

Beam County Primary School: Long-term Component Map

Subject: Science

Nursery



Area of Learning	Do you know a nursery rhyme?	How do we celebrate?	What is a farm?	Where are we going?	How does it grow?	Are you ready for big school?
Composite Goal	<ul style="list-style-type: none"> · Repeat actions that have an effect. · Explore materials with different properties. · Explore natural materials, indoors and outside · Explore and respond to different natural phenomena in their setting and on trips. 					
Components	<p><u>Human body and senses</u></p> <ol style="list-style-type: none"> 1. Identify and name body parts. 2. Explore sense of sight in hands on exploration 3. Explore sense of hearing in hands on exploration 4. Explore sense of touch in hands on exploration 5. Explore sense of taste and smell in hands on experience. <p><u>Our changing world: the local environment (Seasonal changes)</u></p> <ol style="list-style-type: none"> 6. Observe and describe the changes they observe during Autumn. 	<p><u>Our changing world: the local environment (Seasonal changes)</u></p> <ol style="list-style-type: none"> 1. Observe and describe the changes they observe during Winter and make simple comparison to the ones observed in Autumn. <p>Objects and materials</p> <ol style="list-style-type: none"> 2. Explore range of materials and name common materials found. 	<p>Objects and materials</p> <ol style="list-style-type: none"> 1. Explore characteristics of water 2. Describe melting and freezing. <p><u>Animals and plants</u></p> <ol style="list-style-type: none"> 3. Name animals and their body parts 4. Describe habitat, diet and characteristics of an African land snail 	<p><u>Our changing world: the local environment (Seasonal changes)</u></p> <ol style="list-style-type: none"> 1. Observe and describe changes during Spring, and make simple comparison to the ones observed in Autumn and Winter. <p><u>Animals and plants:</u></p> <ol style="list-style-type: none"> 2. Observe and describe the life cycle of a chicken and butterfly 	<p><u>Our changing world: the local environment (Seasonal changes)</u></p> <ol style="list-style-type: none"> 1. Observe and describe changes during Summer, and make simple comparison to the ones observed in Autumn, Winter and Spring. <p><u>Animals and plants:</u></p> <ol style="list-style-type: none"> 2. Identify and name parts of a plant- roots, stem, leaves, petals 2. Identify and name parts of a tree- trunk, branch, leaves, roots 3. Sort plants into trees and flowers. 4. Demonstrate how to care for a plant. 	<p><u>Electricity and movement</u></p> <ol style="list-style-type: none"> 1. Demonstrate push or a pull to make objects move. <p>Objects and materials</p> <ol style="list-style-type: none"> 2. Explore mixing water with different materials 3. Observe and describe changes in ingredients when bubbles are made.

Beam County Primary School: Long-term Component Map
Subject: Science
Reception



Area of Learning	Am I Unique?	How do we celebrate?	What is in the sea?	What is an animal?	Where did the Big Bad Wolf go?	Who can save the world?
Composite Goal	Understanding the world: <ul style="list-style-type: none"> 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 					
Components	<p><u>Animals and plants: Human body and senses</u></p> <ol style="list-style-type: none"> Identify body parts, describe their functions, and match them to respective senses. <p><u>Our changing world: the local environment (Seasonal changes)</u></p> <ol style="list-style-type: none"> Observe and describe the physical changes they notice on and around a tree during the season of autumn. <p><u>Light and space</u></p> <ol style="list-style-type: none"> Describe things that happens at night using secondary sources. Name and describe a range of living and non-living things that are in the sky. 	<p><u>Electricity and movement</u></p> <ol style="list-style-type: none"> Identify and demonstrate and compare the effects of push or a pull on objects. Describe how a variable can affect movement of toys through comparative testing. Identify objects that float and sink through observation. <p><u>Objects and materials</u></p> <p>Explore, name and describe simple of range of materials.</p>	<p><u>Our changing world: the local environment (Seasonal changes)</u></p> <ol style="list-style-type: none"> Observe and describe observations of the weather they have made on a winter day. <p><u>Animals and plants:</u></p> <ol style="list-style-type: none"> Identify and group sea creatures. Explain why some sea creatures have stripes. Experiential learning: Trip to the aquarium <p><u>Objects and materials</u></p> <p>Observe effects of freezing on different materials.</p>	<p><u>Our changing world: the local environment</u></p> <ol style="list-style-type: none"> Observe and describe the physical changes they notice on and around a tree during the season of spring. <p><u>Animals and plants:</u></p> <ol style="list-style-type: none"> Observe and describe characteristics of earthworms and their behavioural traits. Identify animals that lay eggs using secondary sources. Make simple comparison between the life cycle of chicken and tadpoles observed overtime, demonstrating ways to support their growth and make comparison of how the young is similar/ different from adult. <p><u>What can I grow?</u></p> <ol style="list-style-type: none"> Name the fruits and vegetables that are grown, and plan how to care for the plants planted (seeds to be planted in April) 	<p><u>Our changing world: the local environment (Seasonal changes).</u></p> <ol style="list-style-type: none"> Observe and describe the physical changes they notice on and around a tree during the season of summer <p><u>What can I grow?</u></p> <ol style="list-style-type: none"> Name the fruits and vegetables that are grown, demonstrate caring of plans and describe changes in life cycle of plants observed over time. <p><u>Animals and plants:</u></p> <ol style="list-style-type: none"> Identify and compare parts of plants. <p><u>Objects and materials</u></p> <ol style="list-style-type: none"> Explore and select suitable materials to build different homes based through simple observations on properties. Observe properties of materials in different hats and reason on suitability of hats for a particular weather. Observe and describe process of melting, and sort materials into those that melt and freeze. 	<p><u>Our changing world: the local environment (Seasonal changes).</u></p> <ol style="list-style-type: none"> Describe the observations of the weather they have made on a summer day. <p><u>Objects and materials</u></p> <ol style="list-style-type: none"> Describe changes that occur in mixtures via comparative test. Investigate how to separate mixtures of different materials and different sized objects. Determine what makes a good bubble via comparative test.

Beam County Primary School: Long-term Component Map
Subject: Science
Year 1



Domain/Unit	Human body and senses	Naming and describing materials	Properties and uses of materials	Animals (vertebrates)	Identifying plants and their parts
Composite Goal	<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>Seasonal changes observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies</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 and rock</p> <p>Seasonal changes observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies</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 name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p>identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>Seasonal changes Observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies</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</p> <p>Seasonal changes Observe changes across the four seasons observe and describe weather associated with the seasons and how day length varies</p>
Components	<p>Human Body and senses</p> <ol style="list-style-type: none"> Identify body parts and reason which parts (and their senses) are more suited to observe temperature and texture. *Compare and determine if all body parts are the same. Explore sense of hearing and classify sounds based on volume. Explore sense of smell. Explore the sense of taste and classify items as sour or sweet. <p>Seasonal changes</p> <ol style="list-style-type: none"> *Classify leaves based on observable characteristics. (taught after lesson 2- Human Body and senses) 	<p>Seasonal changes</p> <ol style="list-style-type: none"> Identify and classify trees as deciduous or evergreen. Identify animals that share our space based on evidence of animal activity. <p>Naming and describing materials</p> <ol style="list-style-type: none"> Identify and classify materials into wood, plastic and metal based on observations made on properties, and determine whether materials are natural or manufactured. Identify and classify materials into glass, water and rock based on observations made on properties, and determine whether materials are natural or manufactured. Determine suitability of paper for different purposes based on their properties via comparative testing, and sort paper into those that can be recycled or reused, and those that can't. Observe the characteristics of different fabrics and determine type of clothing each fabric is suited for. Identify and classify objects according to their sourced materials, and whether they are natural or manufactured. 	<p>Properties and uses of materials</p> <ol style="list-style-type: none"> Recognise that the same objects can be made from different materials (identifying and classification) Describe properties with specific vocabulary and provide examples of properties shared by different materials by observation and classification. Investigate the stretchiness of materials via comparative testing. Investigate the absorbency of different materials using comparative testing. 	<p>Animals (vertebrates)</p> <ol style="list-style-type: none"> Identify and classify vertebrates into five classes: amphibians, birds, fish, mammals and reptiles. Identify and describe observable characteristics of different reptiles. Identify and describe observable characteristics of birds. Identify and describe observable characteristics of amphibians, and explain the characteristic that makes amphibians distinct. Identify and describe observable characteristics of fish. Identify and describe observable characteristics of mammals. Classify different vertebrates into carnivores, herbivores and omnivores. <p>Seasonal changes</p> <ol style="list-style-type: none"> Observe and record evidence of new animals in outside space in spring. Identify and name common birds using an ID sheet. Observe, record and compare types of birds seen in spring. 	<p>Seasonal changes</p> <ol style="list-style-type: none"> Observe and compare changes over the year (flowers, leaves of trees) <p>Identifying plants and their parts</p> <ol style="list-style-type: none"> Name and classify plants into wild and garden plants. Observe and compare characteristics of different flowering plants and their parts. Observe and compare tap and branching roots. Identify name of trees using an ID sheet and explain why tree is a plant based on its observable characteristics. Compare and describe similarities and differences between flowering plants. Design and create own plants.

Beam County Primary School: Long-term Component Map
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Year 2



Domain/Unit	Local habitats	Choosing materials	Changing materials	Growing Seeds and Bulbs	Growing up (including humans)	Growing Healthy Plants
Composite Goal	<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>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p>	<p>To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p>To know the requirements of the life and growth of a plant</p>	<p>notice that animals, including humans, have offspring which grow into adults</p> <p>find out about and describe the basic needs of animals, including 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>To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</p>
Components	<ol style="list-style-type: none"> Classify items found into alive, never been alive or was once alive, and explain reasons behind their groupings Observe a tree habitat and identify animals and plants found there. Observe a woody habitat and identify animals living in this habitat. Observe a grassy habitat and identify animals living in this habitat. Identify and classify plant and animals as producers and consumer; create a simple food chain based on classification made. 	<ol style="list-style-type: none"> Identify properties of materials and reason on why they are suitable/unsuitable for an object. Identify the bounciest ball via comparative testing. Investigate durability of fabric via comparative testing and determine best fabric for a toddler's dungarees. Perform simple research using secondary sources to identify inventors who develop new materials. Workshop: Inventing with Isobel (Scienceoxford) – suggest and reason suitable materials for inventions based on their properties.) 	<ol style="list-style-type: none"> Explore different ways to manipulate objects classify objects based on the number of ways shape of objects can be changed. Classify objects into how they are manipulated, and Identify properties that enable objects to be changed based on manipulation method. Identify properties required to serve the purpose of a product and suggest suitable materials. Observe and record the effects of push and pull on materials. 	<ol style="list-style-type: none"> Set up an observation over time to demonstrate how seeds germinate and develop into mature plants. Classify seeds and bulbs and compare characteristics between the two. Determine which conditions are required for germination through comparative test. Determine if the size of seeds result in taller mature plants (pattern-seeking). Observe, record, and compare changes seen on seeds after germination. Determine conditions needed to enable germination (based on the comparative test set up in Lesson 3). 	<ol style="list-style-type: none"> Sequence and describe changes observed in the life cycles of animals (including invertebrates). * Distinguish between needs and wants, and identify basic needs for animals to survive. Identify the main food groups and categorise food items into main food groups. Demonstrate hygiene practices to stay clean and healthy. Suggest reasons on why physical activities are important ways to remain active. Create a plan a healthy day. 	<ol style="list-style-type: none"> Distinguish between healthy and unhealthy plants and reason based on observable characteristics. Set up a comparative test to determine if mature plants require light. Determine if plants height is affected by temperature (pattern seeking/ observation over time) Set up a comparative test enquiry to determine if mature plants require water. Compare records of observations made of variables from Lesson 2 and 3, and draw conclusions from data.

Beam County Primary School: Long-term Component Map
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Year 3



Domain/Unit	Light and shadows	Rocks, soils and fossils	Forces, friction and magnets	Movement and nutrition for the human body	Flowering Plants and Plant Growth	Flowering Plants Life Cycle
Composite Goal	<p>recognise that they need light in order to see things and that dark is the absence of light 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 an opaque object find patterns in the way that the size of shadows change</p>	<p>compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>recognise that soils are made from rocks and organic material describe in simple terms how fossils are formed when things that have lived are trapped within rock</p>	<p>compare how things move on different surfaces 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. Predict whether two magnets will attract or repel each other, depending on which poles are facing</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>identify that humans and some other animals have skeletons and muscles for support, protection and movement</p>	<p>identify 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 (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant</p> <p>investigate the way in which water is transported within plants</p>	<p>To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p>
Components	<ol style="list-style-type: none"> 1. Recognise we need light to see through evidence gathered from observations made through identification and classification. 2. Identify objects which are most reflective through comparative testing. 3. Illustrate and explain how shadows are formed and conduct a comparative test to explain how characteristics of materials influence intensities of shadows. 4. Observe and describe similarities and differences between shadows and themselves. 5. Determine how position of light source in relation to objects changes size of shadows through comparative testing. 	<ol style="list-style-type: none"> 1. Make detailed observations to compare and identify a variety of rocks based on their physical properties of rocks. 2. Investigate properties that make rocks suitable for a particular purpose through comparative testing. 3. Make detailed observations to compare and identify different types of soils. 4. Investigate the permeability of different types of soils through comparative testing. 5. Workshop: make detailed observations to identify and compare fossils 6. Describe key points of Mary Anning's life through secondary research. 	<ol style="list-style-type: none"> 1. Observe and record effects of contact forces on an object. 2. Investigate the effects of different surfaces on the length of time a top takes to spin through comparative test. 3. Predict and investigate the effects of various surfaces on sliding efficiency of an object through comparative test. 4. Observe and illustrate attraction and repulsion between unlike and like poles. 5. Classify objects as magnetic or non-magnetic and identify materials objects are made from. 6. Determine if the size of magnets affects their strength through pattern-seeking. 	<ol style="list-style-type: none"> 1. Identify nutrients found in food and explain their functions in our bodies through secondary research. 2. Analyse menu on its nutritive value through identifying and classifying enquiry. 3. Name different bones found in a skeleton and describe their functions through secondary resource. 4. Investigate the regions of the body where muscles are active in facilitating mobility. 5. Determine how vertebrates and invertebrate bodies are supported through identification and classification. 6. Compare and describe how human skeletons are different to other vertebrates through secondary sources. 	<ol style="list-style-type: none"> 1. Investigate the effects of leave removal on plants growth through comparative test. 2. Observe, compare and record effects of roots removal from plants and provide reasons explaining these findings through research from secondary sources. 3. Set up an observing over time enquiry to investigate how water is transported around the plant. 4. Observe and record findings from Lesson 1 and 3. Provide reasons for findings through research from secondary sources. 5. Set up a comparative test to predict and investigate the effects of the amount of space on plants' growth. 6. Identify how plants adapt to live in their habitat through research. 7. Observe and record findings from the comparative test conducted in lesson 5. 	<ol style="list-style-type: none"> 1. Identify and label parts of a flower from observations made from a dissected flower. 2. Describe and illustrate the process of animal pollination through research and secondary resource. 3. Describe and illustrate the process of wind pollination through research and secondary resource. 4. Make accurate observations on cut fruits, highlighting where the fruits were attached to the rest of the flower based on concept of fruit formation. 5. Sort seeds according to their dispersal methods using secondary sources.

Beam County Primary School: Long-term Component Map
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Year 4



Domain/Unit	Changes of state	Electricity: Circuits	Sounds	Human Impact on the Environment	Digestion and Food Chains	Classification of Plants and Animals
Composite Goal	<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>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>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 pitch of a sound and features of the object that produced it</p> <p>find patterns between the volume of a sound and the strength of the vibrations that produced it</p> <p>recognise that sounds get fainter as the distance from the sound source increases</p>	<p>To recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p>To describe the simple functions of the basic parts of the digestive system in humans and identify the different types of teeth in humans and their simple functions.</p> <p>To construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	<p>recognise that living things can be grouped in a variety of ways</p> <p>explore and use</p> <p>classification keys to help group, identify and name a variety of living things in their local and wider environment</p>
Components	<ol style="list-style-type: none"> 1. Identify and classify materials as solid or liquid based on observational properties. 2. Investigate the effects of temperature on melting rate of ice through a fair test. 3. Investigate the melting and freezing points of materials through observation over time. 4. Determine if spaces are empty from observations made through, simple tests. 5. Investigate how different variables affect the rate of evaporation through fair testing. 6. Gather information/ evidence from observation made to explain the phenomena of condensation. 7. Illustrate how water cycle works using secondary sources. 	<ol style="list-style-type: none"> 1. Identify what a range of appliances require in order to work. 2. Construct and label complete circuit and its components. 3. Describe, with labelled illustrations, on how switches work. 4. Predict and explain, through illustrated diagrams, why switches would not work and suggest improvements from findings. 5. Determine materials that conduct electricity through classification. 	<ol style="list-style-type: none"> 1. Explain how sound is made through systematic observations. 2. Determine how sound reaches our ears, and conduct comparative test to compare the volume of sound through different mediums. 3. Determine factors affecting volume of sounds through results made from comparative testing. 4. Identify a pattern in volume of sounds in relation to distance of its source through fair testing. 5. Determine factors affecting pitch of a sound through comparative testing. 	<ol style="list-style-type: none"> 1. Explain the impact of litter on the environment, and provide suggestions on addressing this issue. 2. Set up observing over time enquiry to determine if all litter decompose. 3. Use secondary sources to sequence a flow diagram to show how microplastics enter the food chain. 4. Investigate and identify the optimal material for filtering microplastics from water by conducting a comparative test. 	<ol style="list-style-type: none"> 1. Name and sequence parts of the digestive system, and illustrate the digestive process of a food product using a diagram. 2. Identify and classify each tooth into canines, incisors, and molars. 3. Explain the function of teeth in the digestive system in animals, including humans. 4. Describe, using model, the process of digestion. 5. Research and draw complex food chains, explaining how food web shows how animals within a habitat depend on each other on food and survival. 6. Identify and classify animals as carnivores, omnivores and herbivores from observations made on their teeth. 	<ol style="list-style-type: none"> 1. Demonstrate different ways in classifying living things based on observable characteristics. 2. Classify vertebrates based on information gathered through research. 3. Classify invertebrates based on observable characteristics and identify features that make them distinct from each other. 4. Identify local invertebrates using a branching key. 5. Workshop: Identify and name familiar and non-familiar living things using a branching key. (https://www.bugsnstuff.com/meet-the-animals/)

Beam County Primary School: Long-term Component Map
Subject: Science
Year 5



Domain/Unit	Forces and mechanism	Properties and uses of materials	Earth and space	Plant and animal lifecycle	Separating mixtures and changing materials	Human growth
Composite Goal	<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>Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets</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>Describe the movement of the Earth, and other planets, relative to the Sun in the solar system</p> <p>Describe the movement of the Moon relative to the Earth describe the Sun, Earth and Moon as approximately spherical bodies</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</p>	<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>Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>Use knowledge of solids, liquids and gases to 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</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>describe the changes as humans develop to old age</p>
Components	<ol style="list-style-type: none"> Investigate the effect of different surfaces on friction through comparative testing. Investigate the effects of independent variables on the speed of falling of objects through comparative or fair testing. Investigate the effects of size of canopy has on time taken for parachute to fall through comparative or fair testing. Investigate how the shape of an object affects its movement in water through comparative testing. Investigate the effects on a number of pulleys on force needed to lift a load through comparative testing. Investigate how length of the lever affects the force needed to lift a load through fair testing. Explain how gears work by using a model. Workshop: Feel the force! (Science museum) 	<ol style="list-style-type: none"> Compare and classify materials based on their properties. Conduct comparative/ fair testing on the viscosity of different liquids. Determine if the same material can keep things cold and hot things hot through comparative testing. Determine the best nappy based on its properties via comparative testing. Design a product that considers properties of materials and functionality of products. * 	<ol style="list-style-type: none"> Identify main bodies found within and beyond our solar system through research. Describe movements of planets by using a model. Observe and illustrate using a diagram on movement of sun across the day and its effect on length and position of shadows. Explain, using a model, causes of day and night. Describe, using a model, the movement of the moon. Interpret data from scatter graph to identify possible patterns of planets, and recognising if there is no pattern. 	<ol style="list-style-type: none"> Describe, with labelled illustrations, the life process of sexual reproduction in flowering plants using first hand resource. Identify patterns observed in the number reproductive parts of flowers using first hand sources. Demonstrate plant growth without seeds by conducting propagation experiments. Identify patterns, from scatter graph, the gestation period of mammals. Describe the reproductive system of amphibians and changes that occur throughout their life cycle using secondary sources. Describe the differences and similarities between two types of insect life cycles using secondary sources. 	<ol style="list-style-type: none"> Plan, conduct and evaluate effectiveness of method in separating complex mixtures. Classify a range of solids into soluble and insoluble by performing a comparative test. Investigate, through comparative test, variables that may affect the rate at which two solids dissolve in water. Demonstrate non-reversible change, by conducting a comparative test to best mixture for producing gas to inflate a glove. Plan and conduct a fair testing to determine best combination of materials to make a 'rocket fuel'. 	<ol style="list-style-type: none"> Describe changes from newborn to teenagers using secondary sources. Describe changes in female and male body through puberty secondary sources. Describe the human life cycle and identify changes in physical appearance, capabilities and skills from birth to death secondary sources .

Beam County Primary School: Long-term Component Map
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Year 6



Domain/Unit	Classification of living things	Evolution and Inheritance	What light does	Human Circulation & Body health	Electricity: changing circuits
Composite Goal	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 Give reasons for classifying plants and animals based on specific characteristics	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	Recognise that light appears to travel in straight lines use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the 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 Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood Describe the ways in which nutrients and water are transported within animals, including humans Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function	Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches Use recognised symbols when representing a simple circuit in a diagram
Components	<ol style="list-style-type: none"> 1. Classify living things based from common observable characteristics. 2. Classify plants based on observable characteristics. 3. Classify animals based on observable characteristics. 4. *Observe, measure and record growth of moulds over time. 5. Identify individual species using a branching key. 6. Identify living organisms within a habitat using a branching key. 7. Construct a branching key to identify organisms within a habitat. 	<ol style="list-style-type: none"> 1. Identify physical and behavioural similarities and differences between organisms from two species through secondary sources. 2. Investigate variation in Homo sapiens: Analyse and interpret data from scatter graphs to determine normal distribution in height and identify patterns between height and arm span. 3. Gather and present information (from secondary sources) on how an organism adapts to live in its habitat. 4. Suggest/ refute ideas about an animal's possible characteristics and adaptation based on scientific evidence. 5. Describe, using a model, how evolution occurs. 6. Research either Charles Darwin or Alfred Wallace and explain how the scientists' observations led to them proposing a mechanism for evolution which is called natural selection. 	<ol style="list-style-type: none"> 1. Describe, with illustrated diagram of a model, how observations made support the idea that light travels in straight lines. 2. Predict and investigate which characteristics of shadows are affected by changing the independent variable. 3. Plan and conduct a fair test to determine how independent variable affects the size of shadows. Present data from lesson 3 and suggest ideas, on patterns identified. 4. Describe, with illustrated diagram, how light is reflected from findings gathered in a comparative test. 5. Construct an annotated model and diagram to explain why we see objects. 	<ol style="list-style-type: none"> 1. Explain what blood is made of using secondary sources, including models. 2. Identify and label parts of the circulatory system, and use information gathered from secondary sources to describe their functions. 3. Identify parts of the heart, and describe their functions using a model. 4. Present findings, with illustrated diagrams, functions of blood vessels and valves. 5. Plot and interpret line graph to identify pattern between physical activity and heart rate. 6. Present findings on how smoking and vaping affect health. 	<ol style="list-style-type: none"> 1. Present, using annotated diagram, a constructed a circuit, explaining how a lamp is lit. 2. Identify independent variables that can be changed in a circuit through comparative test and make a prediction. 3. Investigate the effects of changing independent variables of a circuit on brightness of lamp through a fair test. 4. Investigate the effects of changing independent variables on other components of a circuit.