

**Archbishop Hutton's
Primary School**



Upper Key Stage 2 WORKING SCIENTIFICALLY

During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes, and skills through the teaching of the programme of study content:

- asking relevant questions and using diverse 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.
- recording 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 of 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.

NATIONAL CURRICULUM PROGRAMES OF STUDY

The principal focus of science teaching in lower key stage 2 is to enable pupils to broaden their scientific view of the world around them. They should do this through exploring, talking about, testing, and developing ideas about everyday phenomena and the relationships between living things and familiar environments, and by beginning to develop their ideas about functions, relationships, and interactions. They should ask their own questions about what they observe and make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. They should draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out. 'Working scientifically' is described separately at the beginning of the programme of study but must always be taught through and clearly related to substantive science content in the programme of study. Throughout the notes and guidance, examples show how scientific methods and skills might be linked to specific elements of the content. Pupils should read and spell scientific vocabulary correctly and with confidence, using their growing word-reading and spelling knowledge.

Prior knowledge: Year 1/2

Animals Including humans.

To identify and name a variety of common animals including fish, amphibians, reptiles, birds, and mammals. Y1

To 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). Y1

To notice that animals, including humans, have offspring which grow into adults. Y2

To find out about and describe the basic needs of animals, including humans, for survival (water, food, and air). Y2

Year Group Expectations: Year 3/4

Animals Including humans.

To identify that animal, 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. Y3

To identify that humans and some other animals have skeletons and muscles for support, protection, and movement. Y3

To describe the simple functions of the basic parts of the digestive system in humans Y4

To identify the diverse types of teeth in humans and their simple functions. Y4

To construct and interpret a variety of food chains, identifying producers, predators, and prey. Y4

NC UKS2 expectations:

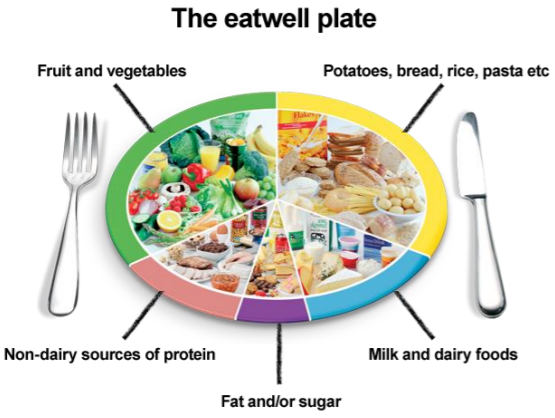
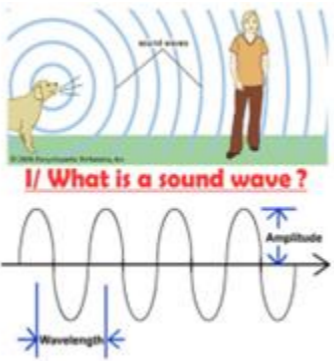
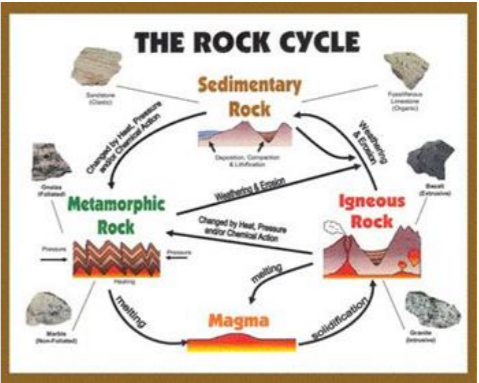
Animals Including humans.

To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Y6

To recognise the impact of diet, exercise, drugs, and lifestyle on the way their body's function. Y6

To describe the ways in which nutrients and water are transported within animals, including humans. Y6

<p>To describe the importance for humans of exercise, eating the right amounts of diverse types of food, and hygiene. Y2</p>					
<p><u>Animals Including humans</u> To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. Y1</p>	<p><u>Sound</u> To identify how sounds are made, associating some of them with something vibrating. Y4 To recognise that vibrations from sounds travel through a medium to the ear. Y4 To find patterns between the pitch of a sound and features of the object that produced it. Y4 To find patterns between the volume of a sound and the strength of the vibrations that produced it. Y4 To recognise that sounds get fainter as the distance from the sound source increases. Y4</p>	<p>WAVES KS3</p>			
<p><u>Everyday Materials</u> <u>Everyday Materials</u> Pupils should be taught to: To distinguish between an object and the material from which it is made. Y1 To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Y1 To describe the simple physical properties of a variety of everyday materials. Y1 To compare and group together a variety of everyday materials based on their simple physical properties. Y1 To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper, and cardboard for uses. Y3</p>	<p><u>Everyday Materials</u> To compare and group together various kinds of rocks based on their appearance and simple physical properties. Y3 To describe in simple terms how fossils are formed when things that have lived are trapped within rock. Y3 To recognise that soils are made from rocks and organic matter. Y3</p>	<p><u>Evolution and Inheritance</u> Y6</p>			
SCIENCE	Theme: My Brilliant Body	SCIENCE	Theme: The Scientist Lab	SCIENCE	Theme: A Material World

Healthy bodies, healthy bones	How can I make my alarm louder?	What is made of?
<p style="text-align: center;">The eatwell plate</p> 	 <p style="text-align: center;">1/ What is a sound wave?</p>	 <p style="text-align: center;">THE ROCK CYCLE</p>
<p>Key Knowledge:</p> <ul style="list-style-type: none"> Animals including humans need the right amount of nutrition. Animals including humans get their nutrition from what they eat. Why do we have a skeleton and what does it protect? How do animals move their muscles? How do muscles work? 	<p>Key Knowledge:</p> <ul style="list-style-type: none"> How are sounds made? (vibration) Vibrations travel through a medium to the ear. Find patterns between the volume of a sound and the strength of the vibration. Find patterns between the pitch of a sound and features of the object that produces it. What happens to sound as the distance from the sound source increases? 	<p>Key Knowledge:</p> <ul style="list-style-type: none"> What is it made of? How do rocks change over time? Do rocks let water through them? How are sedimentary and igneous rocks formed? How are fossils made? What is soil?
<p>Procedural Knowledge</p> <ul style="list-style-type: none"> Animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need. Food contains a range of different nutrients that are needed by the body to stay healthy – carbohydrates including sugars, protein, vitamins, minerals, fibre, fat, sugars, water. A piece of food will often provide a range of nutrients. Humans and some other animals have skeletons and muscles which help them move and provide protection and support. Classify food in a range of ways. 	<p>Procedural Knowledge</p> <ul style="list-style-type: none"> A sound source vibrates to produce waves with travel through a medium from the sources to our ears. Different mediums such as air or water or wood can carry sound but sound cannot travel through a vacuum. Sound waves cause parts of our body inside our ears to vibrate, allowing us to hear the sound. The loudness of the sound depends on the amount of energy of vibrations how well they travel through the medium. Pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. Make sounds with a range of objects such as musical instruments and other household objects. Use objects that change in feature to change pitch and volume. 	<p>Procedural Knowledge</p> <ul style="list-style-type: none"> Compare and group together various kinds of rocks based on appearance and simple physical properties. Describe and explain how different rocks can be useful to us, To describe the differences in rocks and how they are formed. Describe in simple terms how fossils are formed when things have lived and then are trapped within rock. Recognise that soils are made from rocks and organic matter. To classify igneous and sedimentary rocks. To begin to relate the properties of rocks with their uses. To recognise that soils are made from rocks and organic matter. To describes how fossils are formed when things that have lived are trapped within the rock. Devise a test to investigate the water retention of soils.

	<ul style="list-style-type: none"> • Use food labels to explore the nutritional content of a range of food items. • Use secondary sources to find out they types of food that contain the different nutrients. • Use food labels to answer enquiry questions e.g. How much fat do different types of pizza contain? How much sugar is in soft drinks? • Plan a daily diet contain a good balance of nutrients. • Explore the nutrients contained in fast food. • Use secondary sources to research the parts and functions of the skeleton. • Investigate pattern seeking questions such as: Can people with longer legs run faster? Can people with bigger hands catch a ball better? • Compare, contrast and classify skeletons of different animals 		<ul style="list-style-type: none"> • Measure sounds over different distance and through different insulation materials 		<ul style="list-style-type: none"> • Classify soils in a range of ways based on their appearance. • Observe how soil can be separated through sedimentation. • Research the work of Mary Anning.
	<p>Key Vocabulary: Movement, muscles, bones, skull, nutrition, skeletons, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, support, protect, ribs, spine, joints</p>		<p>Key Vocabulary: volume, vibrate, vibration, wave, pitch (high/low) tone, travel, sound, source, speaker, faint, loud, insulation</p>		<p>Key Vocabulary: fossils, soils, sandstone, granite, marble, pumice, crystals, absorbent, rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil</p>
	<p>Assessment:</p> <ul style="list-style-type: none"> • Can name the nutrients found in food • Can state that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients • Can name some bones that make up their skeleton giving examples that support, help them move or provide protection 		<p>Assessment:</p> <ul style="list-style-type: none"> • Can describe different types of objects producing different sounds and that the sound is produced by vibration in the object. • Can describe sounds travelling through different mediums such as air, water, metal. • Can find patterns between the pitch and volume of a sound and the features of the object that produced it. • Can recognise that sounds get fainter as the distance from the sound source increases 		<p>Assessment:</p> <ul style="list-style-type: none"> • Can name some types of rock and give physical features of each • Can explain how a fossil is formed • Can explain that soils are made from rocks and also contain living/dead matter • Can classify rocks in a range of different ways using appropriate vocabulary • Can devise tests to explore the properties of rocks and use data to rank the rocks • Can link rocks changing over time with their properties e.g. soft rocks get worn away more easily

	<ul style="list-style-type: none">• Can describe how muscles and joints help them to move• Can classify food into those that are high or low in particular nutrients• Can answer their questions about nutrients in food based on their gathered evidence• Can talk about the nutrient content of their daily plan• Use their data to look for patterns (or lack of) when answering their enquiry question• Can give similarities e.g. they all have joints to help the animal move, and differences between skeletons		<ul style="list-style-type: none">• Can explain what happens when you strike a drum or pluck a string and use a diagram to show how sounds travel from an object to the ear.• Can demonstrate how to increase or decrease pitch and volume using musical instruments or other objects.• Can explain how loudness can be reduced by moving further from the sound source or by using a sound insulating medium.		<ul style="list-style-type: none">• Can present in different ways their understanding of how fossils are formed e.g. in role play, comic strip, chronological report, stop-go animation etc.• Can identify plant/animal matter and rocks in samples of soil• Can devise a test to explore the water retention of soils
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