Science Curriculum Quest overviews 2023/24

Year Group	Autumn term Quest (Science and DT)	Spring term Quest	Summer term Quest	Working scientifically
EYFS	**<u>The Natural World ELG</u>** • 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.			
Year 1	**<u>Seasons and Weather (spread across the year and revisited during forest school sessions weekly)</u>** • Can they observe changes across the 4 seasons? • Can they observe and describe the weather associated with each season?	**<u>Plants</u>** • Can they name the petals, stem, leaf and root of a plant? • Can they identify and name a range of common plants and trees? • Can they recognise deciduous and evergreen trees? • Can they describe parts of a plant (roots, stem, leaves, flowers) • Can they sort some plants by size? **<u>Animals including humans</u>** • Can they sort photographs of living and non-living things? • Can they classify common animals? (birds, fish, amphibians, reptiles, mammals, invertebrates) • Can they name the parts of the human body they can see? • Can they name the parts of an animal's body? • Can they classify animals by what they eat? (carnivore, herbivore, omnivore) • Can they compare the bodies of different animals?	**<u>Everyday materials</u>** • Can they describe materials using their senses, using specific scientific vocabulary? • Can they explain what material objects are made from? • Can they explain why a material might be useful for a specific job? • Can they name some different materials? • Can they sort materials into groups by a given criteria? • Can they describe things that are similar and different between materials?	• Can they talk about what they see, touch, smell, hear and taste? • Can they use simple equipment to help them make observations? • Can they perform a simple test? • Can they identify and classify things they observe? • Can they think of some questions to ask? • Can they answer some scientific questions? • Can they give a simple reason for their answers? • Can they explain what they have found out? • Can they show their work using pictures, labels and captions? • Can they record their findings using standard units? • Can they put some information in a chart or table?
Year 2	**<u>Living things and their habitats</u>** • Can they explain the difference between living and non-living things? • Can they decide whether something is living, dead or non-living? • Can they describe how a habitat provides for the basic needs of things	**<u>Plants</u>** • Can they describe what plants need to survive? • Can they describe how seeds and bulbs grow into plants? • Can they describe what a plant needs to grow and stay healthy?	**<u>Use of everyday materials</u>** • Can they distinguish between an object and the material from which it is made? • Can they identify and name a range of everyday materials? (wood, plastic, metal, water, rock)	• Can they use some science words to describe what they have seen and measured? • Can they compare several things? • Can they carry out a simple fair test? • Can they explain why it might not

	living there? • Can they describe a range of different habitats? • Can they describe how plants and animals are suited to their habitat? • Can they identify and compare a variety of plants and animals found in different habitats and microhabitats? • Can they explain how animals get their food and draw a simple food chain?	• Can they explain that plants grow and reproduce? • Can they compare how plants grow in different conditions by making measurements? **Animals, including humans** • Can they describe what animals need to survive? • Can they explain why animals have offspring? • Can they describe the life cycle of some living things? (egg, chick, chicken) • Can they explain the basic needs of animals, including humans? • Can they describe why exercise and a balanced diet are important for humans?	• Can they identify and compare the uses of a range of everyday materials based on their simple physical properties? (wood, metal, plastic, glass, rock, paper) • Can they describe the simple physical properties of a variety of everyday materials? • Can they explore how the shape of solid objects can be changed? (squashing, bending, twisting, stretching) • Can they find out about people who developed useful new materials? (Dunlop, mackintosh, MacAdam)	be fair to compare two things? • Can they say whether things happened as they expected? • Can they suggest how to find things out? • Can they organise things into groups? • Can they find simple patterns? • Can they use (text, diagrams, pictures, charts, tables) to record their observations? • Can they measure using simple equipment?
Year 3	**Forces and magnets** • Can they observe that magnetic forces can be transmitted without direct contact? • Can they talk about how some magnets attract or repel each other? • Can they classify which materials are attracted to magnets? • Can they describe magnets as having 2 poles? • Can they make predictions associated with whether two magnets will attract or repel depending on which poles are facing? • Can they describe the speed and direction of moving objects? • Can they compare how things move on different surfaces?	**Plants** • Can they identify and describe the functions of different parts of a plant? (roots, stem, leaves and flowers) • Can they describe what a plant needs for life and growth? • Can they describe the ways in which nutrients, water and oxygen are transported within plants? • Can they explain the part flowers play in the life cycle of a flowering plant? (pollination, seed formation, seed dispersal) • Can they investigate the way in which water is transported within plants? **animals, including humans** • Can they explain the importance of a nutritious balanced diet? • Can they describe how nutrients, water and oxygen are transported within animals and humans? • Can they describe and explain the	**Rocks** • Can they compare and group together different rocks based on their simple physical properties? • Can they describe and explain how different rocks can be useful to us? • Can they describe and explain the differences between sedimentary and igneous rocks, considering the way they are formed? • Can they describe how fossils are formed within sedimentary rock? **Light** • Can they recognise that light is needed to see things? • Can they describe how light is reflected from surfaces? • explain the difference between transparent, translucent and opaque? • Can they explain what dark is using words like shadow?	• Can they use different ideas and suggest how to find something out? • Can they make and record a prediction before testing? • Can they plan a fair test and explain why it was fair? • Can they set up a simple fair test to make comparisons? • Can they explain why they need to collect information to answer a question? • Can they measure using different equipment and units of measure? • Can they record their observations in different ways? (labelled diagrams, charts) • Can they describe what they have found out using scientific words? • Can they make accurate measurements using standard units?

		skeletal system of a human? • Can they describe and explain the muscular system of a human?	• Can they find patterns in the way that the size of shadows changes?	• Can they explain what they have found out use their measurements to say whether it helps to answer their question? • Can they use a range of equipment (including a data logger) in a simple test? • Can they record and present what they have found out using scientific language, drawings, labelled diagrams, bar charts and tables?
Year 4	**Sound** • Can they identify how sounds are made, associating some of them with something vibrating? • Can they compare sources of sound and explain how the sounds differ? • Can they explain how to change a sound (louder/softer)? • Can they describe and explain how a sound travels from a source to our ears? • Can they explain what happens to sound as it travels away from its source? • Can they explain how you could change the pitch of a sound? • Can they investigate how materials can affect the pitch and volume of sounds? **Electricity** • Can they explain how electricity is useful to us? • Can they construct a simple circuit naming the different parts? • Can they explain what a conductor is and test materials for conductivity? • Can they explain closed and open circuits? • Can they conduct a circuit with a switch? • Can they recognise some common conductors and insulators?	**Living things and their habitats** • Can they use a classification key to group a variety of living things (plants, vertebrates, invertebrates)? • Can they explore and use classification keys to help them identify and name a variety of living things in their local and wider environment? • Do they recognise that environments can change and this can sometimes pose a danger to living things? **Animals, including humans** • Can they identify and name the basic parts of the human digestive system? • Can they describe the function of the organs of the human digestive system? • Can they identify the simple functions of different types of human teeth? • Can they compare the teeth of herbivores and carnivores? • Can they explain what a simple food chain is?	**States of matter** • Can they compare and group materials based on their states of matter, ie, liquid, solid or gas? • Can they explain what happens to materials when they are heated or cooled? • Can they measure the temperature at which different materials change state? • Can they use measurements to explore changes to the state of water? • Can they explain the part that evaporation and condensation has in the water cycle?	• Can they set up simple fair test to make comparisons? • Can they plan and fair test and isolate variables explaining why it was fair? • Can they suggest improvements and predictions? • Can they decide which information needs to be collected and decide which the best way for collecting it is? • Can they use their findings to draw a simple conclusion? • Can they take measurements using different equipment and units of measure recording what they have found? • Can they make accurate measurements using standard units? • Can they explain their findings in different ways (display, presentation, and writing)? • Can they find any patterns in their evidence or measurements? • Can they make a prediction based on something they have found out? • Can they record and present what they have found out using scientific language, drawings,

				labelled diagrams, bar charts and tables?
Year 5	**Earth and space** • Can they identify and explain the movement of the Earth relative to the sun and other planets? • Can they explain how seasons and the associated weather is created? • Can they identify and explain the movement of the Moon relative to the Earth? • Can they explain the size, shape and position of the Earth, sun and Moon? • Can they explain how day and night are created and use diagrams to show this? **Forces** • Can they explain what gravity is and its impact on our lives? • Can they explain why a wheeled object that is initially pushed will slow down or stop? • Can they explain the impact of friction on a moving object? • Can they identify the effects of air resistance and water resistance that act between moving surfaces? • Can they explain how force and motion can be transferred through gears, pulleys, levers and springs?	**Living things and their habitats** • Can they describe and compare the life cycles of a range of animals, including humans, amphibians, insects and birds? • Can they describe the life cycles of common plants? • Can they describe and explain the process of respiration in humans and plants? • Can they explore the work of well-known naturalists? (David Attenborough and Jane Goodall) **Animals, including humans** • Can they create a timeline to indicate the states of growth in humans? • Can they explain what puberty is?	**Properties and changes of materials** • Can they test and group materials based on scientific evidence? (hardness, solubility, transparency, conductivity, insulation, magnetism) • Can they explain the process of dissolving? • Can they recover a substance from a solution? • Can they decide how a mixture would best be separated? (filtering, sieving, evaporating) • Can they give reasons for the uses of everyday materials based on scientific evidence? • Can they use their knowledge of materials to suggest ways to classify? (solids, liquids, gasses) • Can they describe changes using scientific words? (evaporation, condensation) • Can they use the terms; 'reversible' and 'irreversible'? • Can they describe methods for separating mixtures (filtration, distillation) • Can they work out which materials are most effective for keeping us warm or keeping something cold?	• Can they plan and carry out an investigation controlling variables fairly and accurately? • Can they make a prediction with reasons? • Can they use test results to make further predictions and set up further comparative tests? • Can they present a report of their findings through writing, display and presentation? • Can they take measurements using a range of scientific equipment with increasing accuracy and precision? • Can they record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and scatter graphs? • Can they report findings from investigations through written explanations and conclusions? • Can they use a graph to answer scientific questions?
Year 6	**Light** • Can they explain how light travels? • Can they explain how the human eye sees objects? • Can they explain how different colours of light can be created? • Can they use and explain how simple optical instruments work? (periscope, telescope, binoculars, mirror, magnifying glass) • Can they use the ideas that light travels in straight lines to explain why	**Living things and their habitats** • Can they explain the classification of living things into broad groups based on common observable characteristics? • Can they sub divide their original groupings and explain their divisions? • Can they group animals into vertebrates and invertebrates? **Animals including Humans** • Can they identify and explain the	**Evolution and inheritance** • Can they recognise that living things have changed over time? • Can they identify how fossils provide information about living things that inhabited the Earth millions of years ago? • Can they recognise that living things produce offspring of the same kind? • Can they give reasons for why offspring are not identical with	• Can they decide different ways to test an idea and choose the best way, giving reasons? • Can they vary one factor whilst keeping the others the same in an experiment? • Can they plan and carry out an investigation by controlling variables fairly and accurately? • Can they make a prediction with reasons? • Can they use information to help

	shadows have the same shape as the objects that cast them? **<u>Electricity</u>** • Can they identify and name the basic parts of a simple electric series circuit? (cells, wires, bulbs, switches, buzzers) • Can they compare and give reasons for variation in how components function, including bulb brightness, buzzer volume and the on/off position of switches) • Can they use recognised symbols when representing a simple circuit in a diagram? • Can they explain the impact of changes in a circuit? • Can they explain the effect of changing the voltage of a battery?	function of the organs of the human circulatory system? (heart, blood vessels, blood) • Can they name and locate the major organs in the human body? • Can they make a diagram that outlines the main parts of a body? • Can they recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function? • Can they describe the ways in which nutrients and water are transported within animals, including humans.	each other or with their parent? • Can they explain the process of evolution and describe the evidence for this? • Can they begin to appreciate that variation in offspring over time can make animals more or less able to survive in particular environments? • Can they talk about the life of Charles Darwin?	make a prediction? • Can they use test results to make further predictions and set up a further comparative test? • Can they explain (in simple terms) a scientific idea and what evidence supports it? • Can they explain why they have chosen specific equipment? (inc ICT based equipment) • Can they decide which units of measurement they need to use? • Can they explain why a measurement needs to be repeated? • Can they record their measurements in different ways? (bar charts, tables, line graph) • Can they find a pattern from their data and explain what it shows? • Can they use a graph to answer scientific questions? • Can they suggest how to improve their work and say why they think this?