

Science Teaching Cycle

The Science curriculum at Wardley CE Primary is based upon the National Curriculum. Our science is taught in distinct science units as we believe this is the best way to develop the key skills in science. The units and the key skills are shown below:

Y	Autumn		Spring		Summer	
	AUTUMN TERM 1	AUTUMN TERM 2	SPRING TERM 1	SPRING TERM 2	SUMMER TERM 1	SUMMER TERM 2
ALL	Working scientifically					
Y1	BIOLOGY To understand animals & humans WHO AM I?	PHYSICS To understand light & seeing CELEBRATIONS	BIOLOGY To investigate living things POLAR ADVENTURES CHEMISTRY To investigate materials	CHEMISTRY To investigate materials BIOLOGY To investigate living things To understand plants TREASURE ISLAND	BIOLOGY To understand animals & humans To investigate living things ON SAFARI	CHEMISTRY To investigate materials BIOLOGY To investigate living things HOLIDAY
	PHYSICS To understand the Earth's movement in space SEASONAL CHANGE					
Y2	BIOLOGY To understand animals & humans HEALTHY ME	CHEMISTRY To investigate materials MATERIALS MONSTER	BIOLOGY To investigate living things MINI WORLDS	PHYSICS To understand movement, forces & magnets MOVE IT	BIOLOGY To understand plants YOUNG GARDENERS	CHEMISTRY To investigate materials BIOLOGY To understand plants LITTLE MASTERCHEFS
	PHYSICS To understand the Earth's movement in space SEASONAL CHANGE					
Y3	CHEMISTRY To investigate materials EARTH ROCKS	BIOLOGY To understand animals & humans FOOD & OUR BODIES	PHYSICS To understand light & seeing MIRROR, MIRROR	BIOLOGY To understand plants HOW DOES YOUR GARDEN GROW?	PHYSICS To understand movement, forces & magnets OPPOSITES ATTRACT	PHYSICS To understand the Earth's movement in space WE ARE ASTRONAUTS
Y4	PHYSICS To investigate sound & hearing WHAT'S THAT SOUND?	BIOLOGY To investigate living things LIVING THINGS	CHEMISTRY To investigate materials LOOKING AT STATES	BIOLOGY To understand animals & humans TEETH & EATING	PHYSICS To understand electrical circuits POWER IT UP	WORKING SCIENTIFICALLY BRILLIANT BUBBLES
Y5	PHYSICS To understand the Earth's movement in space OUT OF THIS WORLD	CHEMISTRY To investigate materials MATERIAL WORLD	BIOLOGY To investigate living things CIRCLE OF LIFE	PHYSICS To understand movement, forces & magnets LET'S GET MOVING	BIOLOGY To investigate living things GROWING UP & GROWING OLD	WORKING SCIENTIFICALLY SUPER SCIENTISTS
Y6	BIOLOGY To investigate living things CLASSIFYING CRITTERS	BIOLOGY To understand animals & humans STAYING ALIVE	BIOLOGY To understand evolution & inheritance WE'RE EVOLVING	PHYSICS To understand light & seeing LET IT SHINE	PHYSICS To understand electrical circuits ELECTRIFYING	WORKING SCIENTIFICALLY WE ARE DINOSAUR HUNTERS

SCIENCE SKILLS ACROSS KS 1 & 2			
	Y1 & Y2	Y3 & Y4	Y5 & Y6
To work scientifically	<ul style="list-style-type: none"> • Ask simple questions. • Observe closely, using simple equipment. • Perform simple tests. • Identify and classify. • Use observations and ideas to suggest answers to questions. • Gather and record data to help in answering questions. 	<ul style="list-style-type: none"> • Ask relevant questions. • Set up simple practical enquiries and comparative and fair tests. • Make accurate measurements using standard units, using a range of equipment, e.g. thermometers and data loggers. • Gather, record, classify and present data in a variety of ways to help in answering questions. • Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables. • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests. • Identify differences, similarities or changes related to simple, scientific ideas and processes. • Use straightforward, scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> • Plan enquiries, including recognising and controlling variables where necessary. • Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work. • Take measurements, using a range of scientific equipment, with increasing accuracy and precision. • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models. • Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions. • Present findings in written form, displays and other presentations. • Use test results to make predictions to set up further comparative and fair tests. • Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments
Biology			
To understand Plants	<ul style="list-style-type: none"> • Identify and name a variety of common plants, including garden plants, wild plants and trees and those classified as deciduous and evergreen. • Identify and describe the basic structure of a variety of common flowering plants, including roots, stem/trunk, leaves and flowers. • 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"> • Identify and describe the functions of different parts of flowering plants: roots, stem, 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 role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. 	<ul style="list-style-type: none"> • Relate knowledge of plants to studies of evolution and inheritance. • Relate knowledge of plants to studies of all living things.

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">To Understand animals & humans</p>	<ul style="list-style-type: none"> • Identify and name a variety of common animals that are birds, fish, amphibians, reptiles, mammals and invertebrates. • 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 (birds, fish, amphibians, reptiles, mammals and invertebrates, 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. • Investigate and describe the basic needs of animals, including humans, for survival (water, food and air). • Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene. 	<ul style="list-style-type: none"> • Identify that animals, including humans, need the right types and amounts of nutrition, that they cannot make their own food and they get nutrition from what they eat. • Describe the ways in which nutrients and water are transported within animals, including humans. • Identify that humans and some animals have skeletons and muscles for support, protection and movement. • Describe the simple functions of the basic parts of the digestive system in humans. • Identify the different types of teeth in humans and their simple functions. 	<ul style="list-style-type: none"> • Identify and name the main parts of the human circulatory system, and explain the functions of the heart, blood vessels and blood (including the pulse and clotting).
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">To investigate Living Things</p>	<ul style="list-style-type: none"> • Explore and compare the differences between things that are living, that are dead and 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"> • Identify and name a variety of living things (plants and animals) in the local and wider environment, using classification keys to assign them to groups. • Give reasons for classifying plants and animals based on specific characteristics. • Recognise that environments are constantly changing and that this can sometimes pose dangers to specific habitats. 	<ul style="list-style-type: none"> • Describe the life cycles common to a variety of animals, including humans (birth, growth, development, reproduction, death), and to a variety of plants (growth, reproduction and death). • Explain the classification of living things into broad groups according to common, observable characteristics and based on similarities and differences, including plants, animals and micro-organisms. • Describe the life process of reproduction in some plants and animals. • Describe the changes as humans develop from birth to old age. • Recognise the impact of diet, exercise, drugs and lifestyle on the way human bodies function.
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">To Understand Evolution & Inheritance</p>	<ul style="list-style-type: none"> • Identify how humans resemble their parents in many features. 	<ul style="list-style-type: none"> • Identify how plants and animals, including humans, resemble their parents in many features. • Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. • Identify how animals and plants are suited to and adapt to their environment in different ways. 	<ul style="list-style-type: none"> • Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. • Describe how adaptation leads to evolution. • Recognise how and why the human skeleton has changed over time, since we separated from other primates

Chemistry			
To Investigate Materials	<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. • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. • Identify and compare the uses of a variety of everyday materials, including wood, metal, plastic, glass, brick/rock, and paper/cardboard. 	<ul style="list-style-type: none"> • Compare and group together different kinds of rocks on the basis of their simple, physical properties. • Relate the simple physical properties of some rocks to their formation (igneous or sedimentary). • Describe in simple terms how fossils are formed when things that have lived are trapped within sedimentary rock. • Compare and group materials together, according to whether they are solids, liquids or gases. • Observe that some materials change state when they are heated or cooled, and measure the temperature at which this happens in degrees Celsius (°C), building on their teaching in mathematics. • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 	<ul style="list-style-type: none"> • Compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, conductivity (electrical and thermal), and response to magnets. • Understand how 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. • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. • Demonstrate that dissolving, mixing and changes of state 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, oxidation and the action of acid on bicarbonate of soda
Physics			
To understand movement, forces and magnets	<ul style="list-style-type: none"> • Notice and describe how things move, using simple comparisons such as faster and slower. • Compare how different things move. • Observe the apparent movement of the Sun during the day. • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies. 	<ul style="list-style-type: none"> • Notice that some forces need contact between two objects and some forces 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. 	<ul style="list-style-type: none"> • Describe magnets as having two poles. • Predict whether two magnets will attract or repel each other, depending on which poles are facing. • Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. • Identify the effect of drag forces, such as air resistance, water resistance and friction that act between moving surfaces. • Describe, in terms of drag forces, why moving objects that are not driven tend to slow down. • Understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs.

To understand light and seeing	<ul style="list-style-type: none"> • Observe and name a variety of sources of light, including electric lights, flames and the Sun, explaining that we see things because light travels from them to our eyes. 	<ul style="list-style-type: none"> • Notice that light is reflected from surfaces. • Associate shadows with a light source being blocked by something; find patterns that determine the size of shadows. 	<ul style="list-style-type: none"> • Understand 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 eyes. • Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them, and to predict the size of shadows when the position of the light source changes.
sound and hearing	<ul style="list-style-type: none"> • Observe and name a variety of sources of sound, noticing that we hear with our ears. 	<ul style="list-style-type: none"> • Identify how sounds are made, associating some of them with something vibrating. • Recognise that sounds get fainter as the distance from the sound's source increases. 	<ul style="list-style-type: none"> • 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.
To understand electrical circuits	<ul style="list-style-type: none"> • Identify common appliances that run on electricity. • Construct a simple series electrical circuit 	<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Identify and name the basic parts of a simple electrical circuit, including cells, wires, bulbs, switches and buzzers. • 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.
Earth's movement in space	<ul style="list-style-type: none"> • Observe the apparent movement of the Sun during the day. • Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies. 	<ul style="list-style-type: none"> • Describe the movement of the Earth relative to the Sun in the solar system. • Describe the movement of the Moon relative to the Earth. 	<ul style="list-style-type: none"> • Describe the Sun, Earth and Moon as approximately spherical bodies. • Use the idea of the Earth's rotation to explain day and night.

