

Crockerne Church of England Primary

Non-Negotiables

Science skills should be taught when linked to projects where possible to ensure real world application.



Science

Key Skills

Subject-specific vocabulary
Knowledge and understanding
Working scientifically

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	<p>Know some names of plants.</p> <p>Begin to say how they are different from each other.</p> <p>Start to describe the features of plants.</p>	<p>Identify and name a variety of common wild and garden plants.</p> <p>Identify and describe the basic structure of plant.</p>	<p>Identify and name a variety of common plants (including garden plants, wild plants and trees and those that are classified as deciduous and evergreen).</p> <p>Describe basic structure of common plants (including root, stem, leaves and flowers).</p>	<p>Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Describe how plants need water, light, and suitable temp to grow and stay healthy.</p>	<p>Identify/describe the functions of different parts of flowering plants (inc. roots, stem/trunk, leaves and flower).</p> <p>Identify requirements of plants for life and growth and how they vary from plant to plant (air, light, water, nutrients from soil and room to grow).</p> <p>Investigate the way in which water is transported within plants.</p> <p>Explore the part that flowers play in the life cycle of flowering plants (inc. pollination, seed formation and seed dispersal).</p>	N/A	N/A	N/A
Animals including humans	<p>Observe and describe features of animals and plants.</p> <p>Know that</p>	<p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and</p>	<p>Identify/name a variety of animals that are birds, fish, amphibians, reptiles, mammals and invertebrates.</p>	<p>Understand that animals, including humans, have offspring that grow into adults.</p> <p>Find out and</p>	<p>Identify and describe how animals, including humans, need the right types and amounts of nutrients, that they cannot make their own food but that they get nutrients from what</p>	<p>Describe the simple functions of the basic parts of the digestive system in humans.</p> <p>Identify different types of teeth in</p>	<p>Describe the changes as humans develop to old age.</p> <p>Identify and name the main parts of the human circulatory system and</p>	<p>Evolution and inheritance</p> <p>Recognise that living things have changed over time and that fossils</p>

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	<p>animals and plants are living</p> <p>Say how animals and plants are different.</p>	<p>mammals.</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).</p> <p>Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</p>	<p>Identify and name a variety of carnivores, herbivores & omnivores.</p> <p>Describe/compare the body parts of common animals (inc. fish, reptiles, amphibians, birds, mammals and pets).</p> <p>Identify, name and draw basic parts of human body and relate to senses.</p>	<p>describe the basic needs of animals for survival (water, food, air).</p> <p>Describe the importance of exercise, eating the right amounts of food and hygiene for humans.</p>	<p>they eat.</p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p>humans and their simple functions. Construct and interpret a variety of food chains, identifying producers, predators, prey, herbivores, carnivores and omnivores.</p> <p>Explain how a feeding relationship occurs in a variety of habitats.</p>	<p>describe the functions of the heart, blood vessels and blood.</p> <p>Recognise the impact of diet, drugs and lifestyle on the way bodies function.</p> <p>Describe the way in which nutrients and water are transported within animals including humans.</p>	<p>provide information about living things that inhabited the Earth millions of years ago.</p> <p>Recognise that living things produce offspring of the same kind but normally offspring vary and are not identical to their parents.</p> <p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>
<p>Living things and their habitats</p>	<p>Talk about the features of their immediate environment</p> <p>Say how environments vary from one to</p>	<p>Observe changes across the four seasons.</p> <p>observe and describe weather associated with the seasons and how day</p>	<p>N/A</p>	<p>Explore and compare the differences between things that are living, dead and things that have never been alive.</p>	<p>N/A</p>	<p>Recognise that living things can be grouped in a variety of ways.</p> <p>Explore and use classification keys to help group, identify and name a variety of</p>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Describe the life processes of</p>	<p>Describe how living things are classified into broad groups according to common observable characteristics</p>

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	another	length varies.		<p>Identify that most living things live in habitats that they are suited to.</p> <p>Describe how different habitats provide for the basic needs of different kinds of animals and plants and how they depend on each other.</p> <p>Identify and name a variety of plants and animals in their habitats (inc. micro-habitats).</p> <p>Describe how animals get their food from plants and other animals (simple food chain).</p> <p>Identify and name different sources of food.</p>		<p>living things in the local and wider environment.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p>	reproduction in some plants and animals.	and based on similarities and differences (inc. micro-organisms, plants and animals).
Materials	Begin to say similarities and differences	Distinguish between an object and the material from which	N/A	Identify and compare the suitability of a	Rocks Compare/group rocks on their physical properties.	States of matter Compare and group materials into solids,	Properties and changes of materials	N/A

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	<p>between materials.</p>	<p>it is made.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>		<p>variety of everyday materials (inc. wood, metal, plastic, glass, brick, rock, paper, cardboard) for certain uses.</p>	<p>Relate simple physical properties of some rocks to their formation (igneous/sedimentary) Describe how fossils are formed.</p> <p>Recognise that soils are made from rocks and organic matter to form igneous, sedimentary and metamorphic rock.</p>	<p>liquids and gases.</p> <p>Observe and explain that some materials change state when heated/cooled and measure temp in degrees Celsius.</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>Compare/group material based on comparative tests and fair tests (incl. hardness, solubility, conductivity and insulation, behavior with magnets).</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular use of everyday materials (inc. wood, metal and plastic)</p> <p>Explain how some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.</p> <p>Use knowledge of solids, liquids and gases to describe how mixtures might be separated (inc. through filtering, sieving and evaporating).</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>Explain that some changes result in the formation of new</p>	
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							materials and that this kind of change is not usually reversible (inc. changes associated with burning and action of acid on bicarbonate of soda).	
Light and sound	N/A	N/A	<p><i>Light</i></p> <p><i>Identify/name sources of light</i> <i>Explain what darkness is.</i></p> <p><i>Compare a variety of sources of light.</i></p> <p><i>Describe the features of day and night.</i></p> <p><i>Describe the movement of the sun across the sky.</i></p>	N/A	<p>Light</p> <p>Understand that light is reflected from surfaces.</p> <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object.</p> <p>Investigate and find patterns in the way the size of a shadow changes.</p>	<p>Sound</p> <p>Identify and name how sounds are made, associating some of them with something vibrating.</p> <p>Recognise that vibrations from sounds travel through a medium to the ear.</p> <p>Find patterns between the pitch of a sound and features of the object that produced it.</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>Recognise that sounds get fainter as the distance from the sound source increases.</p>	N/A	<p>Light</p> <p>Recognise that light appears to travel in straight lines.</p> <p>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.</p> <p>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then our eyes.</p> <p>Using the idea that light travels in</p>

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								straight lines, explain why shadows have the same shape as the object that cast them. Explain that light can be broken into colours and different colours can be combined to appear as a new colour.
Space	N/A	N/A	N/A	N/A	N/A	<p>Explain that the sun is the centre of our solar system.</p> <p>Discuss and understand the terms star, galaxy, milky way and universe.</p> <p>Identify the four seasons and link this to changes in sunlight and weather.</p> <p>Begin to understand the movement of the earth around the sun and the moons movement around the earth.</p>	<p>Describe the movement of earth and other planets relative to the sun in the solar system.</p> <p>Describe the movement of the moon relative to the earth.</p> <p>Describe the sun, earth and moon as approximately spherical bodies.</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p>	N/A
Forces and Magnets	N/A	N/A	N/A	Describe how things move at	Compare how things move on different surfaces	N/A	Explain that unsupported objects fall towards the	N/A

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				<p>different speeds, speed up and slow down.</p>	<p>(friction).</p> <p>Understand that some forces need contact between two objects and that magnetic forces can act at a distance.</p> <p>Explain the force of gravity.</p> <p>Explore push and pulls as a force.</p> <p>Magnets Describe how magnets have two poles - one that attracts and one that repels.</p> <p>Predict and observe how magnets attract or repel each other and attract some materials and not others, depending on which poles are facing.</p> <p>Investigate the magnetic materials and know that magnets can work through materials.</p>		<p>Earth because of the force of gravity (drag force).</p> <p>Identify the effect of gravity, air resistance, water resistance and friction that act between moving surfaces.</p> <p>Know how to measure the size of a force using newtons.</p> <p>Recognise that some mechanisms (inc. levers, pulleys and gears) allow a smaller force to have a greater effect.</p>	
Electricity	N/A	N/A	N/A	N/A		<p>Identify common appliances that run on electricity.</p> <p>Construct a simple series circuit,</p>		<p>Associate the brightness of a lamp or the volume of a buzzer and the voltage of</p>

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						<p>identifying and naming its basic parts (inc. batteries, wires, bulbs, switches and buzzers).</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple circuit.</p> <p>Recognise that some common conductors and insulators and associate metals with being good conductors.</p>		<p>batteries (cells) used in the circuit.</p> <p>Compare and give reasons for variations in how components function (inc. the brightness of a bulb, loudness of buzzers and position of on/off switches).</p> <p>Use recognised symbols when representing a simple circuit diagram knowing the names of all components.</p> <p>Identify what causes a short circuit or a circuit to fuse.</p>
<p>Working Scientifically</p> <p>(to be delivered through teaching of subject content and</p>	N/A	<p>Ask simple questions and recognising that they can be answered in different ways.</p> <p>Observe closely, using simple</p>	<p>Ask simple questions and recognising that they can be answered in different ways.</p> <p>Observe closely</p>	<p>Observe closely using simple equipment.</p> <p>Perform simple tests, make predictions, measure and evaluate findings.</p>	<p>Ask relevant questions using different types of scientific enquiries to answer.</p> <p>Set up simple practical enquiries, comparative and fair tests.</p>	<p>Ask relevant questions using different types of scientific enquiries to answer.</p> <p>Set up simple practical enquiries, comparative and fair tests using a range of equipment.</p>	<p>Plan different types of scientific enquiries to answer questions, including recognizing and controlling variables where necessary.</p> <p>Take measurements, using a range of</p>	<p>Plan different types of scientific enquiries to answer questions, including recognizing and controlling</p>

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<p><i>not to be taught separately)</i></p>		<p>equipment.</p> <p>Perform simple tests.</p> <p>Identifying and classifying.</p> <p>Use observations and ideas to suggest answers to questions.</p> <p>Gather and record data to help in answering questions.</p>	<p>using simple equipment.</p> <p>Perform simple tests and evaluate the findings.</p> <p>Identify and classify.</p> <p>Record findings: drawings, diagrams, photographs, simple prepared formats, such as tables and charts, tally charts and displays.</p>	<p>Identify and classify.</p> <p>Record findings: drawings, diagrams, photographs, simple prepared formats, such as tables and charts, tally charts and displays.</p>	<p>Begin to make accurate measurements using standard units (inc. data loggers).</p> <p>Record findings using simple scientific language, drawings, labeled diagrams, bar charts and tables.</p> <p>Report findings from investigations including written explanations of results and conclusions, displays or presentations.</p> <p>Use results to draw simple conclusions and suggest improvements and predictions for setting up further tests.</p> <p>Look for similarities and differences or changes in data in order to draw conclusions.</p> <p>Use straightforward scientific language to answer questions or to support findings.</p>	<p>Begin to make accurate measurements using standard units (inc. data loggers and thermometers).</p> <p>Record findings using simple scientific language, drawings, labeled diagrams, bar charts and tables.</p> <p>Report findings from investigations including oral and written explanations of results and conclusions, displays or presentations.</p> <p>Use results to draw simple conclusions, make predictions for new values and suggest improvements.</p> <p>Use straightforward scientific evidence to answer questions or to support findings (using secondary sources).</p>	<p>equipment, with increasing accuracy, taking repeat readings when appropriate.</p> <p>Record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Use test results to make predictions to set up further comparative tests.</p> <p>Report and present findings from enquiries, including conclusions, causal relationships and explanations of degrees of trust in tests, in oral and written forms.</p>	<p>variables where necessary.</p> <p>Take measurements, using a range of equipment, with complete accuracy, taking repeat readings when appropriate.</p> <p>Record data and results using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Continue to use test results to make predictions to set up further comparative tests.</p> <p>Report and present findings from enquiries, including conclusions, causal</p>
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								<p>relationships and explanations of degrees of trust in tests, in oral and written forms.</p> <p>Identify scientific evidence that has been used to support or refute ideas or arguments.</p>
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