

## Yearly Science Progression Across The Good Shepherd

	A1	A2	Sp1	Sp1	Su 1	Su 2
	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge
F 1	<ul style="list-style-type: none"> <li>To know how to play in the small world models such as the farm, a garage or a train track</li> <li>To know about the different areas of provision and notice features in the Nursery environment</li> <li>Use all their hands-on exploration of natural materials – sand and water provision</li> </ul>	<ul style="list-style-type: none"> <li>To know and show care for the living things in the environments e.g. spider webs, minibeasts and plants</li> <li>Explore collections of materials with similar and/or different properties – workshop resources</li> <li>Talk about the differences between materials and changes they notice</li> </ul>	<ul style="list-style-type: none"> <li>Talk about what they see, smell and hear using wide vocabulary– simple science experiments e.g. making toast, soaking gingerbread man in water (river)</li> <li>To talk about what you have observed e.g. changes in ice, growing cress, colour of water in water tray</li> </ul>	<ul style="list-style-type: none"> <li>Explore and talk about different forces they can feel</li> <li>Explore how things work e.g. light sources, beebots</li> </ul>	<ul style="list-style-type: none"> <li>To know how to plant seeds and care for growing plants</li> <li>To know and develop an understanding of growth, decay and changes over time</li> <li>To know how to talk about why things happen and how things work e.g. tinker table, cause and effect resources</li> </ul>	<ul style="list-style-type: none"> <li>Understand the key features of the life cycle of a plant and an animal</li> <li>Begin to understand the need to respect and care for the natural environment and all living things – recycling campaign</li> </ul>
	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge
F 2	<p>To use our senses to describe what we see, hear and feel during Autumn. <b>Ears, eyes, hands, crunchy, frosty, foggy, cold, ice, hard, melt.</b></p> <p>To sing songs and rhymes about the natural world around us. <b>Trees, grass, sun, clouds, rain, thunder.</b></p> <p>To talk about how I have <b>changed</b> since I was a <b>baby</b>.</p> <p>To talk about the <b>life cycle</b> of a human. <b>Baby, toddler, school child, teenager, adult, grandparent.</b></p> <p>To explore and comment on the natural world around us, making observations and drawing pictures of animals and plants. <b>Trees, leaves, veins, branches, bark, twigs, rabbit, frog</b></p>	<p>To show understanding of the effect of changing seasons from <b>Autumn</b> to <b>winter</b> on plants and animals (<b>hibernation</b>). Seasons, <b>grow, leaves, changes in colour, hedgehogs.</b></p> <p>To understand how to keep our bodies <b>healthy</b>. <b>Exercise, heart, breathing, oxygen, lungs, sleep, teeth, fruit, vegetables, 5-a-day,</b></p> <p>To know about growth, decay and changes over time (developing understanding).</p> <p>To recognise some environments that are different to the one in which they live (<b>hibernation/migration</b>). <b>Hedgehog, warmth, deep sleep, long, fur, fat,</b></p>	<p>To talk about changes seen in <b>Winter</b>. <b>Snow, ice, short days, low sun, no leaves.</b></p> <p>To know the <b>life cycle</b> of a plant (beanstalk). <b>Bean, roots, sprout, leaves, flowers, shoot, seed.</b></p> <p>To begin to understand and talk about changing states of matter. <b>Cooling, heating, melting, freezing, ice cubes, snow, cooking porridge.</b></p> <p>To know how to care for growing plants. <b>Light, warmth, water, soil.</b></p>	<p>To explore and identify the signs of spring in relation to the natural world. <b>Grow, shoots, leaves, sun,</b></p> <p>To draw and name parts of a plant (<b>daffodil</b>). <b>Roots, bulb, stalk, leaves, flower, petal, cup, corona</b></p> <p>To know how to care for growing animals and planting (Tortoise and planting in the prayer garden). <b>Food, bedding, warmth, water, shelter, care, clean, sunlight, seeds, bulbs, plants, dig, soil.</b></p> <p>To know some similarities and differences in relation to plants.</p>	<p><b>Space, space shuttle,</b> I know why things happen and how things work.</p> <p>To know a force can have an effect on an object- <b>gravity/magnets/floating/sinking</b></p> <p>To name some planets in the solar system. <b>Earth, moon, sun, stars</b></p> <p>To talk about famous scientists /figures who are linked to space. <b>Chris Hadfield</b></p>	<p><b>Rainforest, central America, trees, gibbon, canopy, orangutan, tiger, armadillo, jaguar, binoculars, water, compass, magnifying glasses, investigate, photographs.</b></p> <p>To talk about and identify the signs of summer. <b>Sunshine, rain, warm, hot, sun-cream, water,</b></p> <p>To compare and talk about the rainforest animals and their habitats. <b>Trees, canopy, humid.</b></p> <p>To know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class (<b>rainforest/farm/zoo</b>).</p> <p>To know the need to respect and care for the natural environment and all living</p>

## Yearly Science Progression Across The Good Shepherd

things- protecting the rainforest/recycling. Reduce, reuse, recycle. Plastic, cardboard, paper,

	A1: animals including Humans / Seasons	A2: Materials	Sp1: Animals / Seasons	Sp1:	Su1: Plants / Seasons	Su: 2
	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge	
Y E A R 1	<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. <b>Head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth.</b></p> <p>Name and describe the job of some of the organs inside my body and how some are connected to our 5 senses. <b>Hear - ears, see - eyes, smell - nose, touch - skin, taste - mouth.</b></p> <p>Seasons. Observe changes throughout Autumn. Describe <b>weather</b> associated with the season and how day length varies (<b>rain, fog, sunshine</b>)</p> <p><b>Work scientifically by:</b> using observations, games, actions, songs and rhymes to name body parts; using their senses to compare different textures, sounds and smells.</p> <p>Observing and talking about changes in the weather and the seasons. Making tables and charts about the weather.</p>	<p>Identify and name a variety of common animals including <b>fish (goldfish, tuna, shark, eel), amphibians (frog, toad, newt, salamander), reptiles (snake, tortoise, lizard, alligator), birds (penguin, flamingo, chicken robin) and mammals, including pets (human, mouse, cow, dog, cat, rabbit).</b></p> <p>Identify and name a variety of common animals that are <b>carnivores (cat, dog, lion, wolf), herbivores (cow, rabbit, rhino) and omnivores (pigs, dogs, bears, hedgehogs).</b></p> <p>Describe and compare the structure of a variety of common animals. <b>Fin, wing, eye, beak, leg, scales, tail, whiskers.</b></p> <p><b>Work scientifically by:</b> using observations to compare and contrast animals at first hand or through videos and photographs, describing how they identify and group them; grouping animals according to what they eat.</p>	<p>Distinguish between an <b>object</b> and the <b>material</b> from which it is made. <b>Plastic toys, wooden furniture, metal tools, glass window, paper books, brick houses,.</b></p> <p>Identify and name a variety of everyday materials, including <b>wood, plastic, glass, metal, water, rock, brick, fabric, paper, stone, foil, Elastic.</b></p> <p>Describe the simple physical properties of a variety of everyday materials. <b>Hard, soft, stretchy, shiny, dull, rough, smooth.</b></p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties. <b>Bendy/not bendy, waterproof/not waterproof, absorbent/not absorbent, transparent/opaque.</b></p> <p>Seasons. Observe changes throughout Spring. Describe <b>weather</b> associated with the season and how day length varies (<b>sunshine, rain showers</b>)</p> <p><b>Work scientifically by:</b> exploring, naming, discussing and raising and answering questions about materials. Performing simple tests to explore questions. Exploring and experimenting with a <b>wide</b> variety of materials.</p> <p>Observing and talking about changes in the weather and the seasons. Making tables and charts about the weather.</p>	<p>Identify and name a variety of common plants, including garden plants, wild plants and trees, <b>ivy, dog rose, dandelion, daisy, buttercup, nettle, sunflower, rose, lavender, poppy, lily, pansy, cedar, horse chestnut, oak,</b> and those classified as deciduous (<b>beech, ash, hazel, willow</b>) and evergreen (<b>holly, pine, privet</b>).</p> <p>Describe the basic structure of a variety of common plants including <b>fruit, bulb, seeds, roots, stem, leaves and flowers.</b></p> <p>Seasons. Observe changes throughout Summer. Describe <b>weather</b> associated with the season and how day length varies (<b>sunshine</b>)</p> <p><b>Work scientifically by:</b> observing closely, perhaps using magnifying glasses, and comparing and contrasting familiar plants; describing how they were able to identify and group them, and drawing diagrams showing the parts of different plants including trees. Keep records of how plants have changed over time, for example the leaves falling off trees and buds opening; and compare and contrast what they have found out about different plants.</p> <p>Observing and talking about changes in the weather and the seasons. Making tables and charts about the weather.</p>		

## Yearly Science Progression Across The Good Shepherd

	A1: Animals including Humans	A2: Materials & Uses	Sp1: Feeding & exercise	Sp2: Living things & Habitats	Su1: Plants	Su2: Environment
	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge
Y E A R  2	<p>Know that animals, including humans, have offspring which grow into adults. <b>Egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog, lamb, sheep: baby, toddler, child, teenager, adult. Offspring,</b></p> <p>Know that some offspring look like their adult when they are born e.g. lamb/sheep, and some do not e.g. tadpoles/frogs. <b>Offspring, adult, young, baby.</b></p> <p>Know that some animals lay eggs which the young hatch from e.g. chicks, and some give birth to live young e.g. humans. <b>Live young, hatch, eggs, lay, birth.</b></p> <p>Identify and compare life cycles of different animals, including humans.</p> <p><b>Working scientifically by:</b> Observing and measuring the life cycle of a butterfly. Including how it begins it's life as a caterpillar.</p>	<p>Identify and compare the suitability of a variety of everyday materials, including <b>wood, metal, plastic, glass, brick, rock, paper and cardboard</b> for particular uses.</p> <p>Find out how the shapes of solid objects made from some materials can be changed by <b>squashing, bending, twisting and stretching.</b></p> <p>Research the life and work of Charles Macintosh.</p> <p><b>Working scientifically by:</b> comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); observing closely, identifying and classifying the uses of different materials, and recording their observations.</p>	<p>Describe how animals obtain their food from plants and other animals, using the idea of a simple <b>food chain</b>, and identify and name different <b>sources of food.</b></p> <p>Find out about and describe the basic needs of humans for survival (<b>water, food and air</b>)</p> <p>Describe the importance for humans of <b>exercise</b>, eating the right amounts of different types of food, and <b>hygiene. Germs, carbohydrates, fruit &amp; veg, proteins, diary or alternatives.</b></p> <p><b>Work scientifically by:</b> Observing and measuring, how different animals, including humans, grow; asking questions about what things animals need for survival and what humans need to stay healthy; and suggesting ways to find answers to their questions. Constructing a simple food chain that includes humans (e.g. grass, cow, human).</p>	<p>Explore and compare the differences between things that are <b>living, dead</b>, and things that have <b>never been alive.</b></p> <p>Identify that most living things live in <b>habitats</b> 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. <b>Woodland, urban, coastal, rainforest, arctic, desert, ocean, river, mountain.</b></p> <p>Identify and name a variety of plants and animals in their habitats, including <b>micro-habitats – short grass, flowers, rotting wood, under leaves, in/on soil.</b></p> <p><b>Work scientifically by:</b> Comparing animals in familiar habitats with animals found in less familiar habitats, eg on the seashore, in woodland, in the ocean, in the rainforest. Describing the conditions in different habitats and micro-habitats (under log, on stony path, under bushes) and find out how the</p>	<p>Observe and describe how seeds and bulbs grow into mature plants. <b>Germination, sprout, shoot, seed dispersal, bulb.</b></p> <p>Find out and describe how plants need <b>water, light</b> and a <b>suitable temperature</b> to grow and stay healthy.</p> <p><b>Classifying seeds and bulbs.</b> How can we group them? According to size, shape, colour?</p> <p><b>Working scientifically by:</b> observing and recording the growth of a variety of plants as they change over time from a seed and bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy.</p>	<p>Understand the impact of <b>climate change</b> on our <b>planet</b> and observe how ice melts. <b>Environment, atmosphere, greenhouse gas, heat.</b></p> <p>Find out how different things use <b>energy</b> to make them work. E.g <b>natural gas, electricity, oil.</b></p> <p>Identify rainforest animals and understand how some are in danger. <b>Deforestation, threat, extinction, endangered.</b></p> <p>Understand how water links to the preservation of our environment. <b>Water conservation</b></p> <p><b>Working scientifically by:</b> Observing and recording how ice melts depending on whether it receives heat or not. Measuring water waste when using the tap.</p>

## Yearly Science Progression Across The Good Shepherd

			conditions affect the number and type(s) of plants and animals that live there. Sorting and classifying things according to whether they are living, dead or were never alive, and recording their findings using charts.		
<b>A1: Rocks</b>	<b>Au 2: Magnets &amp; Forces</b>	<b>Sp1: Animals &amp; Humans</b>	<b>Sp2: Light</b>	<b>Su1: Plants</b>	<b>Su2</b>
<b>Knowledge</b>	<b>Knowledge</b>	<b>Knowledge</b>	<b>Knowledge</b>	<b>Knowledge</b>	<b>Knowledge</b>
<p><b>Y</b> <b>E</b> <b>A</b> <b>R</b> <b>3</b></p> <p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. <b>Igneous, sedimentary, metamorphic, magma, lava, sediment, permeable, impermeable</b></p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock. <b>Fossilisation, palaeontology, erosion.</b></p> <p>Recognise that soils are made from rocks and organic matter. <b>Topsoil, subsoil, baserock.</b></p> <p><b>Work scientifically by:</b> observing rocks, including those used in buildings and gravestones, and exploring how and why they might have changed over time; using a hand lens or microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them. Research and discuss the different kinds of living things whose fossils</p>	<p>Compare how things move on different surfaces</p> <p>Notice that some <b>forces</b> need contact between two objects, but <b>magnetic</b> forces can act at a distance</p> <p>Observe how magnets <b>attract</b> or <b>repel</b> 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 <b>magnet</b>, and identify some magnetic materials.</p> <p>Describe magnets as having two <b>poles.</b></p> <p><b>Work scientifically by:</b> comparing how different things move and grouping them; raising questions and carrying out tests to find out how far things move on different surfaces and gathering and recording data to find answers their questions; exploring the strengths of different magnets and finding a fair way to compare them; sorting materials into those that are magnetic and</p>	<p>Identify that animals, including humans, need the right types and amount of <b>nutrition</b>, and that they cannot make their own food; they get nutrition from what they eat. <b>Carbohydrates, protein, fibre, fats, vitamins, minerals, water.</b></p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement. <b>Skull, clavicle, scapula, ribcage, humerus, vertebra, ulna, radius, pelvis, femur, tibia, fibula,</b></p> <p>Describe the structure and functions of the human skeleton. <b>Muscles, tendons, joints, contract, relax.</b></p> <p><b>Work scientifically by:</b> identifying and grouping animals with and without skeletons and observing and comparing their movement; exploring ideas about what would happen if humans did not have skeletons. Compare and contrast the diets of different animals (including their pets) and decide ways of grouping them according to what they eat.</p>	<p>Recognise that they need <b>light</b> in order to see things and that <b>dark</b> is the absence of light</p> <p>Notice that light is <b>reflected</b> from surfaces.</p> <p><b>Light source, reflection, reflect, reflective, ray.</b></p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>Know 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 change.</p> <p><b>Work scientifically by:</b> looking for patterns in what happens to shadows when the light source moves or the distance between the light source and the object changes.</p>	<p>Identify and describe the functions of different parts of flowering plants: <b>roots, stem/trunk, leaves and flowers. Petal, stamen, carpel (pistil), sepal.</b></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 <b>pollination</b>, seed formation and seed dispersal. <b>Germination, pollinator, seed dispersal.</b></p> <p><b>Work scientifically:</b> comparing the effect of different factors on plant growth, eg, light or fertiliser; discovering how seeds are formed by observing the different stages of plant life cycles over a period of time; looking for patterns in the structure of fruits that relate to how the seeds are disperse. Observe how water is transported up the stem to the flowers</p>	

## Yearly Science Progression Across The Good Shepherd

	are found in sedimentary rock and explore how fossils are formed. Pupils could explore different soils and identify similarities and differences between them and investigate what happens when rocks are rubbed together or what changes occur when they are in water. Raise and answer questions about the way soils are formed.	those that are not; looking for patterns in the way that magnets behave in relation to each other and what might affect this, for example, the strength of the magnet or which pole faces another; identifying how these properties make magnets useful in everyday items and suggesting creative uses for different magnets.				
	<b>A1: Sound</b>	<b>A2: Electricity</b>	<b>Sp1: Animals &amp; Humans (Teeth and eating)</b>	<b>Sp2: States of Matter</b>	<b>Su1: Living things &amp; Habitats</b>	
	<b>Knowledge</b>	<b>Knowledge</b>	<b>Knowledge</b>	<b>Knowledge</b>	<b>Knowledge</b>	
Y E A R  4	<p>Identify how sounds are made, associating some of them with something <b>vibrating</b>. <b>Vibration, sound wave</b>.</p> <p>Recognise that vibrations from sounds travel through a medium to the <b>ear/eardrum</b>. Find patterns between the <b>pitch</b> 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. <b>Amplitude</b>.</p> <p>Recognise that sounds get fainter as the distance from the sound source increases.</p> <p><b>Work scientifically by:</b> finding patterns in the sounds that are made by different objects such as saucepan lids of different sizes or elastic bands of different thicknesses. Investigate</p>	<p>Identify common <b>appliances</b> that run on electricity.</p> <p>Construct a simple series electrical <b>circuit</b>, 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 <b>lamp</b> is part of a complete loop with a <b>battery</b></p> <p>Recognise that a <b>switch</b> 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 <b>conductors and insulators</b>, and associate metals with being good conductors.</p> <p><b>Renewable and non-renewable</b> electricity.</p> <p><b>Work scientifically by:</b></p>	<p>Describe the simple functions of the basic parts of the digestive system in humans.</p> <p><b>Oesophagus, stomach, small intestine, large intestine, rectum.</b></p> <p>Identify the different types of teeth in humans and their simple functions. <b>Incisor, canine, molar, premolar.</b></p> <p><b>Work scientifically by:</b> comparing the teeth of carnivores and herbivores, and suggesting reasons for differences; finding out what damages teeth and how to look after them, draw and discuss ideas about the digestive system and compare them with models or images.</p>	<p>Compare and group materials together, according to whether they are <b>solids, liquids or gases</b>. <b>Water vapour</b>.</p> <p>Observe how 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 <b>evaporation and condensation</b> in the <b>water cycle</b> and associate the rate of evaporation with temperature.</p> <p><b>Melt, freeze, evaporate, condense, precipitation.</b></p> <p><b>Work scientifically by:</b> grouping and classifying a variety of different materials; exploring the effect of temperature on substances such as chocolate, butter, cream. Research the temperature at which materials</p>	<p>Recognise that living things can be grouped in a variety of ways Explore and use <b>classification</b> keys to help group, identify and name a variety of living things in their local and wider environment. <b>Organisms, life processes, respiration, sensitivity, reproduction, excretion, nutrition, vertebrates, invertebrates, characteristics.</b></p> <p>Pupils should use the local <b>environment</b> to raise and answer questions that help them to identify and study plants and animals in their <b>habit</b>. Identify how the habitat changes throughout the year.</p> <p><b>Endangered species, extinct.</b></p> <p><b>Work scientifically by:</b> using and making simple guides or keys to explore and identify local animals. Explore possible ways of grouping a wide selection of living things that include animals and flowering plants and non-flowering plants.</p>	<p>Dangers to living things</p> <p>1. recognise that <b>environments</b> can change and that this can sometimes pose dangers to living things. <b>Deforestation, pollution, earthquakes, storms, floods, drought, wildfires, seasons.</b></p> <p>2. construct &amp; interpret a variety of <b>food chains</b>, identifying <b>producers, predators &amp; prey.</b></p> <p><b>Work scientifically by:</b> Explore examples of human impact on environments, for example, the positive effects of nature reserves, ecologically planned parks, or garden ponds, and the negative effects of population and development, litter or deforestation. Investigate the effect of a small change to an environment by eg. placing carpet or other covering on the ground, and considering the impact of larger changes to the environment such as fire and flood. Consider how humans can reduce the impact of some environmental changes.</p>

## Yearly Science Progression Across The Good Shepherd

	which material provides the best insulation against sound. Make and play their own instruments by using what they have found out about pitch and volume	observing patterns, for example, that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.	.	change state, for example, when iron melts or when oxygen condenses into a liquid. Observe and record evaporation over a period of time and investigate the effect of temperature on washing drying or snowmen melting.	Collecting data about living things in different areas of the school grounds or local area. Present the information in a series of classification keys as a guide to the living things around them. Look at different classification keys and decide which ones are most effective and explained why.	
	<b>A1: Earth &amp; Space</b>	<b>A2: Forces</b>	<b>Sp1: Properties of Materials</b>	<b>Sp2:</b>	<b>Su1: Animals &amp; Humans</b>	<b>Su2: Living Things &amp; Habitats</b>
	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge
<b>Y E A R 5</b>	<p>Describe the movement of the <b>Earth</b>, and other <b>planets</b>, relative to the <b>Sun</b> in the solar system. <b>Orbit, rotate, axis, geocentric model, heliocentric model, astronomer.</b></p> <p>Describe the movement of the <b>Moon</b> relative to the Earth.</p> <p>Describe the Sun, Earth and Moon as approximately <b>spherical bodies.</b></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> <p><b>Work scientifically by:</b> comparing the time of day at different places on the Earth through internet links and direct communication; creating</p>	<p>Explain how unsupported objects fall towards the Earth because of the force of <b>gravity</b> acting between the Earth and the falling object.</p> <p>Identify the effects of <b>air resistance, water resistance and friction</b>, that act between moving surfaces. <b>Streamlined, buoyancy, up-thrust.</b></p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p> <p><b>Work scientifically by:</b> exploring falling paper cones or cup-cake cases, and designing and making a variety of parachutes and carrying out fair tests to determine which designs are the most effective. Explore</p>	<p>Compare and group together everyday <b>materials</b> on the basis of their properties, including their <b>hardness, solubility, transparency, conductivity</b> (electrical and thermal), and <b>response to magnets.</b></p> <p>Know that some materials will <b>dissolve</b> in liquid to form a <b>solution</b>, and describe how to recover a substance from a solution.</p> <p>Use knowledge of <b>solids (melting), liquids (freezing &amp; evaporating) and gases (condensing)</b> to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.,</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 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.</p> <p><b>Work scientifically by:</b></p>	<p>Describe the changes as humans develop to old age. Understand that all living things have <b>lifecycles. Fertilisation, prenatal, gestation, reproduce, asexual reproduction, sexual reproduction, adolescence, puberty, menstruation, adulthood, life expectancy.</b></p> <p><b>Working scientifically by:</b> researching the gestation periods of other animals and comparing them with humans; by finding out and recording the length and mass of a baby as it grows.</p>	<p>Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. <b>Asexual reproduction, sexual reproduction, fertilise, gestation, life cycle, metamorphosis, pollination.</b></p> <p><b>Work scientifically by:</b> observing and comparing the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times), asking pertinent questions and suggesting reasons for similarities and differences. They might try to grow new plants from different parts of the parent plant, for example, seeds, stem and</p>	

## Yearly Science Progression Across The Good Shepherd

	simple models of the solar system; constructing simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day; finding out why some people think that structures such as Stonehenge might have been used as astronomical clocks.	resistance in water by making and testing boats of different shapes. Design and make products that use levers, pulleys, gears and/or springs and explore their effects.	carrying out tests to answer questions, for example. Compare materials in order to make a switch in a circuit. Observe and compare the changes that take place, for example, when burning different materials or baking bread or cakes. Research and discuss how chemical changes have an impact on our lives, for example, cooking, and discuss the creative use of new materials such as polymers, super-sticky and super-thin materials.		root cuttings, tubers, bulbs. They might observe changes in an animal over a period of time (for example, by hatching and rearing chicks), comparing how different animals reproduce and grow.	
	<b>A1: Animals including Humans</b>	<b>A2: Inheritance &amp; Evolution</b>	<b>Sp1:</b>	<b>Sp2: Animal Adaptations</b>	<b>Su1: Electricity</b>	<b>Su2: Light</b>
	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge
YEAR 6	<p>Identify and name the main parts of the human <b>circulatory system</b>, and describe the functions of the <b>heart, blood vessels and blood. Oxygenated blood, deoxygenated blood.</b></p> <p>Recognise the impact of diet, <b>exercise, drugs</b> and <b>lifestyle</b> on the way their bodies function.</p> <p>Describe the ways in which <b>nutrients</b> and water are transported within animals, including humans.</p> <p><b>Work scientifically by:</b> exploring the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.</p>	<p>Describe <b>variation</b> between individuals of difference species. Describe variation between individuals within a species. Explain how variation leads to competition which can drive <b>adaptation. Evolution, natural selection, fossil, adaptive traits, inherited traits.</b></p> <p>Understand that changes in the environment that leave some species less well adapted to compete successfully and reproduce.</p> <p><b>Work scientifically by:</b></p> <p>observing and raising questions about local animals and how they are adapted to their environment; comparing how some living things are adapted to survive in extreme conditions, for example, cactuses, penguins and camels. Analyse the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers.</p>	<p>Classify animals in to groups using knowledge of <b>vertebrates, invertebrates, mammals, amphibians, reptiles</b></p> <p>Know that <b>micro-organisms</b> include <b>fungi, viruses</b> and <b>bacteria</b> and investigate how some bacteria contributes to health</p> <p>Know how micro-biology and classification has developed over time through the studies of <b>Aristotle, Linneaus and Ruth Moore.</b></p> <p>Know that living things can be grouped in to <b>5 kingdoms: animals, plants, fungi, bacteria and protists.</b></p> <p>Know how to use a <b>classification key</b> to identify insects</p> <p>Know how to create and use a classification tree to group <b>living things</b></p>	<p>Associate the brightness of a lamp or the volume of a buzzer with the number and <b>voltage</b> of <b>cells</b> used in the <b>circuit.</b></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 when representing a simple circuit in a diagram. <b>Symbol, cell/battery, current, amps, voltage, resistance, electrons.</b></p> <p><b>Work scientifically by:</b> systematically identifying the effect of changing one component at a time in a circuit; designing and making a set of traffic lights, a burglar</p>	<p>Recognise that <b>light</b> 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. 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.</p> <p>Explain why shadows have the same shape as the objects that cast them. <b>Light source, reflection, incident ray, reflected ray, law of reflection, refraction, visible spectrum, prism, shadow, transparent, translucent, opaque</b></p> <p><b>Work scientifically by:</b> deciding where to place rear-view mirrors on cars; designing and making a periscope and using the idea that light appears to travel in</p>	

## Yearly Science Progression Across The Good Shepherd

			<p>Work scientifically by: using classification systems and keys to identify some animals and plants in the environment.</p>	<p>alarm or some other useful circuit.</p>	<p>straight lines to explain how it works. They might investigate the relationship between light sources, objects and shadows by using shadow puppets. They could extend their experience of light by looking a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water and coloured filters.</p>
--	--	--	----------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------