

Science Knowledge and Skills Progression Map



EYFS Framework

Personal, Social and Emotional Development

ELG: Speaking

Offer explanations for why things might happen, making use of recently introduced vocabulary from stories, non-fiction, rhymes and poems when appropriate.

ELG: Managing Self

Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.

Understanding the World

ELG: People, Culture and Communities

Describe the immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps

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

Science Knowledge and Skills Progression Map



| EYFS End Points (informed by Early Learning Goals) | 'I can/will..., I/We will...' and 'I know...' Statements |
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| <p><u>Personal, Social and Emotional Development</u></p> <p>ELG: Speaking</p> <ul style="list-style-type: none"> ● Offers explanations for why things might happen. <p>ELG: Managing Self</p> <ul style="list-style-type: none"> ● Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices. <p>ELG: People, Culture and Communities</p> <ul style="list-style-type: none"> ● Describes the immediate environment using knowledge from observation, discussion, stories, non-fiction texts and maps. <p><u>Understanding the World</u></p> <p>ELG: The Natural World</p> <ul style="list-style-type: none"> ● Explores the natural world around them, making observations and drawing pictures of animals and plants. ● Knows some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. | <p><u>Linking to Y1 Seasonal Change (Part 1) Topic:</u></p> <p>We will talk about the seasons and seasonal changes.</p> <p>We will observe and describe plant growth and the life cycle of butterflies.</p> <p><u>Linking to Y1 Materials Topic:</u></p> <p>I will develop my own ideas and decided which materials to use to express them (when making props for a play).</p> <p>I will use junk modelling, paint and other materials to make a selection of transport vehicles.</p> <p>I will develop my small movement (fine motor) skills: threading, pouring, stirring, constructing and using malleable (mouldable) materials.</p> <p><u>Linking to Y1 Animals Topic:</u></p> <p>We will learn about different habitats and the animals that live in these habitats, linking our understanding to why different animals are found in different countries. 🌍</p> <p>We will explore the natural world, making observations and drawing pictures of animals and plants having identified the local habitats and contrasting environments.</p> <p><u>Linking to Y1 Plants Topic:</u></p> |

Science Knowledge and Skills Progression Map

● Understands some important processes and changes in the natural world around them, including the seasons and changing states of matter.

We will create miniature gardens and discuss ways in which we can care for the garden, as well as the environment.

We will learn about the life cycle of a butterfly and created a butterfly garden with flowering plants.

Linking to Seasonal Change (Part 2) Topic:

I know when each of the four seasons occurs.

I know what the features of autumn are and what happens to trees in this season. ☒

I know that days are longer in summer (sunshine hours) than in winter

I can observe changes across the four seasons.

Science Knowledge and Skills Progression Map

| Year 1 | Knowledge | Skills |
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| Autumn 1 Senses | <ul style="list-style-type: none"> To identify and name parts of the body. To name the five senses and the body parts associated with them. | <ul style="list-style-type: none"> Asks simple questions and recognises that they can be answered in different ways. Observes closely, using simple equipment. Performs simple tests. Can identify and classify. Uses their observations and ideas to suggest answers to questions. Gathers and records data to help in answering questions. |
| Autumn 2 Seasonal changes part 1 | <ul style="list-style-type: none"> Know when each of the four seasons occurs Know what the features of autumn are and what happens to trees in this season Know that days are longer in summer (sunshine hours) than in winter Observe changes across the four seasons | <ul style="list-style-type: none"> Can gather and record data about weather conditions in autumn, drawing on observation and using simple equipment (such as a container to measure rainfall) Can use data to create a pictogram and use this to describe changes in day length over the seasons. Can use their evidence to describe some other features of the weather, surroundings, themselves, animals, and plants found in autumn. Can demonstrate their knowledge in different ways e.g. creating seasonal artwork, creating a pictogram (and use this to ask and answer related questions). |
| Spring 1 Animals including humans | <ul style="list-style-type: none"> Know and can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals e.g. cat, robin, adder, frog, salmon. Know and can identify and name a variety of common animals that are carnivores, herbivores and omnivores. 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 | <ul style="list-style-type: none"> Can make first hand close observations of animals from each of the groups Can compare the structure of two animals from the same or different group e.g. wings, feathers, vertebrates/ invertebrates. Can classify animals using a range of features e.g. lay eggs/give birth to live young. herbivore, omnivore (these terms do not have to be explicitly taught). Can identify animals by matching statements to named images. |

Science Knowledge and Skills Progression Map

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| | | <ul style="list-style-type: none"> • Can take measurements of parts of the body and present results in a table to interpret. • Can conduct simple sense experiments. Which part of my body is good for feeling, which is not? Which food/flavours can I identify by taste? Which smells can I match? |
| <p>Spring 2 Everyday material</p> | <ul style="list-style-type: none"> • Distinguish between an object and the material from which it is made • Can 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 • Know why and how the properties of materials make them particularly useful for specific purposes (for example, stone is a hard, heavy and durable material so is useful for construction of buildings). • Know how the properties of a material can make it useful for a range of different purposes (for example, plastic is waterproof so it can be used to coat fabric for clothing but can also be used for outdoor play equipment) • Know that different materials can share the same properties (for example glass and plastic can both be transparent) | <ul style="list-style-type: none"> • Can compare and group together a variety of everyday materials on the basis of their simple physical properties. • Can classify objects made of one material in different ways e.g. a group of objects made of metal. • Can classify one type of object made from a range of materials e.g. a collection of spoons made of different materials. • 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? • Can test the properties of objects e.g. absorbency of cloths, strength of party hats made of different papers, stiffness of paper plates, waterproof shelters |
| <p>Summer 1 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. | <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 |

Science Knowledge and Skills Progression Map



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| Summer 2 Seasonal Changes part 2 | <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. | <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 |
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Science Knowledge and Skills Progression Map

| Year 2 | Knowledge | Skills |
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| Autumn 1 Animals including humans | <ul style="list-style-type: none"> • 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. • 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. (Y2 - Living things and their habitats) | <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 importance 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. by 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 • Can describe, including using diagrams, the life cycle of some animals, including humans, and their growth to adults e.g. by creating a life cycle book for a younger child • Can measure/observe how animals, including humans, grow. • Show 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 |

Science Knowledge and Skills Progression Map

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| <p>Autumn 2 Animals and survival</p> | <ul style="list-style-type: none"> • Knows that exercise is important to humans and can explain why. • Knows the different food groups and the benefits of each as part of a healthy, balanced diet • Knows which food groups common foods belong to. • Knows about general hygiene and its importance and can state examples of hygienic practice. | <ul style="list-style-type: none"> • Can investigate the effect of exercise on their bodies • Can classify food in a range of ways, including using the Eatwell guide • Can investigate washing hands, using glitter gel • Can describe, using diagrams, the life cycle of some animals, including humans, and their growth to adults e.g. by creating a life cycle book for a younger child • Can measure/observe how animals, including humans, grow. • Can collate what they know about looking after a baby/animal by creating a parenting/pet owners' guide • Can explain how development and health might be affected by differing conditions and needs being met/not met |
| <p>Spring 1 Everyday materials</p> | <ul style="list-style-type: none"> • Knows and can explain why some materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard are particularly suited to specific purposes • Knows how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching • Knows the difference between materials that are transparent, translucent and opaque. | <ul style="list-style-type: none"> • Can classify and sort materials by their properties e.g. manmade, natural • Can investigate and observe what happens to different materials during testing and use this to inform explanation of their properties • Can investigate which materials are fit for a purpose e.g. What is the best material for an umbrella? • Can explain from their observations how materials change when a force is exerted on them by squashing, bending, twisting and stretching. Investigate the transparency of objects, recording class data in a table and drawing simple conclusions from the findings. □ • Can ask and answer questions about everyday materials |
| <p>Spring 2 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 microhabitats. • 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. • Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals including humans) | <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- |

Science Knowledge and Skills Progression Map

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| | | <p>habitat</p> <ul style="list-style-type: none"> • 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 |
| <p>Summer 1 Plants</p> | <ul style="list-style-type: none"> • 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. • Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats) | <ul style="list-style-type: none"> • Can describe how plants that they have grown from seeds and bulbs have developed over time • Can identify plants that grew well in different conditions • Can spot similarities and difference between bulbs and seeds • Can nurture seeds and bulbs into mature plants identifying the different requirements of different plants • Can spot similarities and difference between bulbs and seeds • Can nurture seeds and bulbs into mature plants identifying the different requirements of different plants |
| <p>Summer 2 Animals and conservation</p> | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • Can give key features that mean the animal or plant is suited to its microhabitat • Using a food chain can explain what animals eat • Can explain in simple terms why an animal or plant is suited to a habitat • Research endangered animals and their natural habitats • Observe successful conservation programmes and explain why these have worked |

Science Knowledge and Skills Progression Map



LAURANCE HAINES
SCHOOL

Science Knowledge and Skills Progression Map

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| <p>Year 3</p> | <p>Knowledge</p> | <p>Skills</p> <ul style="list-style-type: none"> • Asking relevant questions and using different types of scientific enquiries to answer them • Asking relevant questions and using different types of scientific enquiries to answer them • Setting up simple practical enquiries, comparative and fair tests • Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions • Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables • Using straightforward scientific evidence to answer questions or to support their findings • Identifying differences, similarities or changes related to simple scientific ideas and processes • Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions |
| <p>Autumn 1 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. | <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 |

Science Knowledge and Skills Progression Map

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| | | <p>enquiry question</p> <ul style="list-style-type: none"> • Can give similarities e.g. they all have joints to help the animal move, and differences between skeletons |
| <p>Autumn 2 Rocks</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. | <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 explain how a fossil is formed • Can explain that soils are made from rocks and also contain living/dead matter • 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 |

Science Knowledge and Skills Progression Map

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| <p>Spring 1 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. | <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 |
| <p>Spring 2 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. | <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 |

Science Knowledge and Skills Progression Map

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| <p>Summer 1 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. | <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 |
| <p>Summer 2 Sustainability and caring for the environment</p> | <ul style="list-style-type: none"> • 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. • Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. • 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. | <ul style="list-style-type: none"> • Use their data to look for patterns (or lack of them) when answering their enquiry question • 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 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 |

Science Knowledge and Skills Progression Map

| Year 4 | Knowledge | Skills |
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| Autumn 1 Sound | <ul style="list-style-type: none"> • Identify how sounds are made, associating some of them with something vibrating. • Recognise 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. | <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 increases • Can explain 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 |
| Autumn 2 Humans | <ul style="list-style-type: none"> • 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. | <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 |

Science Knowledge and Skills Progression Map

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| | | <ul style="list-style-type: none"> • 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 |
| <p>Spring 1 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. | <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 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 |

Science Knowledge and Skills Progression Map



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| <p>Spring 2 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. | <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 give reasons for choice of materials for making different parts of a switch • Can describe how their switch works |
| <p>Summer 1 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. | <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 |

Science Knowledge and Skills Progression Map



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Science Knowledge and Skills Progression Map

| <p>Year 5</p> | <p>Knowledge</p> | <p>Skills</p> <ul style="list-style-type: none"> • Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs • Identifying scientific evidence that has been used to support or refute ideas or arguments • Reporting and presenting 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 • Using test results to make predictions to set up further comparative and fair tests |
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| <p>Autumn 1 Human life cycles</p> | <ul style="list-style-type: none"> • Describe the changes as humans develop to old age. | <ul style="list-style-type: none"> • Can explain the changes that takes place in boys and girls during puberty • Can explain how a baby changes physically as it grows, and also what it is able to do • Can present information about the changes occurring during puberty as an information leaflet for other Y5 children or answers to 'problem page questions' |
| <p>Autumn 2 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. | <ul style="list-style-type: none"> • Can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object • Can give examples of friction, water resistance and air resistance acting between moving surfaces • Can give examples of when it is beneficial to have high or low friction, water resistance and air resistance • 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 |

Science Knowledge and Skills Progression Map

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| | | <p>water or air or across the surface the particles in the water, air or on the surface slow it down</p> <p>. Can demonstrate clearly the effects of using mechanisms such as levers, pulleys and gears to allow a smaller force to have a greater effect.</p> |
| <p>Spring 1 Earth and Space</p> | <ul style="list-style-type: none"> 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. | <ul style="list-style-type: none"> 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 label a diagram of the solar system showing the location of the planets Can explain what causes day and night using diagrams to show the rotation of Earth Can explain evidence gathered about the position of shadows in terms of the movement of the Earth and show this using a model Can label the phases of the moon and explain why it appears to change shape Can explain verbally, using a model, why we have time zones Can describe the arguments and evidence used by scientists in the past |
| <p>Spring 2 Properties and changes in 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 | <p>Can use understanding of properties to explain everyday uses of materials, for example, how bricks, wood, glass and metals are used in buildings</p> <ul style="list-style-type: none"> 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 |

Science Knowledge and Skills Progression Map



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| | <p>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>different properties</p> <ul style="list-style-type: none"> • 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 |
| <p>Summer 1 Life cycles - animals</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. | <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 |
| <p>Summer 2</p> | <p>Recap and retrieval</p> | |

Science Knowledge and Skills Progression Map

| Year 6 | Knowledge | Skills |
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| Autumn 1 The human body | <ul style="list-style-type: none"> 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. | <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 |
| Autumn 2 Electricity | <ul style="list-style-type: none"> 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. | <ul style="list-style-type: none"> 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 |

Science Knowledge and Skills Progression Map

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| | | <p>of a buzzer during a fair test</p> <ul style="list-style-type: none"> • Can predict results and answer questions by drawing on evidence gathered |
| <p>Spring 1 Light</p> | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 |
| <p>Spring 2 Classification</p> | <ul style="list-style-type: none"> • 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. | <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 |

Science Knowledge and Skills Progression Map



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| | | <ul style="list-style-type: none"> • Can give a number of characteristics that explain why an animal belongs to a particular group |
| <p>Summer 1 Evolution and inheritance - adaptation</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. • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. | <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 • 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 <p>Can identify characteristics that will make a plant or animal suited or not suited to a particular habitat</p> <ul style="list-style-type: none"> • 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 |
| <p>Summer 2</p> | | |