Repton Primary School – Science progression map 2023-2024							
Intent: In Science, we expect all children to learn new scientific concepts that build upon prior knowledge to enable them to know more and remember more. The Science curriculum is carefully sequenced so that there is a clear progression of scientific knowledge and skills from Reception to Year 6, matching the expectations of the National Curriculum. Our Science curriculum is designed to promote a curiosity, awe and wonder of the world we live in. Through enquiry and practical experiences, we aim to enhance children's science capital. We expect children to understand the relevance and implications of science today and in the future on a local and broader scale. As with History and Geography, Science will be based around our RPS values and we expect children to explore themes around Respect, Pride and Success as they progress through our school. Children will be immersed in the Science curriculum when it is the driving subject in the summer term STEM based topic.							
	Early Years	Key Stage 1		Key Stage 2			
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge and understanding	Plants and animals, including humans: -Plant seeds and care for growing plants so children can observe growth and decay over time. -Understand the key features of the life cycle of a plant and an animal. -Begin to recognise familiar plants	Plants: -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,	Living things and their habitats: -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.	Plants: -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	Living things and their habitats: -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	Animals, including humans: -Describe the changes as humans develop to old age - 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.	Animals, including humans: -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.

	and animals whilst outside. <u>Materials:</u> -Talk about the differences between materials and changes they notice, including cooling and heating. <u>Forces and magnets:</u> -Explore and talk about different forces, including push and pull, sink and float. -Explore a magnet attracting an object. <u>Seasonal changes:</u> -Describe the weather and	including trees. <u>Animals, including humans</u> -Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. -Identify and name a variety of common animals that are carnivores, herbivores and omnivores. - Describe and compare the structure of a variety of common animals (fish, reptiles,	-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. <u>Plants:</u> -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. <u>Animals, including humans:</u> -Notice that animals, including humans, have offspring which grow into adults.	-Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. <u>Animals, including humans:</u> -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. <u>Rocks:</u> -Compare and group together different kinds of rocks on the basis of their	dangers to living things. <u>Animals, including humans:</u> -Describe the simple functions of the basic parts of the digestive systems 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. <u>Materials:</u> -Compare and group materials together, according to whether they are	<u>Materials:</u> -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	-Describe the ways in which nutrients and water are transported within animals, including humans. <u>Living things and their habitats</u> -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

	identify changes over time. -Observe how animals, including humans, behave differently as the seasons change. <u>Light:</u> -Begin to recognise and investigate shadows. -Recognise that you can shine light through some materials, but not others. <u>Sound:</u> -Recognise that a sound causes a vibration. -Experiment with loud and quiet sounds, identifying how this can be changed.	birds, mammals). - Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. <u>Materials:</u> -Distinguish between an object and the material from which it is made. -Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.	-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. <u>Materials:</u> -Identify and compare the suitability of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. -Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	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. <u>Light:</u> -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.	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. <u>Sound:</u> -Identify how sounds are made, associating some of them with something vibrating.	mixtures might be separated, including through filtering, sieving and evaporating. -Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. -Demonstrate that dissolving, mixing and changes of state are reversible changes. -Explain that some changes result in the formation of new materials, and that this	on specific characteristics. <u>Evolution and inheritance:</u> -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

		-Describe the simply physical properties of a variety of everyday materials. -Compare and group together a variety of everyday materials on the basis of their simple physical properties. <u>Seasonal changes:</u> -Observe changes across the 4 seasons -Observe and describe weather associated with the seasons and how day length varies		-Find patterns in the way that the size of shadows change. <u>Forces and magnets:</u> -Compare how things move on different surfaces -Notice that some forces need contact between 2 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 2 poles. -Predict whether 2 magnets will attract or repel each other,	-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. <u>Electricity:</u> -Identify common appliances that run on electricity. -Construct a simple series electrical circuit, identifying and	kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. <u>Forces:</u> -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.	environment in different ways and that adaptation may lead to evolution. <u>Light:</u> -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

				depending on which poles are facing.	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.	-Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. <u>Earth and space:</u> -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.	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. <u>Electricity:</u> -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

						-Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	on/off position of switches. -Use recognised symbols when representing a simple circuit in a diagram.
Working Scientifically skills	-Show curiosity about objects, events and people, and question why things happen. - Use their senses to explore and look closely. - Observe and talk about what plants and animals, including humans, do. -Recognise similarities and differences. - Test their ideas	- Ask simple questions about the world around them. - Observe closely using simple equipment (E.g. Magnifying glass). - Compare objects, materials and living things. -With guidance, begin to make links and notice patterns.	- Ask simple questions and recognise that they can be answered in different ways. - Use simple secondary sources to find answers. - Observe closely using simple equipment. - With help, observe changes over time. - Compare objects, materials and living things, and with help be able to sort and group them. - Carry out simple tests. -Use simple equipment to make	-Ask relevant questions about the world around them. -Be given a range of scientific experiences, including different types of science enquiries to answer questions. - Set up simple practical enquiries, comparative and fair tests. -Begin to select and use their own equipment carefully. -Learn how to use a range of equipment, including data loggers/thermometers appropriately.	- Raise their own questions about the world around them, considering different ways in which they could be answered. - Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations. -Start to make their own decisions about the most appropriate type	-Use their scientific experiences to explore ideas and raise different types of questions. -Talk about how scientific ideas have developed over time. -Recognise which secondary sources will be most useful to research their ideas. -Recognise when and how	-Select and plan the most appropriate scientific enquiry to answer different scientific questions. - Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact. -Recognise when and how

	-Use simple equipment and tools carefully. - Answer simple how and why questions about their experiences. -Begin to use science words and simple representations to describe their experiences.	- Experience different types of scientific enquiry, including practical activities. - Record simple data. - Talk about what they have found and how they found it out. - Use simple scientific language.	measurements and gather data. - Gather and record data in a range of ways, e.g. tables/charts. - Notice patterns/relationships and develop ideas of cause and effect. - With support, communicate their findings in a variety of ways. - Begin to use scientific vocabulary. - Use their observations, ideas and findings to suggest answers to questions.	-Use careful observation and simple keys to identify and group objects, materials and living things. - Begin to look for naturally occurring patterns and relationships. - Collect and record data from their own observations and measurements in a variety of ways including notes, drawings, labelled diagrams, tables and charts. -With guidance, begin to analyse and interpret data, looking for patterns and changes, to draw simple conclusions and answer questions. -Explain their findings and discuss ideas using relevant scientific language.	of scientific enquiry they might use to answer questions. - Set up simple practical enquiries, comparative and fair tests, recognising when a fair test is necessary and helping to decide how to set it up. - Use different equipment effectively to measure accurately in standard units. -Make decisions about what observations to make, how long to make them for and the equipment that might be used. -Being to look for naturally	to set up comparative and fair tests and begin to consider variables which need to be controlled. -Select and use the most appropriate equipment to make accurate measurements. - Use keys and other information records to identify, classify and describe living things and materials. - Identify patterns that might be found in the natural environment. -Look for different	to set up comparative and fair tests and explain which variables need to be controlled and why. -Make their own decisions about what observations to make, what measurements to use and how long to make them for. -Choose the most appropriate equipment to make measurements with increasing precision and explain how to use it accurately. - Take repeat measurements where necessary.

				-Use scientific evidence to answer questions or to support their findings. - Begin to reflect upon and evaluate their own scientific enquiries, considering how they could improve what they have already done.	occurring patterns and relationships, deciding what data to collect to identify them. -Talk about criteria for grouping, sorting and classifying objects, materials and living things. -Collect and record data from their own observations and measurements using a range of methods and make decisions about how to analyse and present this data. -Present and communicate their findings in ways that are appropriate for different audiences,	casual relationships in their data and identify evidence that refutes or supports their ideas. -Decide how to record data and results of increasingly complexity from a choice of familiar approaches. -Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and findings.	- Develop keys and other information records which can be used to identify, classify and describe living things and materials. -Record data and results using a variety of familiar approaches including scientific diagrams, classification keys, tables, scatter graphs, line graphs, bar charts and more. -Use oral and written forms such as displays and other

					including oral and written explanations, displays or presentations of results and conclusions. -With support, raise further questions and make new predictions from the data collected.		presentations to report and present findings, including causal relationships and explanations of degree of trust in results. -Use their results to make predictions and identify when further observations, comparative and fair tests might be needed.