

Hartford Primary School

Science Essential Learning and Assessment Questions



Respect Collaborate Aspire

Creating Success Together



Science Essential Learning and Assessment Questions

Reception Essential Learning

ELG- The Natural World- **Explore** the natural world around them, making **observations** and **drawing pictures** of animals and plants. • 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. • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Humans (All about Me)	Materials (Including changing materials)	Seasons and Weather	Animals (not including humans)	Plants
<p>I have had the opportunity to ...</p> <p>name basic body parts</p> <ul style="list-style-type: none"> • learn that we look different as we get older. • describe people who are familiar to me • know how to take care of myself. (hygiene- handwashing, cleaning teeth) • explore smells, sounds , touch and tastes using my senses. 	<p>I have had the opportunity to ...</p> <ul style="list-style-type: none"> • identify and describe objects made from wood,,metal and plastic. Go on a material hunt around school. • explore materials that float and sink • use magnets to explore magnetic materials • explore ice and the process of freezing and melting • explore changing of state when making biscuits/ cake (gingerbread men) 	<p>I have had the opportunity to ...</p> <ul style="list-style-type: none"> • Use my senses to explore the natural world through the four seasons • Describe what they see, hear and feel whilst outside 	<p>I have had the opportunity to ...</p> <ul style="list-style-type: none"> • hunt for minibeasts in their habitats in our school grounds • learn about the animals that live in different habitats though stories (under the sea, cold lands, farms) • learn about the life cycle of a chicken through first hand observation • learn how to care for our pets (pet week) 	<p>I have had the opportunity to ...</p> <ul style="list-style-type: none"> • plant seeds (sunflowers) and watch them grow • observe and care for plants in our outdoor environment

Assessment Questions

<p>Can you point to -head, shoulders, legs, arms, elbows, knees, feet, ankles, eyebrows, eyelashes, ears, nose and mouth.</p> <p>Why do we need to wash our hands?</p>	<p>Can you find me something made of metal, wood and plastic?</p> <p>Can you tell me any materials that will float/sink?</p> <p>Can you tell me what this magnet does?</p> <p>What is ice?</p> <p>How did your gingerbread biscuits change when they went in the oven?</p>	<p>What is it like in Autumn. Winter, Spring and Summer?</p>	<p>Which animals live in cold lands?</p> <p>Which animals live on a farm?</p> <p>Which animals live under the sea ?</p> <p>How did our eggs change?</p> <p>How do we look after our pets?</p> <p>Can you tell me any minibeasts you found in our school grounds?</p>	<p>What happened to your sunflower seed when you planted it?</p> <p>How did you look after your sunflower plant?</p>
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Year One			
Essential Learning			
Animals including Humans	Everyday Materials	Plants	Seasonal Change
<p>I can identify and name a variety of common animals including fish, amphibians (frog), reptiles (snake, lizard), birds (eg blackbird and blue tit) and mammals (eg dogs, squirrel and rabbit).</p> <p>I can identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>I can describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves</p> <p>I can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth)</p>	<p>I can distinguish between an object and the material from which it is made</p> <p>I can identify and name a variety of everyday materials, including wood, metal, plastic, glass, water, paper, cardboard, brick and rock</p> <p>I can describe the simple physical properties of a variety of everyday materials</p> <p>I can compare and group together a variety of everyday materials on the basis of their simple physical properties.</p> <p>✓ hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent</p> <p>I can talk about the life of Charles Macintosh and I know why he was a famous.</p>	<p>I can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</p> <p>✓ Oak, sycamore, holly, pine, daisy, clover, buttercup, dandelion, daffodil, tulip.</p> <p>I can identify and describe the basic structure of a variety of common flowering plants, including trees, leaves, flowers (blossom), petals, fruit, roots, bulb, seed, trunk, branches and a stem</p>	<p>I can observe changes across the 4 seasons (spring, summer, autumn, winter)</p>
Assessment Questions			
<p>Can you name a reptile , a mammal, an amphibian, a bird and an insect? How do you know?</p> <p>What are the main body parts? (refer to body parts named above)</p>	<p>What are the names of these materials (refer to materials named above)</p> <p>Can you tell me a material that is waterproof/shiny/rough etc? What does that mean? (refer to properties named above)</p>	<p>What are the different parts of a flowering plant and a tree</p> <p>What happened when we planted flowers and vegetables from seed?</p>	<p>How does the weather change in spring, summer, autumn and winter?</p> <p>How do the trees change in spring, summer, autumn and winter?</p>

<p>Name the body parts of a fish, a bird, a mammal, an amphibian and a reptile looking at photos to prompt.</p> <p>What are the names of these common animals?</p> <p>What are the 5 senses and which body part are they connected with?</p>	<p>Who is Charles Macintosh and why is he famous?</p>	<p>What common flowers and trees can be found in my school grounds?</p>	
Working Scientifically and Essential Skills			
<p>I can use my observations to compare and contrast animals at first hand or through videos and photographs</p> <p>I can group animals according to what they eat</p> <p>I can use my senses to compare different textures, sounds and smells</p>	<p>I can perform simple tests to explore questions, ‘What is the best material for an umbrella?’ ‘What is the best material to mop up our spills?’</p> <p>I can sort and group materials according to different properties (see list above)</p> <p>I can record my observations in tables and sorting rings.</p>	<p>I can use simple charts etc. to identify plants.</p> <p>I can plant vegetables from seeds, observe their growth closely and notice how they change over time.</p> <p>I can use magnifying glasses to help me to draw and label simple diagrams of plants</p> <p>I can compare and contrast plants and notice differences and similarities</p>	<p>I can observe changes over time to recognise how trees change through the seasons</p> <p>I can look for patterns in the weather through the seasons.</p>

Year Two			
Essential Learning			
Living Things and their Habitats	Use of Everyday Materials	Animals including Humans	Plants
<p>I can explore and compare the differences between things that are living, dead, and things that have never been alive</p> <p>I can 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>I can identify and name a variety of plants and animals in their habitats: rainforest, woodland, tundra (cold lands) , desert and savannah.</p> <p>I can identify and name plants and animals in microhabitats, eg flower bed, under a log in forest schools area and in the soil.</p> <p>I can 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>I can use the properties listed to group and describe materials: hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent (Year 1 retrieval)</p> <p>I can identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses (use properties vocab listed above to describe)</p> <p>I can find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p> <p>I know who John Dunlop is and why he is a famous?</p>	<p>I can know that animals, including humans, have offspring which grow into adults</p> <p>I can find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p> <p>I can describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene</p>	<p>I can observe and describe how seeds and bulbs grow into mature plants</p> <p>I can find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>
Assessment Questions			
What is a habitat and can you name some different habitats?	<p>Why are windows made from glass?</p> <p>Why is the bookcase made from wood?</p> <p>Why is this spoon made from metal?</p>	<p>What keeps us alive and healthy?</p> <p>What stages are in the lifecycle of a butterfly?</p>	<p>What happens when you plant a seed?</p> <p>What happens when you plant a bulb?</p>

<p>What is a microhabitat and can you name some in our school grounds?</p> <p>Which are living, dead or were never alive?</p> <p>What is a food chain?</p>	<p>Why is your jumper made from fabric?</p> <p>Why is a house made from brick?</p> <p>Who is John Dunlop and why is he a famous?</p>	<p>What stages do humans go through as they grow into adults?</p> <p>What do all animals need for survival?</p>	<p>What does a plant need to grow and stay healthy?</p>
Working Scientifically and Essential Skills			
<p>I can sort into living, dead and never been alive.</p> <p>I can identify and classify animals in a range of habitats.(see above)</p> <p>I can observe minibeasts in different microhabitats and record my finding using a table and a pictogram or block graph.</p> <p>I can set up a pattern seeking enquiry to investigate which conditions woodlice prefer.</p>	<p>I can compare and group together materials based on their properties (Year 1 retrieval see vocab list)</p> <p>I can draw a basic conclusion using scientific language and consider if materials are suitable for purpose.</p> <p>I can explore how objects made from materials can change their shape and record my observations in a table.</p> <p>I can set up a comparative test to compare materials for a sleeping bag for Humpty Dumpty and Houses for The Three Little Pigs.</p>	<p>I can, through first-hand observation over time and measurement, watch how caterpillars grow and change.</p> <p>I have carried out a simple test to see how my body responds to different exercises. I have recorded my results in a table.</p> <p>I can set up a comparative test to see how germs spread on bread.</p> <p>I can sort and group foods into food groups</p>	<p>I can observe and group seeds and bulbs (own criteria)</p> <p>I can observe the growth of tulip and daffodil bulbs at different stages of growth and draw and label diagrams. NB. Bulbs will need to be planted in Autumn.</p> <p>I can set up a comparative test using cress to show that plants need light and water to stay healthy and observed the results over time</p> <p>I can record the results from my comparative test in a simple table and draw and label diagrams.</p> <p>I can observe the growth of a bean seed over time and record the growth in a diary using labelled diagrams. I can measure the growth in cms.</p>

Year Three				
Essential Learning				
Animals including Humans	Forces and Magnets	Rocks	Plants	Light
<p>I can identify that humans and some other animals have skeletons and muscles for support, protection and movement (Skull, ribs, pelvis, spine, knee cap, collar bone, ankle, fibula, tibia, radius, ulna, femur)</p> <p>I can 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>I can compare how things move on different surfaces</p> <p>I can notice that some forces need contact between 2 objects, but magnetic forces can act at a distance</p> <p>I can observe how magnets attract or repel each other and attract some materials and not others</p> <p>I can 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>I can describe magnets as having 2 poles</p> <p>I can predict whether 2 magnets will attract or repel each other depending on which poles are facing</p>	<p>I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>I can describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>I can recognise that soils are made from rocks and organic matter</p> <p><i>I can talk about Mary Anning and I know why she is famous.</i></p>	<p>I can identify and describe the functions of different parts of flowering plants , roots, stem/trunk, leaves and flowers</p> <p>I can explore the requirements of plants for life and growth (air, <i>lights, water</i>, nutrients from soil and room to grow) and how they vary from plant to plant</p> <p>I can investigate the way in which water is transported within plants</p> <p>I can explore the part that flowers play in the life cycle of flowering plants including pollination, seed formation and seed dispersal</p> <p><i>I can talk about Joseph Banks and I know why he is famous.</i></p>	<p>I can recognise that they need light to see things and that dark is the absence of light</p> <p>I can notice that light is reflected from surfaces</p> <p>I can recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>I can define the terms transparent, opaque and translucent and find patterns in the way that the size of shadows changes.</p>
Assessment Questions				
<p>Why is nutrition and a balanced diet important?</p> <p>What would make a healthy meal?</p>	<p>How do things move on different surfaces?</p> <p>Which forces need contact and which don't?</p>	<p>How would you group together different kinds of rocks?</p> <p>How are fossils formed and what are they?</p>	<p>What are the different parts of a flowering plants and what are their functions?</p> <p>What does a plant need to live and grow?</p>	<p>What do I need in order to see?</p> <p>What is dark?</p> <p>How does light travel?</p>

<p>Which main body parts are associated with which part of the skeleton?</p> <p>What would happen if humans did not have skeletons?</p>	<p>What happens when we put two magnets near each other?</p> <p>What happens when we put a magnet near different materials?</p>	<p>What is soil made from?</p> <p>Who is Mary Anning and why is she famous?</p>	<p>How is water transported within a plant?</p> <p>How do flowering plants reproduce?</p> <p>Who is Josphe Banks and why is he famous?</p>	<p>What do I know about the light from the sun?</p> <p>How are shadows formed?</p> <p>Why does the size of a shadow change?</p>
Working Scientifically and Essential Skills				
<p>I can research the bones in the skeletal system. Compare, contrast and classify skeletons of different animals.</p> <p>I can research different food groups and how they keep us healthy and design a meal based on what I have found out.</p> <p>I can research the nutritional values of foods by reading data from food labels.</p> <p>I can collect data to look for patterns to investigate if people with longer legs can run faster.</p>	<p>I can carry out a fair tests to find out how far things move on different surfaces and gather and record data (cm,m) using a table and a bar chart</p> <p>I can 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>I can explore the strengths of different magnets and find a fair way to compare them recording my results in a table.</p>	<p>I can compare and group together different kinds of rocks based on their appearance and simple physical properties. I can record my classifications in a table, Venn diagram or Carrol diagram.</p> <p>I can investigate what happens when rocks are rubbed together and what changes occur when they are in water.</p> <p>I can compare different soils and identify similarities and differences between them.</p> <p>I can research and learn about significant scientists in history. (Mary Anning)</p>	<p>I can dissect and observe the parts of a flowering plants and draw detailed labelled diagrams.</p> <p>I can grow Mung Beans and compared the effect of different factors on their growth, for example, air, nutrients in soil, room to grow. (comparative test).</p> <p>I can grow tomato plants and observe the role that flowers play.</p> <p>I can observe over time how water is transported in plants.</p> <p>I can use secondary sources to research the life of Joseph Banks</p>	<p>I can classify materials according to whether they are transparent, translucent or opaque</p> <p>I can look 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>I can observe shadows over time and look for patterns in how the shadow change.</p>

Year Four				
Essential Learning				
Electricity	States of matter	Sound	Animals including humans	Living Things and their Habitats
<p>I can identify common appliances that run on electricity</p> <p>I can construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>I can 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>I can 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>I can recognise some common conductors and insulators, and associate metals with being good conductors.</p> <p>I can talk about Thomas Eddison and I know why he is a famous scientist.</p>	<p>I can compare and group materials together, according to whether they are solids, liquids or gases (using explanations such as: solids hold their shape; liquids form a pool not a pile; gases escape from an unsealed container).</p> <p>I can observe that some materials change state when they are heated or cooled, and measure (for water/ice below 50°C) or research (for water above 50°C) the temperature at which this happens in °C.</p> <p>I can identify the role of evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>I can identify how sounds are made, associating some of them with something vibrating.</p> <p>I can recognise that vibrations from sounds travel through a medium to the ear.</p> <p>I can find patterns between the pitch of a sound and features of the object that produced it.</p> <p>I can find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>I can recognise that sounds get fainter as the distance from the sound source increases.</p>	<p>I can describe the simple functions of the basic parts of the digestive system in humans (mouth, tongue, teeth, oesophagus, stomach and small and large intestine)</p> <p>I can identify the different types of teeth in humans and their simple functions including</p> <ul style="list-style-type: none"> • know what damages teeth and how to look after to look after them. • in animals, compare the teeth of carnivores and herbivores. • <p>I can construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	<p>I can recognise that living things can be grouped in a variety of ways - <i>put vertebrate animals into groups (retrieval from Year 1)</i> and invertebrates into snails and slugs, worms, spiders, and insects. Group plants into flowering plants (including grasses) and non-flowering plants, such as ferns and mosses.</p> <p>I can explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment recognise that environments can change and that this can sometimes pose dangers to living things.</p>

Assessment Questions

<p>Can you name some appliances that run on electricity?</p> <p>What are the parts of a simple circuit?</p> <p>What is needed to make a lamp light?</p> <p>What are common conductors and name some?</p> <p>What are common insulators and name some?</p> <p>Who is Thomas Eddison and why is he a famous scientist?</p>	<p>What are the three states of matter?</p> <p>What happens when some materials are heated or cooled?</p> <p>What is evaporation? What speeds it up?</p> <p>What is condensation?</p> <p>What is the water cycle?</p>	<p>How are sounds made?</p> <p>What is the pitch of a sound?</p> <p>What changes the volume of a sound?</p> <p>What happens to sound as it travels?</p>	<p>What are the different parts of the digestive system?</p> <p>What do they do?</p> <p>What different types of teeth do humans have and why?</p> <p>How can we look after our teeth?</p> <p>What is a food chain?</p> <p>What do the words producer, predator and prey mean?</p>	<p>How can we group these, (plants and animals) and why have we grouped them this way?</p> <p>What is a classification key?</p> <p>What happens to living things when their environment changes?</p>
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Working Scientifically and Essential Skills

<p>I can construct a simple series circuits with different components, for example, bulbs, buzzers and motors, and including switches. I have drawn the circuit as a pictorial representation.</p> <p>I can classify the materials that were suitable/not suitable for wires.</p> <p>I can apply my knowledge of conductors and insulators to design and make different types of switch.</p>	<p>I can compare and group materials together according to their properties solid, liquid and gas.</p> <p>I can construct a fair test to investigate melting points. I can use a thermometer to take accurate measurements (observe closely to nearest degree)</p> <p>I can observe over time what happens when a liquid changes to a solid.</p>	<p>To use a data logger to measure sound.</p> <p>I can find patterns between pitch and volume of a sound and features of the object that produced it. I can record my results in a table to spot patterns and make conclusions.</p> <p>I can find patterns to recognise that sound gets fainter as the distance from the sound source increase. I can record my results in a table. I can spot pattens in my results to make conclusions.</p>	<p>I can research the function of the parts of the digestive system and draw a labelled diagram.</p> <p>I can classify animals as herbivores, carnivores or omnivores according to the type of teeth they have in their skulls.</p> <p>I can set up a fair test to find out about teeth decay and record my results in a table</p>	<p>I can use and make simple keys to explore and identify local plants and animals.</p> <p>I can use secondary sources to find out about how environments may naturally change and find out about human impact, both positive and negative, on environments.</p>
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Year Five				
Essential Learning				
Properties and changes of materials	Forces	Earth and space	Living things and their habitats	Animals, including humans
<p>I can describe the hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets of an object.</p> <p>I know that some materials will dissolve in liquid to form a solution, and I can describe how to recover a substance from a solution.</p> <p>I can decide how mixtures might be separated – including through filtering, sieving and evaporating – through my knowledge of solids, liquids and gases.</p> <p>I can give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>I can demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>I can 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>I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>I can identify the effects of air resistance, water resistance and friction that act between moving surfaces.</p> <p>I can recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.</p> <p>I know who Isaac Newton is and why he is a famous scientist.</p>	<p>I can describe the movement of the Earth and other planets relative to the Sun in the solar system.</p> <p>I can describe the movement of the moon relative to the Earth.</p> <p>I can describe the Sun, Earth and moon as approximately spherical bodies.</p> <p>I can 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>I can describe what happens in the life cycle of a mammal, an amphibian, an insect and a bird.</p> <p>I can describe the life process of reproduction in some plants – including sexual reproduction through pollination and asexual reproduction.</p> <p>I can describe the life process of reproduction in some animals.</p> <p>I can identify that plants have male and female parts (including the stigma and the stamen) and can describe the role of these in reproduction.</p> <p>I know who Jane Goodhall is and why she is a famous scientist.</p> <p>I know who David Attenborough is and why he is a famous scientist.</p>	<p>I can describe the changes as humans develop to old age.</p>

Assessment Questions

<p>What will happen if I mix salt or sugar with water? Why?</p> <p>Is there any way that I can reverse this once I mix them so I can separate the salt/sugar from the water? Can you describe a process that would allow you to do this?</p> <p>(Look at this object/picture) What reasons would you give for why this object is made of this material?</p> <p>Can you think of any changes that are not reversible, which?</p> <p>Can you describe what it means if a material is: hard, soluble, transparent, a thermal conductor, an electric conductor, and magnetic?</p>	<p>What is gravity?</p> <p>What are the different types of resistance that act between moving surfaces?</p> <p>What mechanisms can help a smaller force to have a greater effect?</p> <p>What is friction?</p> <p>What is air resistance and water resistance?</p> <p>Who is Isaac Newton and why is he a famous scientist?</p>	<p>How do the Earth, and other planets move, relative to the Sun?</p> <p>How does the Moon move, relative to the Earth?</p> <p>How are day and night formed?</p> <p>Does the Sun move across the sky?</p> <p>How would you describe the shape of the Sun, Moon and the Earth?</p>	<p>Can you describe what happens in the life cycle of a mammal, an amphibian, an insect and a bird?</p> <p>Can you describe how plants reproduce through pollination/sexual reproduction?</p> <p>Can you describe how plants reproduce through asexual reproduction?</p> <p>Can you describe the life process of reproduction in some animals?</p> <p>Who are Jane Goodhall and David Attenborough and why are they famous scientists?</p>	<p>Can you describe what changes happen to the human body during puberty?</p>
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Working Scientifically and Essential Skills

<p>I can identify different materials and classify based on its properties including hardness, solubility, transparency (Yr 3), conductivity and response to magnets (Yr 4 retrieval).</p> <p>Make predictions and investigate rates of dissolving by carrying out comparative and fair test.</p> <p>I can make observations over time to see if materials can be separated and to investigate reversible and irreversible changes.</p> <p>I can plan my own investigation to test how materials react with each other.</p>	<p>I can design and make parachutes and carrying out fair tests to determine which designs are the most effective.</p> <p>I can research the effects of gravity and Sir Isaac Newton's theories.</p> <p>I can conduct a comparative test to investigate water resistance.</p>	<p>I can identify and classify planets.</p> <p>I can use research and secondary sources to find out about the Moon.</p> <p>I can record my work using scientific diagrams and labels when representing the Moon phases.</p>	<p>I can use secondary sources to research the life cycles of a range of animals.</p> <p>I can use secondary sources to research the process of reproduction in plants and a range of animals.</p> <p>I can compare the gestation times for mammals and look for patterns e.g. in relation to size of animal or length of dependency after</p>	<p>I can use secondary sources to research the changes as humans develop from birth to old age.</p>
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I can take measurements using a range of scientific equipment (**newton meter**) with increasing accuracy and precision taking **repeat readings**.

birth. Record results in a **scatter graph**.

I can **report** and **present** my findings from research

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I can independently use **secondary sources to research** the work of naturalists and animal behaviourists. (**Jane Goodhall and David Attenborough**)

Year Six

Essential Learning

Light	Electricity	Animals including humans	Evolution and inheritance	Living things and their habitats
<p>I can recognise that light appears to travel in straight lines.</p> <p>I can explain that objects are seen because they give out or reflect light into the eye and link my knowledge that light travels in straight lines.</p> <p>I can 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>I can explain why shadows have the same shape as the objects that cast them and link my knowledge that light travels in straight lines.</p>	<p>I can 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>I can 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>I can use recognised symbols when representing a simple circuit in a diagram.</p>	<p>I can identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p> <p>I can recognise the impact of diet , exercise, drugs and lifestyle on the way bodies function.</p> <p>I can describe the ways in which nutrients and water are transported within animals, including humans.</p>	<p>I can recognise that living things have changed over time and that fossils (Yr 3 retrieval) provide information about living things that inhabited the Earth millions of years ago.</p> <p>I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>I can identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p> <p>I can talk about Charles Darwin and I know why he is a famous scientist</p>	<p>I can describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals.</p> <p>I can give reasons for classifying plants and animals based on specific characteristics. (Classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles, birds and mammals)).(simple keys covered in Year 4)</p> <p>I can talk about Carl Linneus and I know why he is a famous scientist</p>

Assessment Questions

<p>How does light travel?</p> <p>How are we able to see objects?</p> <p>Why are shadows the shape they are?</p>	<p>What could make the brightness of a bulb change in a circuit?</p> <p>What could make a buzzer louder in a circuit, or make it stop?</p>	<p>Which parts of the body does the circulatory system include?</p> <p>What are the functions of them?</p> <p>What impacts can a person's diet, exercise, drugs and lifestyle have on the way their body functions?</p>	<p>What are fossils and what information can they give us?</p> <p>How similar to their parents are offspring usually?</p> <p>What is adaptation in plants and animals and can you give</p>	<p>How can living things be classified into broad groups?</p> <p>How can we classify plants and animals based on specific characteristics?</p>
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	Can you tell me what this symbol means?	How are nutrients and water transported within animals, including humans?	examples? What might this lead to? How does evolution happen?	
Working Scientifically and Essential Skills				
<p>I can design and make a periscope, using the idea that light appears to travel in straight lines and explained how it works.</p> <p>I can identify different parts of the eye and explain how each part works.</p> <p>I can predict and explain, with diagrams or models as appropriate, how the shape of shadows can be varied</p>	<p>I can devise ways to measure brightness of bulbs, speed of motors, volume of a buzzer during a fair test</p> <p>I can represent those circuits in a diagram using recognised symbols.</p> <p>I can notice patterns when I add more bulbs to a circuit. I can take accurate measurements using a data logger.</p> <p>I can carry out a fair test to compare voltage with the amount of sound produced in a circuit. I can use my results and present them in a line graph.</p> <p>I can predict results and answer questions by drawing on evidence gathered</p>	<p>I can draw a diagram of the circulatory system and label the parts and annotate it to show what the parts do Produces a piece of writing that demonstrates the key knowledge e.g. explanation of the heart</p> <p>I can use labelled diagrams to support my explanation about the structure of blood.</p> <p>I can plan and carry out a range of pulse rate investigations: observation over time - how long does it take my pulse rate to return to my resting pulse rate</p>	<p>I can research to learn about Charles Darwin and how he developed his ideas on evolution.</p> <p>I can use secondary sources to find out about how the population of peppered moths changed during the industrial revolution</p>	<p>I can classify plants and animals, presenting this in a range of ways e.g. Venn diagrams and Carroll diagrams</p> <p>I can use classification systems and keys to identify some animals and plants in my immediate environment.</p> <p>I can use secondary sources to learn about the formal classification system devised by Carl Linnaeus and why it is important</p>