



St Luke's CE Primary

Science Progression Map and End Points



St Luke's CE Primary

Science Curriculum Progression and End Points

Term	End of KS1	End of Lower KS2	End of Upper KS2
To work scientifically	<ul style="list-style-type: none"> Ask simple questions and recognise that they can be answered in different ways. Observe closely, using simple equipment. Perform simple tests. Identify and classify. Use observations and ideas to suggest answers to questions. Gather and record data to help in answering questions. 	<ul style="list-style-type: none"> Ask relevant questions and use different types of scientific enquiries to answer them. Set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Gather, record, classify and present data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Identify differences, similarities or changes related to simple scientific ideas and processes. Use straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Use test results to make predictions to set up further comparative and fair tests. Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. Identify scientific evidence that has been used to support or refute ideas or arguments.
Biology	<p>Plants</p> <ul style="list-style-type: none"> Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. Identify and describe the basic structure of a variety of common flowering plants, including trees. Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light, and a suitable temperature to grow and stay healthy. <p>Animals, Including Humans</p> <ul style="list-style-type: none"> Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. 	<p>Plants</p> <ul style="list-style-type: none"> Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. 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. Investigate the way in which water is transported within plants. Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. <p>Animals, Including Humans</p> <ul style="list-style-type: none"> 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. Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions. Construct and interpret a variety of food chains, identifying producers, predators and prey. Describe the changes as humans develop to old age. <p>Evolution and Inheritance</p> <ul style="list-style-type: none"> Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. 	<p>Plants</p> <ul style="list-style-type: none"> Relate knowledge of plants to studies of evolution and inheritance. Relate knowledge of plants to studies of all living things. <p>Animals, Including Humans</p> <ul style="list-style-type: none"> Describe the changes as humans develop to old age. Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. Describe the ways in which nutrients and water are transported within animals, including humans. <p>Evolution and Inheritance</p> <ul style="list-style-type: none"> 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.

<p style="text-align: center;">Biology</p>	<p>Living Things and their Habitats</p> <ul style="list-style-type: none"> Explore and compare the differences between things that are living, dead, and things that have never been alive. 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. Identify and name a variety of plants and animals in their habitats, including micro-habitats. 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>Living Things and their Habitats</p> <ul style="list-style-type: none"> Recognise that living things can be grouped in a variety of ways. 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>Living Things and their Habitats</p> <ul style="list-style-type: none"> Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals. 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.
<p style="text-align: center;">Chemistry</p>	<p>Materials</p> <ul style="list-style-type: none"> Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials on the basis of their simple physical properties. Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper, and cardboard for particular uses. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 	<p>Rocks and Soils</p> <ul style="list-style-type: none"> Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Describe in simple terms how fossils are formed when things that have lived are trapped within rock. Recognise that soils are made from rocks and organic matter. <p>States of Matter</p> <ul style="list-style-type: none"> Compare and group materials together, according to whether they are solids, liquids or gases. 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) Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 	<p>Properties and Changes of Materials</p> <ul style="list-style-type: none"> 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. Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes. 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 style="text-align: center;">Physics</p>	<p>Seasonal Changes</p> <ul style="list-style-type: none"> Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. 	<p>Forces</p> <ul style="list-style-type: none"> Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. <p>Light</p> <ul style="list-style-type: none"> 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. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. 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. 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. 	<p>Forces and Magnets</p> <ul style="list-style-type: none"> Compare how things move on different surfaces. Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. 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. Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing. <p>Electricity</p> <ul style="list-style-type: none"> Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. 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. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors. Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.

**Sound**

- Identify how sounds are made, associating some of them with something vibrating.
- Recognising that vibrations from sounds travel through a medium to the ear.
- Find patterns between the pitch of a sound and features of the object that produced it.
- Find patterns between the volume of a sound and the strength of the vibrations that produced it.
- Recognise that sounds get fainter as the distance from the sound source increases.

Earth and Space

- Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.
- Describe the movement of the Moon relative to the Earth.
- Describe the Sun, Earth and Moon as approximately spherical bodies.
- Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

- 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.

Heat and Energy

- Identify what happens when particles are heated.
- Describe what happens to a substance when it is heated.
- Describe how thermal equilibrium can be reached.
- Describe how heat is transferred by particles by conduction.
- Know what a thermal conductor, and a thermal insulator, is.
- Describe what an energy store is.
- Describe what useful, wasted and input energy stores are.
- Compare the power ratings of a range of appliances.
- Describe the method of measuring, and calculate, an object's speed.
- Describe how the kinetic energy of an object can be found and changed.

End Points in Learning in the Science Curriculum – Year 1

Working Scientifically	Plants	Animals Including Humans
<ul style="list-style-type: none"> • Pupils can explore the world around them and raise their own questions. • Pupils can experience different types of scientific enquiries, including practical activities, and begin to recognise ways in which they might answer scientific questions. • Pupils can ask people questions and use simple secondary sources to find answers. • Pupils can use simple measurements and equipment (for example, hand lenses, egg timers) to gather data, carry out simple tests, record simple data, and talk about what they have found out and how they found it out. • Pupils can be curious, observe closely and ask questions about what they notice. • Pupils can develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying. • Pupils can use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. 	<ul style="list-style-type: none"> • Can name trees and other plants that they see regularly. • Can describe some of the key features of these trees and plants e.g. the shape of the leaves, the colour of the flower/blossom. • Can point out trees which lost their leaves and those that kept them the whole year. • Can point to and name the parts of a plant, recognising that they are not always the same e.g. leaves and stems may not be green. • Can sort and group parts of plants using similarities and differences. • Can use simple charts etc. to identify plants. • Can collect information on features that change during the year. • Can use photographs to talk about how plants change over time. 	<ul style="list-style-type: none"> • Can name a range of animals which includes animals from each of the vertebrate groups. • Can describe the key features of these named animals. • Can label key features on a picture/diagram. • Can write descriptively about an animal. • Can write a What am I? riddle about an animal. • Can describe what a range of animals eat. • Can play and lead 'Simon says'. • During PE lessons, can follow instructions involving parts of the body. • Can label parts of the body on pictures and diagrams. • Can sort and group animals using similarities and differences. • Can use simple charts etc. to identify unknown animals. • Can create a drawing of an imaginary animal labelling its key features. • Can use secondary resources to find out what animals eat, including talking to experts e.g. pet owners, zookeepers etc. • Can use first-hand close observations to make detailed drawings. • Can name body parts correctly when talking about measurements and comparisons e.g. "My arm is x straws long." "My arm is x straws long and my leg is y straws long. My leg is longer than my arm." "We both have hands, but his are bigger than mine." "These people have brown eyes and these have blue." • Can talk about their findings from investigations using appropriate vocabulary e.g. "My fingers are much better at feeling than my toes" "We found that the crisps all taste the same."
Everyday Materials	Seasonal Changes	
<ul style="list-style-type: none"> • Can label a picture or diagram of an object made from different materials. • Can describe the properties of different materials. • Can sort objects and materials using a range of properties. • Can choose an appropriate method for testing an object for a particular property. • Can use their test evidence to answer the questions about properties e.g. "Which cloth is the most absorbent?" 	<ul style="list-style-type: none"> • Can name the four seasons and identify when in the year they occur. • Can describe weather in different seasons over a year. • Can describe days as being longer (in time) in the summer and shorter in the winter. • Can describe other features that change through the year. • Use the evidence gathered to describe the general types of weather and changes in day length over the seasons. • Use their evidence to describe some other features of their surroundings, e.g. themselves, animals, plants that change over the seasons. 	

End Points in Learning in the Science Curriculum – Year 2

Working Scientifically	Living Things and their Habitats	Plants
<ul style="list-style-type: none"> • Pupils can explore the world around them and raise their own questions. • Pupils can experience different types of scientific enquiries, including practical activities, and begin to recognise ways in which they might answer scientific questions. • Pupils can ask people questions and use simple secondary sources to find answers. • Pupils can use simple measurements and equipment (for example, hand lenses, egg timers) to gather data, carry out simple tests, record simple data, and talk about what they have found out and how they found it out. • Pupils can be curious, observe closely and ask questions about what they notice. • Pupils can develop their understanding of scientific ideas by using different types of scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things, carrying. • Pupils can use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways. • Pupils can read and spell scientific vocabulary at a level consistent with their increasing word reading and spelling knowledge at Key Stage 1. 	<ul style="list-style-type: none"> • Can find a range of items outside that are living, dead and never lived. • Can name a range of animals and plants that live in a habitat and micro-habitats that they have studied. • Can talk about how the features of these animals and plants make them suitable to the habitat. • Can talk about what the animals eat in a habitat and how the plants provide shelter for them. • Can construct a food chain that starts with a plant and has the arrows pointing in the correct direction. • Can sort into living, dead and never lived. • Can give key features that mean the animal or plant is suited to its micro-habitat. • Using a food chain can explain what animals eat. • Can explain in simple terms why an animal or plant is suited to a habitat e.g. the caterpillar cannot live under the soil like a worm as it needs fresh leaves to eat; the seaweed we found on the beach cannot live in our pond because it is not salty. 	<ul style="list-style-type: none"> • Can describe how plants that they have grow from seeds and bulbs have developed over time. • Can identify plants that grew well in different conditions. • Can spot similarities and differences between bulbs and seeds. • Can nurture seeds and bulbs into mature plants identifying the different requirements of different plants. • Can spot similarities and differences between bulbs and seeds. • Can nurture seeds and bulbs into mature plants identifying the different requirements of different plants.
Animals Including Humans	Everyday Materials	
<ul style="list-style-type: none"> • Can describe how animals, including humans, have offspring which grow into adults, using the appropriate names for the stages. • Can state the basic needs of animals, including humans, for survival. • Can state the important for humans of exercise, eating the right amounts of different types of food, and hygiene. • Can name foods in each section of the Eatwell Guide. • Can describe, including using diagrams, the life cycle of some animals, including humans, and their growth to adults e.g. be creating a life cycle book for a younger child. • Can measure/observe how animals, including humans, grow; how what they know about looking after a baby/animal by creating a parenting/pet owners' guide. • Explain how development and health might be affected by differing conditions and needs being met/not met. 	<ul style="list-style-type: none"> • Can name an object, say what material it is made from, identify its properties and make a link between the properties and a particular use. • Can label a picture or diagram of an object made from different materials for a given object can identify what properties a suitable material needs to have whilst changing the shape of an object can describe the action used. • Can use the words flexible and/or stretchy to describe materials that can be changed in shape and stiff and/or rigid for those that cannot. • Can recognise that a material may come in different forms which have different properties. • Can sort materials using a range of properties. • Can explain using the key properties why a material is suitable or not suitable for a purpose. • Can begin to choose an appropriate method for testing a material for a particular property. • Can use their test evidence to select appropriate materials for a purpose e.g. Which material is the best for a rain hat? 	

End Points in Learning in the Science Curriculum – Year 3

Working Scientifically	Plants	Animals Including Humans
<ul style="list-style-type: none"> • Ask relevant questions and use different types of scientific enquiries to answer them. • Set up simple practical enquiries, comparative and fair tests. • Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. • Gather, record, classify and present data in a variety of ways to help in answering questions. • Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • Identify differences, similarities or changes related to simple scientific ideas and processes. • Use straightforward scientific evidence to answer questions or to support their findings. 	<ul style="list-style-type: none"> • Can explain the function of the parts of a flowering plant. • Can describe the life cycle of flowering plants, including pollination, seed formation, seed dispersal, and germination. • Can give different methods of pollination and seed dispersal, including examples. • Can explain observations made during investigations. • Can look at the features of seeds to decide on their method of dispersal. • Can draw and label a diagram of their created flowering plant to show its parts, their role and the method of pollination and seed dispersal. 	<ul style="list-style-type: none"> • Can name the nutrients found in food. • Can state that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients. • Can name some bones that make up their skeleton, giving examples that support, help them move or provide protection. • Can describe how muscles and joints help them to move. • Can classify food into those that are high or low in particular nutrients. • Can answer their questions about nutrients in food, based on their gathered evidence. • Can talk about the nutrient content of their daily plan. • Use their data to look for patterns (or lack of them) when answering their enquiry question. • Can give similarities e.g. they all have joints to help the animal move, and differences between skeletons.
Sound	Living Things and their Habitats	Forces
<ul style="list-style-type: none"> • Can name sound sources and state that sounds are produced by the vibration of the object. • Can state that sounds travel through different mediums such as air, water, metal. • Can give examples to demonstrate how the pitch of a sound are linked to the features of the object that produced it. • Can give examples of how to change the volume of a sound e.g. increase the size of vibrations by hitting or blowing harder. • Can give examples to demonstrate that sounds get fainter as the distance from the sound source increased. • Can example what happens when you strike a drum or pluck a string and use a diagram to show how sounds travel from an object to the ear. • Can demonstrate how to increase or decrease pitch and volume using musical instruments or other objects. • Can use data to identify patterns in pitch and volume. • Can explain how loudness can be reduced by moving further from the sound source or by using a sound insulating medium. 	<ul style="list-style-type: none"> • Can name living things living in a range of habitats, giving the key features that helped them to identify them. • Can give examples of how an environment may change both naturally and due to human impact. • Can keep a careful record of living things found in different habitats throughout the year (diagrams, tally charts etc.). • Can use classification keys to identify unknown plants and animals. • Can present their learning about changes to the environment in different ways e.g. campaign video, persuasive letter. 	<ul style="list-style-type: none"> • Can demonstrate the effect of gravity acting on an unsupported object. • Can give examples of friction, water resistance and air resistance. • Can give examples of when it is beneficial to have high or low friction, water resistance and air resistance. • Can demonstrate how pulleys, levers and gears work. • Can explain the results of their investigations in terms of the force, showing a good understanding that as the object tries to move through the water or air or across the surface the particles in the water, air or on the surface slow it down. • Can demonstrate clearly the effects of using levers, pulleys and gears.

End Points in Learning in the Science Curriculum – Year 4

Working Scientifically	Earth and Space	Animals Including Humans
<ul style="list-style-type: none"> • Ask relevant questions and use different types of scientific enquiries to answer them. • Set up simple practical enquiries, comparative and fair tests. • Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. • Gather, record, classify and present data in a variety of ways to help in answering questions. • Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. • Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. • Identify differences, similarities or changes related to simple scientific ideas and processes. • Use straightforward scientific evidence to answer questions or to support their findings. • Read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge. • Draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out. 	<ul style="list-style-type: none"> • Can create a voice over for a video clip or animation. • Can show, using diagrams, the movement of the Earth and Moon. • Can explain the movement of the Earth and Moon. • Can show using diagrams the rotation of the Earth and how this causes day and night. • Can explain what causes day and night. • Can use the model to explain how the Earth moves in relation to the Sun and the Moon moves in relation to the Earth. • Can demonstrate and explain verbally how day and night occur. • Can explain evidence gathered about the position of shadows in terms of the movement of the Earth and show this using a model. • Can explain how a sundial works. • Can explain verbally, using a model, why we have time zones. • Can describe the arguments and evidence used by scientists in the past. 	<ul style="list-style-type: none"> • Can sequence the main parts of the digestive system. • Can draw the main parts of the digestive system onto a human outline. • Can describe what happens in each part of the digestive system. • Can point to the three different types of teeth in their mouth and talk about their shape and what they are used for. • Can name producers, predators and prey within a habitat. • Can construct food chains. • Can use diagrams or a model to describe the journey of food through the body explaining what happens in each part. • Can record the teeth in their mouth (make a dental record). • Can explain the role of the different types of teeth. • Can explain how the teeth in animal skulls show they are carnivores, herbivores or omnivores. • Can create food chains based on research.
Rocks	Light	States of Matter
<ul style="list-style-type: none"> • Can name some types of rock and give physical features of each rock type studied. • Can explain how a fossil is formed. • Can explain that soils are made from rocks and also contain living/dead matter. • Can name some types of rock and give physical features of each. • Can classify rocks in a range of different ways, using appropriate vocabulary. • Can devise tests to explore the properties of rocks and use data to rank the rocks. • Can link rocks changing over time with their properties e.g. soft rocks get worn away more easily. • Can present in different ways their understanding of how fossils are formed e.g. in role play, comic strip, chronological report, stop-go animation etc. • Can identify plant/animal matter and rocks in samples of soil. • Can devise a test to explore the water retention of soils. 	<ul style="list-style-type: none"> • Can describe how we see objects in light and can describe dark as the absence of light. • Can state that it is dangerous to view the sun directly and state precautions used to view the sun, for example in eclipses. • Can define transparent, translucent and opaque. • Can describe how shadows are formed. • Can describe patterns in visibility of different objects in different lighting conditions and predict which will be more or less visible as conditions change. • Can clearly explain, giving examples, that objects are not visible in complete darkness. • Can describe and demonstrate how shadows are formed by blocking light. • Can describe, demonstrate and make predictions about patterns in how shadows vary. • Can describe, with diagrams or models as appropriate, how light travels in straight lines either from sources or reflected from other objects into our eyes. • Can describe, with diagrams or models as appropriate, how light travels in straight lines past translucent or opaque objects to form a shadow of the same shape. • Can explain how evidence from enquiries shows that light travels in straight lines. • Can predict and explain, with diagrams or models as appropriate, how the path of light rays can be directed by reflection to be seen, e.g. the reflection in car rear view mirrors or in a periscope. • Can predict and explain, with diagrams or models as appropriate, how the shape of shadows can be varied. 	<ul style="list-style-type: none"> • Can create a concept map, including arrows linking the key vocabulary. • Can name properties of solids, liquids and gases. • Can give everyday examples of melting and freezing. • Can give everyday examples of evaporation and condensation. • Can describe the water cycle. • Can give reasons to justify why something is a solid, liquid or gas. • Can give examples of things that melt/freeze and how their melting points vary from their observations, can give the melting points of some materials using their data, can explain what affects how quickly a solid melts. • Can measure temperatures using a thermometer. • Can explain why there is condensation on the inside of the hot water cup but on the outside of the icy water cup from their data, can explain how to speed up or slow down evaporation. • Can present their learning about the water cycle in a range of ways e.g. diagrams, explanation text, story of a water droplet.

End Points in Learning in the Science Curriculum – Year 5

Working Scientifically	Living Things and their Habitats	Evolution and Inheritance
<ul style="list-style-type: none"> • Can plan different types of scientific enquiries to answer questions, including recognizing and controlling variables where necessary. • Can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. • Can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. • Can use test results to make predictions to set up further comparative and fair tests. • Can report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. • Can identify scientific evidence that has been used to support or refute ideas or arguments. 	<ul style="list-style-type: none"> • Can draw the life cycle of a range of animals identifying similarities and differences between the life cycles. • Can explain the difference between sexual and asexual reproduction and give examples of how plants reproduce in both ways. • Can present their understanding of the life cycle of a range of animals in different ways e.g. drama, pictorially, chronological reports, creating a game. • Can identify patterns in life cycles. • Can compare two or more animal life cycles they have studied. • Can explain how a range of plants reproduce asexually. 	<ul style="list-style-type: none"> • Can explain the process of evolution. • Can give examples of how plants and animals are suited to an environment. • Can give examples of how an animal or plant has evolved over time e.g. penguin, peppered moth. • Can give examples of living things that lived millions of years ago and the fossil evidence we have to support this. • Can give examples of fossil evidence that can be used to support the theory of evolution. • Can identify characteristics that will make a plant or animal suited or not suited to a particular habitat. • Can link the patterns seen in the model to real examples. • Can explain why the dominant colour of the peppered moth changed over a very short period of time.
Properties and Changes of Materials	Forces and Magnets	Electricity
<ul style="list-style-type: none"> • Can use understanding of properties to explain everyday uses of materials, for example, how bricks, wood, glass and metals are used in buildings. • Can explain what dissolving means, giving examples. • Can name equipment used for filtering and sieving. • Can use knowledge of liquids, gases and solids to suggest how materials can be recovered from solutions or mixtures by evaporation, filtering or sieving. • Can describe some simple reversible and non-reversible changes to materials, giving examples. • Can create a chart or table grouping/comparing everyday materials by different properties. • Can use test evidence gathered about different properties to suggest an appropriate material for a particular purpose. • Can group solids based on their observations when mixing them with water. • Can give reasons for choice of equipment and methods to separate a given solution or mixture such as salt or sand in water. • Can explain the results from their investigations. 	<ul style="list-style-type: none"> • Can give examples of forces in everyday life. • Can give examples of objects moving differently on different surfaces. • Can name a range of types of magnets and show how the poles attract and repel. • Can draw diagrams using arrows to show the attraction and repulsion between the poles of magnets. • Can use their results to describe how objects move on different surfaces. • Can use their results to make predictions for further tests e.g. it will spin for longer on this surface than that, but not as long as it spun on that surface. • Can use classification evidence to identify that some metals, but not all, are magnetic through their exploration, they can show how like poles repel and unlike poles attract, and name unmarked poles. • Can use test data to rank magnets. 	<ul style="list-style-type: none"> • Can name the components in a circuit. • Can make electric circuits. • Can control a circuit using a switch. • Can name some metals that are conductors. • Can name materials that are insulators. • Can communicate structures of circuits using drawings which show how the components are connected. • Use classification evidence to identify that metals are good conductors and non-metals are insulators. • Can incorporate a switch into a circuit to turn it on and off. • Can connect a range of different switches identifying the parts that are insulators and conductors. • Can add a circuit with a switch to a DT project and can demonstrate how it works. • Can give reasons for choice of materials for making different parts of a switch. • Can describe how their switch works. • Can make electric circuits and demonstrate how variation in the working of particular components, such as the brightness of bulbs, can be changed by increasing or decreasing the number of cells or using cells of different voltages. • Can draw circuit diagrams of a range of simple series circuits using recognised symbols. • Can incorporate a switch into a circuit to turn it on and off. • Can change cells and components in a circuit to achieve a specific effect. • Can communicate structures of circuits using circuit diagrams with recognised symbols. • Can devise ways to measure brightness of bulbs, speed of motors, volume of a buzzer during a fair test. • Can predict results and answer questions by drawing on evidence gathered.

End Points in Learning in the Science Curriculum – Year 6

Working Scientifically	Living Things and their Habitats	Animals Including Humans
<ul style="list-style-type: none"> • Can plan different types of scientific enquiries to answer questions, including recognizing and controlling variables where necessary. • Can take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. • Can record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. • Can use test results to make predictions to set up further comparative and fair tests. • Can report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations. • Can identify scientific evidence that has been used to support or refute ideas or arguments. 	<ul style="list-style-type: none"> • Can give examples of animals in the five vertebrate groups and some of the invertebrate groups. • Can give the key characteristics of the five vertebrate groups and some invertebrate groups. • Can compare the characteristics of animals in different groups. • Can give examples of flowering and non-flowering plants. • Can use classification materials to identify unknown plants and animals. • Can create classification keys for plants and animals. • Can give a number of characteristics that explain why an animal belongs to a particular group. 	<ul style="list-style-type: none"> • 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 text, job description of the heart. • Use the role play model to explain the main parts of the circulatory system and their role. • Can use subject knowledge about the heart whilst writing conclusions for investigations. • Can explain both the positive and negative effects of diet, exercise, drugs and lifestyle on the body. • Present information e.g. in a health leaflet describing impact of drugs and lifestyle on the body.
Properties and Changes of Materials	Heat and Energy	
<ul style="list-style-type: none"> • Can use understanding of properties to explain everyday uses of materials, for example, how bricks, wood, glass and metals are used in buildings. • Can explain what dissolving means, giving examples. • Can name equipment used for filtering and sieving. • Can use knowledge of liquids, gases and solids to suggest how materials can be recovered from solutions or mixtures by evaporation, filtering or sieving. • Can describe some simple reversible and non-reversible changes to materials, giving examples. • Can create a chart or table grouping/comparing everyday materials by different properties. • Can use test evidence gathered about different properties to suggest an appropriate material for a particular purpose. • Can group solids based on their observations when mixing them with water. • Can give reasons for choice of equipment and methods to separate a given solution or mixture such as salt or sand in water. • Can explain the results from their investigations. 	<ul style="list-style-type: none"> • Can identify what happens when particles are heated. • Can describe what happens to a substance when it is heated. • Can describe how thermal equilibrium can be reached. • Can describe how heat is transferred by particles by conduction. • Knows what a thermal conductor, and a thermal insulator, is. • Can create, explain and evaluate a design to keep ice frozen for as long as possible. • Can describe what an energy store is. • Can describe what useful, wasted and input energy stores are. • Can compare the power ratings of a range of appliances. • Can describe the method of measuring, and calculate, and object's speed. • Can describe how the kinetic energy of an object can be found and changed. 	