



Holy Trinity Church of England Primary School

To be the best we can be: for God, for others and for ourselves

Science Progression Grid

	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	<p>Plant seeds and care for growing plants.</p> <p>Understand the key features of the life cycle of a plant.</p>	<p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees (at least: flower, leaf, root, stem, trunk, seed, branch and petal).</p>	<p>Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy (and how changing these affects the plant).</p> <p>Plants are living and eventually die.</p>	<p>Identify, locate and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</p> <p>Explore the requirements of plants for life and growth and how they vary from plant to plant.</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, including pollination, seed formation and seed dispersal.</p> <p>Seeds are formed after the flowers are pollinated.</p> <p>Many flowers produce fruits which protect the seed and/or aid seed dispersal.</p> <p>Seed dispersal, by a variety of methods, helps ensure that new plants survive.</p>		<p>Name, locate and describe the functions of the main parts of reproductive system of plants (stigma, stamen, petal, sepal, pollen, ovary).</p>	
Animals including humans	<p>Understand the key features of the life cycle an animal.</p> <p>Begin to understand the need to respect and care for all living things.</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>Compare and describe differences</p> <p>Recognise that humans have many similarities.</p> <p>Identify and name a variety of common animals including some fish, some amphibians, some reptiles, some birds and some mammals.</p> <p>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 Find out and describe how animals look different to one another.</p>	<p>Notice that humans have offspring which grow into adults.</p> <p>Find out about and describe the basic needs of humans, for survival (water, food and air).</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p> <p>Medicines can be useful when we are ill.</p> <p>Medicines can be harmful if not used properly.</p> <p>Notice that animals have offspring which grow into adults.</p> <p>Find out about and describe the basic needs of animals for survival (water, food and air).</p>	<p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p>Identify animals (vertebrates) which have a skeleton which supports their body, aids movement & protects vital organs Identify animals without internal skeletons/backbones (invertebrates) and describe how they have adapted other ways to support themselves, move & protect their vital organs.</p> <p>Know how the skeletons of birds, mammals, fish, amphibians or reptiles are similar and the differences in their skeletons.</p> <p>Know that muscles, which are attached to the skeleton, help animals move parts of their body.</p> <p>Explore how humans grow bigger as they reach maturity by making comparisons linked to body proportions and skeleton growth.</p>	<p>Describe the simple functions of the basic parts of the digestive system in humans.</p> <p>Identify the different types of teeth in humans and their simple functions.</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey Describe how teeth and gums have to be cared for in order to keep them healthy.</p>	<p>Describe the changes as humans develop to old age.</p> <p>Animals are alive; they move, feed, grow, use their senses, reproduce, breathe/respire and excrete.</p> <p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>Describe the life process of reproduction in some plants and animals.</p>	<p>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function (in the long term and short term).</p> <p>Describe the ways in which nutrients and water are transported within animals, including humans.</p> <p>The heart is a major organ and is made of muscle.</p> <p>The heart pumps blood around the body through vessels and this can be felt as a pulse.</p> <p>The heart pumps blood through the lungs in order to obtain a supply of oxygen.</p> <p>Blood carries oxygen/essential materials to different parts of the body.</p>

		<p>Group together animals according to their different features.</p> <p>Recognise similarities between animals:</p> <p>Animals have senses to explore the world around them and to help them to survive.</p> <p>Recognise that animals need to be treated with care and sensitivity to keep them alive and healthy.</p> <p>Animals are alive; they move, feed, grow, use their senses and reproduce.</p>		<p>Recognise that animals are alive; they move, feed, grow, use their senses and reproduce.</p> <p>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.</p> <p>An adequate and varied diet is beneficial to health</p> <p>Regular and varied exercise <i>from a variety of different activities</i> is beneficial to health</p>			<p>During exercise muscles need more oxygen so the heart beats faster and our breathing and pulse rates increase.</p> <p>Animals are alive; they move, feed, grow, use their senses, reproduce, breathe/respire and excrete.</p> <p>An adequate, varied and balanced diet is needed to help us grow and repair our bodies (proteins), provide us with energy (fats and carbohydrates) and maintain good health (vitamins and minerals).</p> <p>Tobacco, alcohol and other 'drugs' can be harmful.</p> <p>All medicines are drugs, not all drugs are medicines.</p>
Materials	<p>Use all their senses in hands-on exploration of natural materials.</p> <p>Explore collections of materials with similar and/or different properties.</p>	<p>Distinguish between an object and the material from which it is made.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, rock, brick, paper and cardboard.</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>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, water, rock, paper and cardboard for particular uses.</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching (applying a force).</p> <p>Some materials can be found naturally; others have to be made.</p>	<p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p> <p>Recognise that soils are made from rocks and organic matter</p> <p>Recognise that rocks and soils can feel and look different.</p> <p>Recognise that rocks and soils can be different in different places/environments.</p>	<p>Compare and group materials together, according to whether they are solids, liquids or gases.</p> <p>Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C).</p> <p>Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p> <p>Solids, liquids and gases can be identified by their observable properties.</p> <p>Solids have a fixed size and shape (the size and shape can be changed but it remains the same after the action).</p> <p>Liquids can pour and take the shape of the container in which they are put.</p> <p>Liquids form a pool not a pile.</p> <p>Solids in the form of powders can pour as if they were liquids but make a pile not a pool.</p> <p>Gases fill the container in which they are put.</p> <p>Gases escape from an unsealed container.</p> <p>Gases can be made smaller by squeezing/pressure.</p>	<p>Know that 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.</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes. Changes can occur when different materials are mixed. Some material changes can be reversed and some cannot. Recognise that dissolving is a reversible change and recognise everyday situations where dissolving occurs.</p> <p>Distinguish between melting and dissolving.</p> <p>Mixtures of solids can be separated by sieving. Mixtures of solids and liquids can be separated by filtering if the solid is insoluble (undissolved). Evaporation helps us separate soluble materials from water. Changes to</p>	

					Liquids and gases can flow.	materials can happen at different rates (factors affecting dissolving, factors affecting evaporation – amount of liquid, temperature, wind speed, etc). Freezing, melting and boiling changes can be reversed. 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, and the action of acid on bicarbonate of soda	
Forces	Explore and talk about different forces they can feel. (Sand/water/block play/outdoor environment).			<p>Compare how some things move on different surfaces.</p> <p>Notice that some forces need contact between two objects but magnetic forces can act at a distance.</p> <p>Observe how magnets attract or repel each other and attract some materials and not others.</p> <p>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.</p> <p>Describe magnets as having two poles.</p> <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p>		<p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>Identify the effects of air resistance, water resistance and friction that act between moving surfaces.</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p> <p>There are different types of forces (push, pull, friction, air resistance, water resistance, magnetic forces, gravity) which have different effects on objects</p> <p>Gravity can act without direct contact between the Earth and an object.</p> <p>Friction, air resistance and water resistance can be useful or unwanted.</p> <p>The effects of friction, air resistance and water resistance can be reduced or increased for a preferred effect.</p> <p>More than one force can act on an object simultaneously</p>	

Living habitats	Recognise some environments that are different to the one in which they live.		<p>Explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>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.</p> <p>Identify and name a variety of plants and animals in their habitats, including micro-habitats.</p> <p>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.</p> <p>Different kinds of plants and animals live in different kinds of places.</p> <p>There are different kinds of habitat near school which need to be cared for</p> <p>Habitats provide the preferred conditions for the animals/plants that live there</p> <p>Observe living things in their habitats during different seasonal changes.</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 living things in their local and wider environment.</p> <p>Recognise that environments can change and that this can sometimes pose dangers to living things.</p> <p>Use and make identification keys for plants and animals.</p>		<p>Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.</p> <p>Give reasons for classifying plants and animals based on specific characteristics.</p> <p>Living things can be grouped into micro-organisms, plants and animals.</p> <p>Vertebrates can be grouped as fish, amphibians, reptiles, birds and mammals.</p> <p>Invertebrates can be grouped as snails and slugs, worms, spiders and insects.</p> <p>Plants can be grouped as flowering plants and non-flowering plants. Recognise that living things have changed over time and that fossils 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>
Electricity					<p>Identify common appliances that run on electricity.</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>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.</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p> <p>Recognise some common conductors and insulators, and associate metals with being good conductors.</p>		<p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</p> <p>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.</p> <p>Use recognised symbols (at least: cells, wires, switches, bulbs, buzzers and motors) when representing a simple circuit in a diagram.</p> <p>Use/interpret circuit diagrams to construct a variety of more complex circuits predicting whether they will 'work'.</p>

					<p>Electricity can be dangerous.</p> <p>Electricity sources can be mains or battery.</p> <p>Batteries 'push' electricity round a circuit and can make bulbs, buzzers and motors work.</p> <p>Faults in circuits can be found by methodically testing connections.</p> <p>Drawings, photographs and diagrams can be used to represent circuits</p>		
Environmental science	<p>Begin to understand the need to respect and care for the natural environment.</p> <p>Focus on sea pollution through plastics.</p>			<p>Recycling materials such as paper, glass and plastic can support the environment and reduces the need for raw materials. We should reduce, reuse and recycle our waste. Recycling is the process of converting waste into reusable materials</p>	<p>Forest ecosystems are important because it protects plant, animal and insects. It also protects the forest floor, which slows down soil erosion.</p> <p>Deforestation has a negative affect on the water cycle, climate change, biodiversity and soil when it exposed to the sun's heat.</p> <p>Recycling materials such as paper, glass and plastic can support the environment and reduces the need for raw materials so that that rainforests can be preserved.</p>	<p>Global warming is a major aspect of climate change which, in addition to rising global surface temperatures, also includes its effects, such as changes in precipitation.</p> <p>Ecosystems are dynamically interacting systems of organisms, the communities they make up, and the non-living components of their environment.</p>	
Space And light	<p>Explore the natural world around them.</p> <p>Describe what they see, hear and feel whilst outside.</p> <p>Understand the effect of changing seasons on the natural world around them.</p>	<p>Observe and describe changes across the four seasons.</p> <p>Observe and describe weather associated with the seasons and how day length and temperature varies.</p>		<p>Recognise that they need light in order to see things and that dark is the absence of light.</p> <p>Notice that light is reflected from surfaces.</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>Recognise that shadows are formed when the light from a light source is blocked by a solid object.</p> <p>Find patterns in the way that the size of shadows can change.</p>		<p>Describe the movement of the Earth, and other planets, relative to the Sun and each other in the solar system.</p> <p>Describe the movement of the Moon relative to the Earth.</p> <p>Describe Sun/Earth/Moon as approximately spherical bodies.</p> <p>Use the idea of the Earth's rotation to explain day and night.</p> <p>The Earth spins once around its own axis in 24 hours, giving day and night.</p> <p>The Earth orbits the Sun in one year.</p> <p>We can see the Moon because the Sun's light reflects off it.</p> <p>The Moon orbits the Earth in approximately 28 days and changes to the</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 the light that travels from light sources to our eyes or from light sources to objects and then to our eyes (and represent this in simple diagrammatic form).</p> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>

						<p>appearance of the moon are evidence of this.</p> <p>Use the Earth's movement in space to explain the apparent movement of the sun across the sky.</p> <p>The Sun appears to move across the sky from East to West and this causes shadows to change during the day.</p> <p>Changes to shadow length over a day or changes to sunrise and sunset times over a year are evidence supporting the movement of the Earth.</p>	
Sound					<p>Vibrations</p> <p>Identify 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 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> <p>Recognise that sounds can be made in a variety of ways.</p> <p>Sounds travel away from their source in all directions.</p> <p>Vibrations may not always be visible to the naked eye.</p> <p>Pitch</p> <p>Find patterns between the pitch of a sound and features of the object that produced it.</p> <p>Sounds can be high or low pitched.</p> <p>The pitch of a sound can be altered.</p> <p>Pitch can be altered either by changing the material, tension, thickness or length of vibrating objects or changing the length of a vibrating air column.</p> <p>Muffling/blocking sounds</p>		

					<p>Recognise that vibrations from sounds travel through a medium to the ear.</p> <p>Sounds are heard when they enter our ears (although the structure of the ear is not important key learning at this age phase).</p> <p>Sounds can travel through solids, liquids and air/gas by making the materials vibrate.</p> <p>Sound travel can be reduced by changing the material that the vibrations travel through.</p> <p>Sound travel can be blocked.</p>		