



Whole School Science Overview

Class	Year A	Year B
Holly Berries	Working Scientifically: <ul style="list-style-type: none"> ➤ Asking simple questions and realising they can be answered in different ways. ➤ Observing closely, using equipment. ➤ Performing simple tests. ➤ Identifying and classifying. ➤ Using observations and ideas to suggest answers to questions. ➤ Gathering and recording data to help in answering questions. 	
	Seasonal changes Where do the leaves go for winter? Geography link Plants Which birds and plants would Little Red Riding Hood find in the Forest of Dean? Everyday materials What material should the Three Little Pigs have used to build their house	Living things and their habitat Why would a dinosaur not make a good pet? Geography link – hot and cold areas of the world Animals, including humans How will 5 a day keep me healthy?
Chestnut	Working Scientifically: <ul style="list-style-type: none"> ➤ Asking relevant questions and using different types of scientific enquiries to answer them. ➤ Setting up simple practical enquiries, comparative and fair tests. ➤ Making systematic and careful observations and, where appropriate taking accurate measurements using standard units, using a range of equipment , including thermometers and data loggers. ➤ Gathering, recording , classifying and presenting data in a variety of ways to help in answering questions. ➤ Reporting on findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables. ➤ Reporting on findings from enquiries, including oral and written explanations, displays or presentations or results and conclusions. ➤ Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. ➤ Identifying differences, similarities or changes related to simple scientific ideas and processes. ➤ Using straightforward scientific evidence to answer questions or to support their findings. 	
	Plants How did that blossom become an apple? Living things and their habitats Which animals thrive in the Forest of Dean? Rocks	Forces and Magnets Are magnets 'sticky'? Animals, including humans How can Usain Bolt move so quickly? States of matter How would you survive without water?

	<p>What do rocks tell us about how the earth was formed?</p> <p>Light How far can you throw your shadow? How did a caveman know what time it was?</p> <p>Animals, including humans What happens to the food we eat?</p>	<p>Sound How do we hear different sounds?</p> <p>Electricity How could we cope without electricity for one day?</p>
Maple	<p>Working Scientifically:</p> <ul style="list-style-type: none"> ➤ Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. ➤ Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate. ➤ Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs. ➤ Using test results to make predictions to set up further comparative and fair tests. ➤ Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations. ➤ Identifying scientific evidence that has been used to support or refute ideas or arguments. 	
	<p>Properties and changes of materials Can you take the salt out of the sea?</p> <p>Earth and space Why is it daytime in Australia when it is night time here?</p> <p>Forces What has Isaac Newton got to do with forces?</p> <p>Light How do we see things?</p> <p>Living things and their habitats Could Spiderman really exist?</p>	<p>All living things and their habitats Do all animals and plants start as an egg?</p> <p>Animals including humans How different will you be when you are as old as your grandparents?</p> <p>What would a journey through your body look like?</p> <p>Evolution and inheritance Have we always looked like this?</p> <p>Electricity How can you make a lamp brighter?</p>

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Knowledge	
Children should be taught to:	
<p>Plants:</p> <ul style="list-style-type: none"> 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. 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. 	<p>Animals, including humans:</p> <ul style="list-style-type: none"> 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 common animals (fish, amphibians, reptiles, birds and mammals including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. 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, air). Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.
<p>Seasonal changes:</p> <ul style="list-style-type: none"> Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. 	
<p>Everyday materials:</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. 	<p>Living things and 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 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.

<ul style="list-style-type: none"> • Compare and group together a variety of everyday materials on the basis of their simple physical properties. • <i>Identify and compare the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard, for different uses.</i> • <i>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</i> 	<ul style="list-style-type: none"> • 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 the idea of a simple food chain, and identify and name different sources of food.
Skills	
<p>Working Scientifically:</p> <ul style="list-style-type: none"> • Asking simple questions and realising they can be answered in different ways. • Observing closely, using equipment. • Performing simple tests. • Identifying and classifying. • Using observations and ideas to suggest answers to questions. • Gathering and recording data to help in answering questions. 	

Chestnut	
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Plants How did that blossom become an apple? Living things and their habitats Which animals thrive in the Forest of Dean? Rocks What do rocks tell us about how the earth was formed? Light How far can you throw your shadow? How did a caveman know what time it was? Animals, including humans What happens to the food we eat?	Forces and Magnets Are magnets 'sticky'? Animals, including humans How can Usain Bolt move so quickly? States of matter How would you survive without water? Sound How do we hear different sounds? Electricity How could we cope without electricity for one day?
Knowledge	
Children should be taught to:	
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 pollinations, seed formation and seed dispersal. 	Animals, including humans <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 that humans and some animals have skeletons and muscles for support, protection and movement. <i>Describe the simple functions of the basic parts of the digestive system in humans.</i> <i>Identify the different types of teeth in humans and their simple functions.</i> <i>Construct and interpret a variety of food chains, identifying producers, predators and prey.</i>
Rocks <ul style="list-style-type: none"> 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 a rock. Recognise that soils are made from rocks and organic matter. 	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 the eyes. Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the size of shadows change.
Forces and magnets <ul style="list-style-type: none"> Notice how things move on different surfaces. 	Living things and their habitats <ul style="list-style-type: none"> <i>Recognise that living things can be grouped in a variety of ways.</i>

<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 but 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"> • <i>Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</i> • <i>Recognise that environments change and this can sometimes pose dangers to living things.</i>
<p>States of matter</p> <ul style="list-style-type: none"> • <i>Compare and group materials together, according to whether they are solids, liquids or gases.</i> • <i>Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in Celsius (°C).</i> • <i>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</i> 	<p>Sound</p> <ul style="list-style-type: none"> • <i>Identify how sounds are made, associating some of them with something vibrating.</i> • <i>Recognise that vibrations from sounds travel through a medium to the ear.</i> • <i>Find patterns between the pitch of a sound and features of the object that produced it.</i> • <i>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</i> • <i>Recognise that sounds get fainter as the distance from the sound source increases.</i>
<p>Electricity</p> <ul style="list-style-type: none"> • <i>Identify common appliances that run on electricity.</i> • <i>Construct a simple series circuit, identifying and naming it's basic parts, including cells, wires, bulbs, switches and buzzers.</i> • <i>Identify whether or not lamp will light in a simple circuit based on whether or not the lamp is part of a complete loop with a battery.</i> • <i>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a series circuit.</i> • <i>Recognise some common conductors and insulators, and associate metals with being good conductors.</i> 	
Skills	
<p>Working Scientifically:</p> <ul style="list-style-type: none"> • Asking relevant questions and using different types of scientific enquiries to answer them. • Setting up simple practical enquiries, comparative and fair tests. • Making systematic and careful observations and, where appropriate taking accurate measurements using standard units, using a range of equipment , including thermometers and data loggers. • Gathering, recording , classifying and presenting data in a variety of ways to help in answering questions. 	

- Reporting on findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.
- Reporting on findings from enquiries, including oral and written explanations, displays or presentations or results and conclusions.
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- Identifying differences, similarities or changes related to simple scientific ideas and processes.
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<p>Properties and changes of materials Can you take the salt out of the sea?</p> <p>Earth and space Why is it daytime in Australia when it is night time here?</p> <p>Forces What has Isaac Newton got to do with forces?</p> <p>Light How do we see things?</p> <p>Living things and their habitats Could Spiderman really exist?</p>	<p>All living things and their habitats Do all animals and plants start as an egg?</p> <p>Animals including humans How different will you be when you are as old as your grandparents?</p> <p>What would a journey through your body look like?</p> <p>Evolution and inheritance Have we always looked like this?</p> <p>Electricity How can you make a lamp brighter?</p>
Knowledge	
Children should be taught to:	
<p>All living things and their habitats</p> <ul style="list-style-type: none"> Describe the differences in the life cycles of a mammal, an amphibian, and insect and a bird. Describe the life process of reproduction in some plants and animals. Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and difference, including micro-organisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics. 	<p>Animals, including humans</p> <ul style="list-style-type: none"> Describe the changes as humans develop to old age. 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 ways in which nutrients and water are transported within animals, including humans.
<p>Properties and changes of materials</p> <ul style="list-style-type: none"> Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. 	<p>Earth and 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"> • Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. • Give reasons based on evidence from comparative fair tests, for the particular uses of everyday materials, including metals, wood and plastic. • Demonstrating that dissolving, mixing and changes of state are reversible changes. • Explain that some changes result in the formation of new materials, and this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. 	<p>Evolution and inheritance</p> <ul style="list-style-type: none"> • <i>Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</i> • <i>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</i> • <i>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</i>
<p>Forces</p> <ul style="list-style-type: none"> • 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. • Recognise that some mechanisms, including levels, pulleys and gears, allow a smaller force to have a greater effect. 	<p>Light</p> <ul style="list-style-type: none"> • <i>Recognise that light appears to travel in straight lines.</i> • <i>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.</i> • <i>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</i> • <i>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</i>
<p>Electricity</p> <ul style="list-style-type: none"> • <i>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in a circuit.</i> • <i>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.</i> • <i>Use recognised symbols when representing a simple circuit in a diagram</i> 	
<p style="text-align: center;">• Skills</p>	
<p>Working Scientifically:</p> <ul style="list-style-type: none"> • Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings where appropriate. • Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, and bar and line graphs. • Using test results to make predictions to set up further comparative and fair tests. • Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations. • Identifying scientific evidence that has been used to support or refute ideas or arguments. 	

Sex and Relationships Education (taught during year a and b in Maple Class)

<p>Year 5 and 6</p> <p>What are the physical changes that occur during puberty?</p> <p>What are the female reproductive organs?</p> <p>What is menstruation?</p> <p>What physical and emotional changes occur for boys during puberty?</p> <p>What personal hygiene steps need to be taken during puberty</p>	<p>Year 6 only</p> <p>How are babies made?</p> <p>How are babies born?</p> <p>What different types of family are there?</p> <p>What makes a healthy relationship?</p>
<p>Objectives</p> <ul style="list-style-type: none"> • To know and understand the physical changes that take place during puberty and why they happen. • To name the female reproductive organs and understand the function of each. • To understand the menstruation cycle including the physical and emotional effects on a female. • To be aware that puberty occurs at different times for different people. • To explore boys' perceptions of girls. • To identify and describe the physical and emotional changes which occur for boys during puberty. • To explore girls' perceptions of boys. • To be able to identify and understand how hygiene needs change during puberty. • To be able to recognise their own changing emotions and be able to express these feelings positively. 	<p>Objectives</p> <ul style="list-style-type: none"> • To be able to label and explain the function of the female and male reproductive organs. • To know about the facts of the human lifecycle, including sexual intercourse. • To consider the need for trust and love in marriage and established relationships. • To consider different types of love and relationships.

Taught using the Relationships and Sex Education resource from Gloucestershire County Council and GHLL.

