The Limes Primary Academy – Learning Pathways Curriculum
Science Progression Map

	Nursery	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
National Curriculum *Pupils should be taught:*	During EYFS children learn through the characteristics of effective learning: ***Playing and exploring –*** Children investigate and experience things and 'have a go' **Active Learning –** Children concentrate and keep on trying if the encounter difficulties, and enjoy achievements **Creating and Thinking Critically –** Children have and develop their own ideas, make links and develop strategies for doing things		During years 1 and 2, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • Asking simple questions and recognising that they can be answered in different ways • Observing closely, using simple equipment • Performing simple tests • Identifying and classifying • Using their observations and ideas to suggest answers to questions • Gathering and recording data to help in answering questions		During years 3 and 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • asking relevant questions and using different types of scientific enquiries to answer them • setting up simple practical enquiries, comparative and fair tests • making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers • 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 • reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • identifying differences, similarities or changes related to simple scientific ideas and processes • using straightforward scientific evidence to answer questions or to support their findings.		During years 5 and 6, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content: • 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 • using test results to make predictions to set up further comparative and fair tests • reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations • identifying scientific evidence that has been used to support or refute ideas or arguments
By the end of the year, children should be able to…								

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Plants - Knowledge Skills	**Nursery** Know how to care for plants within the environment Know the key stages of a plant's life cycle. Talk about their understanding of the need to respect and care for the natural environment. Plant seeds and care for growing plants. Observe plants in different stages of their life cycle. **Reception (builds on the learning in Nursery)** Understand the effect of changing seasons on the natural world around them (plants). Name and describe some plants. Describe and comment on things they have seen whilst outside including plants and animals.	Know the very basic parts of a plant (root, stem, leaves and flower) Make simple observations of plants orally and through drawing pictures	Know a variety of common wild and garden plants, including deciduous and evergreen trees Know and can identify the basic structure of a variety of common flowering plants, including trees Plant seeds and observe how they grow and change by making simple observations. Can sort and group parts of plants using similarities and differences e.g. the shape of leaves, the colour of the flower/blossom. Can use simple charts and Venn diagrams etc. to identify and classify plants. Use photographs and their own observations to talk about how plants change over time (e.g. seed to sapling to tree) and over the year (deciduous and fruit bearing trees).	Know that seeds and bulbs need to be planted at certain times of the year and will germinate and grow at different rates Know that plants need water, light and a suitable temperature to grow and stay healthy Know that plants may grow from either seeds or bulbs. Know that seeds and bulbs can germinate and then grow into mature plants Know that mature plants may have flowers which then may develop into seeds, berries and fruits Research and plan when and how to plant seeds or bulbs Look after plants as they grow – weeding, watering etc.	Knows and can identify and describe the functions of different parts of flowering plants: petal, stamen, stigma, style, ovary Knows 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. Knows through investigation, the ways in which water is transported within plants Knows the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. Investigate what happens to plants when they are put in different conditions e.g. in darkness, in the cold, deprived of air, different types of soil, different fertilisers, varying amount of space.			

			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, the leaves are different shapes.	Make close observations of their plants growing from seeds or bulbs Make comparisons between plants as they grow Classify seeds and bulbs Make close observations of seeds and bulbs spotting similarities and differences	Observe what happens to plants over time when the leaves or roots are removed. Observe the effect of putting cut white carnations or celery in coloured water. Observe flowers carefully to identify the pollen Observe flowers being visited by pollinators e.g. bees and butterflies in the summer. Observe seeds being blown from the trees e.g. dandelion seeds Research different types of seed dispersal. Classify seeds in a range of ways including by how they are dispersed. Can look at the features of seeds to decide on their method of dispersal. Can draw and label a diagram a flowering plant to show its parts, their role and the method of			

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					pollination and seed dispersal.			
Animals, including humans - Knowledge Skills	**Nursery** Understand the key features of the life cycle of an animal (butterfly) Know that fruit and vegetables are healthy foods. Observe a butterflies life cycle Compare foods that are good for us to those that are not. **Reception (builds on the learning in Nursery)** Know the key features of the life cycle of an animals (frog). Begin to understand the simple life cycle of humans. Name and describe some animals. Observe the life cycle of an animal (frog).	Know that some animals give birth to live young, whereas others lay eggs Know and name dinosaurs that are carnivores or herbivores Know that dinosaurs are closely related to animals today Know some good practices in regard to exercise, eating, sleeping and hygiene can contribute to good health Observe and make observations of an animal that was alive at the same time as dinosaurs e.g., tortoise Explore similarities and differences between dinosaurs and animals that are alive today e.g., crocodile, tortoise	Know and can name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Know and can name a variety of common animals that are carnivores, herbivores and omnivores. Know, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense Make close observations of animals from each of the groups Compare the structure of two animals from the same or different group e.g. wings, feathers, vertebrates/invertebrates. Classify animals using a range of features e.g. lay eggs/give birth to	Know that animals, including humans have offspring which grow into adults, using the appropriate names for the stages Know that to survive animals need sunlight, water, air, food and a suitable habitat (including shelter for protection from predators and the environment. Know that exercise is important to humans and can explain why. Know the different food groups and the benefits of each as part of a healthy, balanced diet Know which food groups common foods belong to Know about general hygiene and its importance and can state examples of hygienic practice.	Know that animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need. Know that food contains a range of different nutrients that are needed by the body to stay healthy – carbohydrates including sugars, protein, vitamins, minerals, fibre, fat, sugars, water. Know that piece of food will often provide a range of nutrients. Know that humans and some other animals have skeletons and muscles which help them move and provide protection and support Compare, contrast and classify skeletons of different animals Classify food in a range of ways	Know the basic parts of the digestive system in humans. Know and can name the different types of teeth in humans and their simple functions. Know which organisms are producers, predators and prey Construct and interpret a variety of food chains, identifying producers, predators and prey. Create food chains based on research Identifies differences, and similarities of different types of teeth according to herbivore, omnivore and carnivore. Can record the teeth in their mouth (make a dental record).	Know the changes that occur as humans develop to old age	Know and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Know and recognise the impact of diet, exercise, drugs and lifestyle on the way the body functions Know and can describe the way in which nutrients and water are transported within animals, including humans Use secondary information to identify the main components of the heart. Predict what will happen to the heart during exercise. Conduct a fair investigation on the effects of exercise on the heart.

	Describe and comment on things they have seen whilst outside including plants and animals.		live young. Herbivore, omnivore etc. Take measurements of parts of the body and present results in a table to interpret. 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?	Ask questions and use secondary sources to find out about the life cycles of some animals Observe animals growing over a period of time e.g. chicks, frogs 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 frog Measure/observe how animals, including humans, grow. Collate what they know about looking after a baby/animal by creating a parenting/pet owners' guide Investigate the effect of exercise on their bodies Classify food in a range of ways, including using the Eatwell guide Explore how development and	Use food labels to explore the nutritional content of a range of food items Use food labels to answer enquiry questions e.g. How much fat do different types of pizza contain? How much sugar is in soft drinks? Plan a daily diet containing a good balance of nutrients and record and present findings Explore the nutrients contained in fast food Use secondary sources to research the parts and functions of the skeleton Investigate correlational questions such as; Can people with longer legs run faster?; Can people with bigger hands catch a ball better?	Recreate the human stomach and observe representation of how food breaks down. Label and explain the function of the different parts of the digestive system.		Use scientific equipment to track results and record data using tables and graphs. Analyse whole class data after investigation to compare and reflect on findings and draw conclusions. Use information acquired to write a scientific report on how the human circulatory system works. Plan and conduct a scientific enquiry to identify different food groups. Use labelled diagrams to support understanding of how nutrients and oxygen are delivered around the body

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				health might be affected by differing conditions and needs being met/not met				
Living things and their habitats – Knowledge Skills	**Nursery** Know that it is important to respect and care for the environment and the living things found within it. Know that there are different habitats Explore the ways that we can look after our environment e.g., going on a litter walk Identify what minibeasts like what habitats e.g., worms like to live underground, ladybirds live in the garden **Reception (builds on the learning in Nursery)** Know the effect of changing seasons to animals and their habitats. Describe and comment on things they have seen whilst outside	Know the ways in which we can look after our environment Know that there are different environments to the one we live in e.g., volcanoes Know that environments change over time e.g., the world looked different when dinosaurs where alive Explain the ways in which we can look after our environment Observe a different environment to ours, noting what it would be like to live there		Know the differences between things that are living, dead, and things that have never been alive Know that most living things live in habitats to which they are suited Know how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other Know and can name a variety of plants and animals in their habitats, including micro-habitats Know and can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain. Know different sources of food within a food chain.		Know that living things can be grouped in a variety of ways Know and can name living things in a range of habitats . Know and can relate the key adaptational features of an organism to the known features of its habitat. Know and can give examples of how an environment may change both naturally and due to human impact and the effects this may have on the animals within that environment. Observe plants and animals throughout the year and use recordings to compare and contrast the living things observed. Explore and use classification keys to help group, identify and name a variety of living	Know and can describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Know and can describe the life processes of reproduction in some plants (including asexual plants) and animals Grow and observe plants that reproduce asexually e.g. strawberries, potatoes Organise mammals into different groups - sea and land and marsupials and use scientific evidence to refute/support correct/incorrect statements (such as 'dolphins are fish'). Draw and label appropriate scientific diagrams following use of secondary sources and first hand observations relating to the life	Know that living things can be formally grouped according to characteristics. Know that animals can be divided into two main groups – vertebrates and invertebrates. Know that each group has common characteristics. Know that plants can be divided broadly into two main groups – flowering plants and non-flowering plants. Classify plants and animals and record conclusions from the use of classification keys. Use information about the characteristics of an unknown animal or plant to assign it to a group. Use secondary sources to learn about the formal classification

	including plants and animals. Describe what they see, hear and feel whilst outside. Explore the natural world around them – what animals live in their local environment (woodland).			Can sort into living, dead and never lived Observe animals and plants carefully, drawing and labelling diagrams Create simple food chains for a familiar local habitat from first hand observation and research (e.g. Kestrels over the field) Create simple food chains from information given e.g. in picture books (Gruffalo etc.) 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		things in their local and wider environment. Classify living things found in different habitats based on their features. Create a simple identification key based on observable features. Use research to explore human impact on the local environment e.g. litter, tree planting, new housing estate being built Use secondary sources to find out about how environments may naturally change Use secondary sources to find out about human impact, both positive and negative, on environments and write a report on this.	cycle of a range of animals. Compare and contrast the life cycles of different living things and present findings identify which insects complete which type of metamorphosis and present findings identify the key differences between some amphibians – for example, toads and frogs, and present findings in different forms. Use data to compare and find patterns, for example to compare the gestation times for mammals and look for patterns e.g. in relation to size of animal or length of dependency after birth/Look for patterns between the size of an animal and its expected life span)	system devised by Carl Linnaeus and why it is important. Research an unfamiliar animal or plant using its characteristics to establish where it belongs in the classification system.

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Evolution and Inheritance – Knowledge Skills								Know that fossils give us evidence of what lived on the Earth millions of years ago Know that all living things have offspring of the same kind. The offspring are not identical to their parents and vary. Know that plants and animals have characteristics that make them suited (adapted) to their environment. Know that if the environment changes rapidly some variations may not suit the new environment and will die. If it changes slowly, animals and plants with variations that are best suited survive and reproduce. This is natural selection. Know that over a very long period of time these characteristics may be so different that a new species is created. This is evolution.

								Know about the work of key scientists, such as Darwin and Wallace Refer to and use examples of fossil evidence that support the theory of evolution. Demonstrate an understanding, with specific examples, of how an animal or plant has evolved over time e.g., peppered moth, linked to industrial revolution Identify characteristics that will make a plant or animal suited or not suited to a particular habitat. Compare the ideas of Charles Darwin and Alfred Wallace on evolution. Research the work of Mary Anning and understand how this provided evidence of evolution.

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Seasonal Changes Knowledge Skills	**Nursery** Name each of the four seasons. Begin to talk about what they observe in each of the seasons. **Reception (builds on the learning in Nursery)** Know what happens to their environment throughout the different seasons. Understand the effect of changing seasons on the natural world around them.	Know what happens in each of the four seasons Demonstrate their knowledge in different ways e.g. creating seasonal artwork, creating a pictogram (and use this to ask and answer related questions) Understand the effects of the changing seasons on the environment around them e.g., animals hibernating, leaves falling from the trees	Knows when each of the four seasons occurs Know that days are longer in summer than in winter Know and can describe the features of different seasons and how they change throughout the year Gather and record data about weather conditions in the different season, drawing on observation and using simple equipment (such as a container to measure rainfall) Use data to create a pictogram and use this to describe changes in day length over the seasons. Use their evidence to describe some other features of the weather, surroundings, themselves, animals, and plants found in autumn and spring. Collect information about the weather					

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			regularly throughout the year Present information in tables and charts to compare the weather across the seasons Collect information, regularly throughout the year, of features that change with the seasons e.g. plants, animals, humans					
Forces Knowledge Skills	**Nursery** Know how to work different toys e.g., pushing a toy car, throwing a ball Know that they can affect how far something moves by the amount of force they use Know that some things are easier to move than others Know that a magnet will stick to some materials and not others Know about different forces eg water pushes up when they push				Know that friction affects the way that things move on different surfaces Know that some forces need contact between two objects, but magnetic forces can act at a distance Know that magnets attract or repel each other and attract some materials and not others Know and can describe magnets as having two poles		Know that unsupported objects fall to Earth because of the force of gravity acting between the earth and the falling object Know the effects of air resistance, water resistance and friction, that act between moving surfaces Know that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect	

	down, they can stretch elastic, they have snap a twig but not a metal rod. Make predictions and take part in an experiment that involves tyring to move different object by blowing on it. Explore what materials magnets will stick to and those that it will not **Reception (builds on the learning in Nursery)** Begin to understand the concept of floating and sinking. Make predictions about which objects with sink or float.				Know whether two magnets will attract or repel each other, depending on which poles are facing. Record and report on findings from investigations, involving how things move on different surfaces Compare and group materials following magnetic testing, recording findings and use the outcome to answer questions about which materials are magnetic Make and investigate predictions on whether two magnets will attract or repel, depending on which poles are facing.		Investigate the pull on different objects using a newton meter and record forces in Newtons (N). Report on conclusions relating to an object's mass and its weight in Newtons. Research how the work of scientists such as Galileo Galilei and Isaac Newton helped to develop the theory of gravitation Investigate the effect of friction in a range of contexts Investigate the effects of water resistance in a range of contexts e.g. dropping shapes through water, pulling shapes e.g. boats along the surface of water. Investigate the effects of air resistance in a range of contexts e.g. parachutes, spinners, sails on boats. Explore how levers, pulleys and gears work.	

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Sound Knowledge Skills						Know how sounds are made, associating some of them with vibrating. Knows how sound travels from a source to our ears. Know the correlation between pitch and the object. Know the correlation between the volume of a sound and the strength of the vibrations that produced it. Know that sounds get fainter as the distance from the sound source increases. Experiment with at least three different instruments to observe and explore volume and pitch. Find patterns between the pitch of a sound and the features of the object that produced it, recording findings. Make predictions and draw conclusions about		

						the pitch and volume of sounds. Notice how vibrations make sounds of different volumes and travel to our ears. Identify and show how sound travels through particles and into the ear. Make own instruments that produce a range of pitches.		
Light Knowledge Skills	**Nursery** Begin to know how they can create shadows with their bodies. Observe and explore how shadows work. Draw round shadows outside. **Reception (builds on the learning in Nursery)** Continue understanding how they can create shadows with other objects such as puppets. Observe and explore how				Know that light is needed to see things and that dark is the absence of light Know that light is reflected from surfaces Know that light from the sun can be dangerous and that there are ways to protect the eyes Knows that shadow are formed when the light from a light source is blocked by an opaque object. Knows and can explain some of the reasons why the size of shadows changes.			Know that light appears to travel in straight lines Know and can explain that objects are seen because they give out or reflect light into the eye Know and can explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes Know and can explain, with reference to how light travels, why shadows have the same shape as the

	shadows work in other contexts.				Knows how the shadows of transparent, opaque and translucent materials vary. Observe and identify changes to the size and orientation of shadows, relative to their proximity to the light source. Observe and identify the difference in shadows of opaque, translucent and transparent objects/materials. Observe how shadows are formed and affected by different circumstances. Investigate the visibility of different materials (eg shiny; foil, mirrors and matt; sugar paper) in a darker environment according to which reflect most light. Investigate the size of shadows according to times of day and year,			objects that cast them Plan and conduct a test to investigate how light travels and explain/present the findings. Investigate the use of mirrors to reflect light and record using straight line diagrams to indicate the direction of light. Use mirrors, torches and protractors to demonstrate and record how light is reflected in a mirror and how we see ourselves in a mirror. Measure and record the angle of incidence and angle of reflection using a protractor and detailed diagram.

					by tracing shadows outside and comparing differences. Classify materials according to opaque, transparent and translucent. Use oral and written explanations to report on why shadows are formed and how the length and size of a shadow can be changed. Investigates questions related to an object and the shadow it will cause.			
Electricity Knowledge Skills						Know and name appliances that require electricity to function Know the basic parts of a circuit, including cells, wires, bulbs, switches and buzzers Know that for an appliance to work within a circuit, it has to be part of a complete loop with a battery. Know that a switch in a circuit is a		Know that the brightness of a bulb, or the volume of a buzzer, correlates with the voltage of cells used in the circuit. Know and can give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches Know the effect of adding more

						temporary break in an otherwise 'complete circuit'. Know that all metals conduct electricity but some, such as aluminium and titanium, are relatively poor conductors. Know the recognised symbols used to represent components of a circuit and uses these to represent a circuit pictorially. Construct and investigate a range of circuits. Identify whether a lamp will light in a simple series circuit, based on whether the lamp is part of a complete loop with a battery. Investigate which materials can be used instead of wires to make a circuit Classify materials that conduct electricity and those that don't following investigation and record findings		components to a circuit with one cell and the effect of adding multiple cells Knows and can use the recognised symbols to represent a simple circuit in a diagram Draw circuit diagrams of a range of simple series circuits, using recognised symbols. Communicate structures of circuits using circuit diagrams with recognised symbols Make electric circuits and demonstrate, following investigation, how variation in the working of particular components can be changed. Plan and select resources for a fair scientific enquiry, deciding which variables to control. Record results from an experiment using tables and graphs, evaluate and explain their

						Investigate the effect of a switch and combinations of switches in simple circuits.		investigation, results and conclusions e.g. brightness of bulb and voltage of cells in circut.
Rocks Knowledge Skills		Know that dinosaurs are now fossils Know that we learn about dinosaurs by looking at fossils Make observations of fossils drawing conclusions about what dinosaur they believe it may belong to			Know that rock is a naturally occurring material. Know that there are different types of rock e.g. sandstone, limestone, slate etc. which have different properties. Know that rocks can be hard or soft. They have different sizes of grain or crystal. Know, in simple terms, how fossils are formed when things that have lived are trapped within rock. Knows that soils are made from rocks and organic matter. Can compare and group together			

					different kinds of rocks on the basis of their appearance and simple physical properties. 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., 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			

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Earth and Space Knowledge Skills							Know that the Sun is a star. It is at the centre of our solar system. There are 8 planets and that these travel around the Sun in fixed orbits. Know that Earth takes 365¼ days to complete its orbit around the Sun. Know Earth rotates (spins) on its axis every 24 hours. Know that as Earth rotates half faces the Sun (here it is day) and half is facing away from the Sun (night). As the Earth rotates the Sun appears to move across the sky. Know that the Moon orbits the Earth. It takes about 28 days to complete its orbit. The Sun, Earth and Moon are approximately spherical. Use secondary sources to help create a model e.g. role play or using balls, to show the movement of	

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							the Earth around the Sun and the Moon around the Earth. Use secondary sources to create a model to show why day and night occur Make first-hand observations of how shadows caused by the Sun change through the day Research time zones Consider the views of scientists in the past and how evidence was used to deduce the shapes and movements of the Earth, Moon and planets before space travel.	
Materials Knowledge Skills	**Nursery** Know that there are different materials used all around us e.g., plastic, glass Know that if they put an ice cube in the sun it will melt. Use all their senses in hands on exploration of natural materials	Know that there are solids, liquids and gases all around us Know that ice, is the solid form of the liquid water and that steam is the gas form of it Observe the differences between solids and liquids	**Everyday materials** Distinguish between an object and the material from which it is made Know and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock Know the simple physical properties	**Uses of everyday materials** Know and can explain why some materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard are particularly suited to specific purposes Know how the shapes of solid objects made from		**States of matter** Know how to distinguish between a solid, liquid and gas. Know that some materials change state when they are heated or cooled. Know the temperatures at which ice, water	**Properties and changes of materials** Know that materials have different uses depending on their properties and state (liquid, solid, gas). Properties include hardness, transparency, electrical and thermal conductivity and	

	Explore collections of material with similar and/or different properties Explore the differences between materials and changes they notice eg combining ingredients and melting. **Reception (builds on the learning in Nursery)** Understand some important processes and changes in the natural world around them, including changing states of matter. Observe and predict how states of matter may change in different environments.	Explore what happens to water within the environment in winter and in summer, e.g., water freezing, puddles evaporating	of a variety of everyday materials Know how the properties of a material can make it useful for a range of different purposes (for example, plastic as a coat and a chair) Know why and how the properties of materials make them particularly useful for specific purposes (for example, stone is useful for construction of buildings). Know that different materials can share the same properties (for example glass and plastic can both be transparent). Compare and group together a variety of everyday materials on the basis of their simple physical properties. Classify objects made of one material in different ways e.g. a group of objects made of metal.	some materials can be changed by squashing, bending, twisting and stretching Know the difference between materials that are transparent, translucent and opaque Classify and sort materials by their properties e.g. manmade, natural Investigate and observe what happens to different materials during testing and use this to inform explanation of their properties Investigate which materials are fit for a purpose e.g. What is the best material for an umbrella? 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		and water vapour change state. Know the part played by evaporation and condensation in the water cycle. Observe closely and classify a range of solids and liquids. Classify materials according to whether they are solids, liquids and gases. Observe a range of materials melting. Investigate how to melt ice more quickly. Using their data, can explain what affects how quickly a solid melts. Observe the changes that are non-reversible (common ingredients). Investigate melting point of different materials. Explore freezing different liquids. Observe and measure	attraction to magnets. Know that some materials will dissolve in a liquid and form a solution while others are insoluble and form sediment. Know that mixtures can be separated by filtering, sieving and evaporation. Know that some changes to materials such as dissolving, mixing and changes of state are reversible, but some changes such as burning wood, rusting and mixing vinegar with bicarbonate of soda result in the formation of new materials and these are not reversible. Investigate the properties of different materials in order to recommend materials for particular functions depending on these properties e.g. test waterproofness and thermal insulation to identify	

			Classify one type of object made from a range of materials e.g. a collection of spoons made of different materials. Test the properties of objects e.g. absorbency of cloths, strength of party hats made of different papers, stiffness of paper plates, waterproofness of shelters. Use their test evidence to answer the questions about properties e.g. Which material is best for a coat?	class data in a table and drawing simple conclusions from the findings. Ask and answer questions about everyday materials		temperature of icy water, tap water, hot water. Observe water evaporating and condensing. Set up investigations to explore changing the rate of evaporation From their data, can explain how to speed up or slow down evaporation. Use secondary sources to find out about the water cycle. Present learning about the water cycle in a range of ways e.g. diagrams, explanation text, story of a water droplet	a suitable fabric for a coat Explore adding a range of solids to water and other liquids Investigate rates of dissolving by carrying out comparative and fair test and records findings Separate mixtures by sieving, filtering and evaporation, choosing the most suitable method and equipment for each mixture Carry out comparative and fair tests involving non-reversible changes e.g. What affects the rate of rusting? What affects the amount of gas produced? Research new materials produced by chemists e.g. Spencer Silver (glue of sticky notes) and Ruth Benerito (wrinkle free cotton)	