Key vocabulary</u> reflection, light source, periscope</p>	
Assessment	<u>WTS</u>	<u>GDS</u>
<p>Extreme Earth Is our Earth Extreme?</p>	<p><u>Powerful Knowledge</u> <u>Biology</u> Recall: How have living things on Earth changed over time?. Research: What do fossils tell us? Research: How might adaptation lead to evolution? Reasoning: Explain how certain plants and animals have adapted to suit their environment.</p> <p><u>Working Scientifically</u> Investigate the way in which variation in beak shape is related to the available food sources within an environment.</p> <p><u>End points</u> To know that living things on Earth have changed over time and how they have changed To know why fossils are important To know that living thing produce offspring of the same kind but they vary to their parents and are not identical To know how might adaptation lead to evolution To be able to explain how plants and animals have adapted to suit their environment</p> <p><u>Key vocabulary</u> fossil, evolution, adaptation, characteristics</p>	
Assessment	<u>WTS</u>	<u>GDS</u>

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<p>Working Scientifically: Why do we need to experiment and test as a scientist?</p>	<p>Powerful Knowledge Biology Recall: Can you name the main parts of the human circulatory system? (heart / arteries / veins / blood) Research: What are the functions of the heart, blood vessels and blood in the human circulatory system? Research: How are nutrients and water transported within animals, including humans? Reasoning: Explain the impact of diet, exercise, drugs and lifestyle on the way bodies function.</p> <p>Working scientifically How does exercise affect our heart rate?</p> <p>End points To know the main parts of the human circulatory system To know the function of the heart, blood vessels and blood in the human circulatory system To know how nutrients and water is transported within animals, including humans To know the impact of diet, exercise, drugs and lifestyle on the human body</p> <p>Key vocabulary circulatory system, arteries, veins, blood, blood vessels, heart, lifestyle</p>	
<p>Assessment</p>	<p>WTS</p>	<p>GDS</p>
<p>RSHE/PHSCE/Transition Is it good to be different?</p>	<p>Powerful Knowledge Biology Recall: What the classification system is and how it works. Research: How are living things classified into broad groups? Research: Can broad groups be subdivided? Research: Who is Carl Linnaeus?</p>	

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	<p>Reasoning: Explain reasons for classification of plants and animals.</p> <p><u>Working scientifically</u> Investigate what conditions affect the rate of growth of a microorganism on food.</p> <p><u>End points</u> To know what the classification system is and explain how it works To understand how living things can be classified into broad groups and then subdivided into smaller groups To be able to explain reasons for classifications of plants and animals To know who Carl Linnaeus is and why he is famous</p> <p><u>Key vocabulary</u> classification, characteristics, micro organism, sub divided</p>	
Assessment	<u>WTS</u>	<u>GDS</u>