Science Curriculum Milestones

Connecting Stone	Big Idea (NC links)	Year R	Years 1 & 2	Years 3 & 4	Years 5 & 6
Scientists 	Name scientists and their impact on scientific development today.	Know and explain what a scientist is.	Name, explain, and investigate some well-established scientist's work.	Recognise, summarise and explain the concepts and theories of scientists from different fields.	Quote, interpret and appraise theories and hypothesise of influential scientists. Describe, explain and test scientist's theories to support or refute their findings.
Investigation (working scientifically) 	Being able to use different types of science enquiries to answer scientific questions.	Ask questions. Observe using senses and simple equipment. Sort, identify and group. Record data in simple ways.	Ask, define, and argue scientific questions, recognising that they can be answered in different ways. Recognise, interpret, and appraise observation with explanations using simple equipment.	Use, explain and prove relevant scientific questions using different types of scientific enquiry and evidence to support their findings. Select, implement, and moderate practical	Plan, duplicate, and prove different types of practical enquiries, whilst recognising and controlling variables. Group, distinguish, and facilitate use of appropriate techniques, apparatus, and materials

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			Describe, apply and assess simple tests to answer scientific questions. Gather, record, and compare data to answer scientific questions. Identify and classify groups.	comparative enquiries and fair tests. Identify, compare, and criticise differences, similarities or changes related to simple, scientific ideas and processes. Using scientific language gather, record and valuate data to draw a conclusion. Make systematic and careful observations, taking accurate measurements, using a range of equipment (thermometers and data loggers) Gather, record, classify and present data in a variety of ways to answering questions.	during fieldwork and laboratory work. Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Record, articulate, and moderate data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Present, report and reflect upon the findings of results to make scientific conclusions.

				Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	Identify, understand and explain scientific evidence that has been used to support or refute ideas or arguments. Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
Physics 	Being able to explore and explain the physical aspect of science.	**<u>Seasonal changes</u>** Recognise seasonal changes. **<u>Forces</u>** Use the terms: float, sink, push and pull. **<u>Earth & space</u>** Know there is day and night.	**<u>Seasonal changes.</u>** Describe, explain and compare the four seasons and their changes.	**<u>Forces, movement and magnets.</u>** Notice, observe and appraise forces between objects and surfaces. Describe, explain and prove how magnets work. **<u>Light</u>**	**<u>Forces, movement and magnets.</u>** Explain, summarise and justify how gravity works. Recognise, experiment, and test, the effect of drag forces. Quote, interpret and prove that force and

		Know that we live on the earth which is one of many planets. **Light** Identify a shadow. **Sound** Identify where a sound is coming from and recognise that some sounds are not the same as others. **Electricity** Understand that some objects use electric and the safety around that.		Recognise, comment and explain the concepts of what light and dark is. Understand, explain and prove the cause and effect of shadows and find patterns in the way the size of shadows change. Notice, explain and prove that light is reflected from surfaces. **Sound** Identify, articulate, and investigate how sounds are made and recognise that vibrations travel to ear. Find, summarise, and prove patterns between the pitch of the sound and	motion can be transferred through mechanical devices such as gears, pulleys, levers, and springs. **Earth and space** Label, explain and prove what the solar system is. Describe, explain, and articulate how the movement of the earth relates to the moon and sun in the solar system. Outline, examine, and validate using correct vocabulary the impact of the earth's rotation on day and night. **Light**

				the strength of the vibrations. Recognise, interpret, and prove that sounds get fainter as the distance from the sound source increases. **<u>Electricity.</u>** Recognise, explain and investigate that some objects use electricity to work. Describe, construct, and justify the purpose of electrical circuits and what they are used for. Recognise and prove that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.	Describe, explain, and prove how light travels. Through investigation, explain, articulate, and validate the reasons for shadows. **<u>Electricity</u>** Recognise, apply, and explain concepts of electrical symbols to draw a simple circuit diagram. Understand, explain, and hypothesis the effect of voltage of cells in a circuit. Compare, interpret, and explain concepts for variations in how components functions.

				Understand, articulate, and investigate the use of conductors and insulators.	Compare, infer, and prove the use of series and parallel circuits.
Chemistry 	Being able to explore and explain the chemistry aspect of science.	**<u>Materials</u>** Begin to identify and name a variety of everyday materials.	**<u>Everyday materials</u>** Recognise, explain, and comment upon an object based on its material. Group, explain, and investigate a variety of everyday materials based on their properties. Compare, explain, and appraise the suitability & physical changes of a variety of materials.	**<u>Rocks</u>** Compare, classify, and investigate the properties of rocks. Recall, interpret, and examine what soil is. Describe, articulate, and explain concepts of how fossils are formed. **<u>States of matter</u>**	**<u>Properties of everyday materials</u>** Identify, classify, and explain concepts of grouping together everyday materials using a set criteria. Recall, explain, and hypothesis knowledge of states of matter to decide how mixtures might be separated, through filtering, sieving, and evaporating.

				Identify, classify, and investigate solids, liquids, and gases. Use, interpret, and analyse temperature measurements effectively. Observe, make predictions, and prove how temperature effects materials. Describe, summarise, and hypothesise the water cycle.	Describe, reason, and prove using evidence from comparative and fair tests, for the particular uses of everyday materials. **<u>Reversible change</u>** Recognise, make predictions, and investigate that dissolving, mixing and changes of state are reversible changes. **<u>Changes that form new materials.</u>** Outline, explain, and investigate that some changes result in the formation of new materials and is not usually reversible.
Biology	Being able to explore and explain the	**<u>Plants</u>**	**<u>Plants</u>**	**<u>Plants</u>**	**<u>Evolution and inheritance</u>**

	biology aspect of science.	Know what a plant looks like Know the basic parts of a plant. Know that plants grow. **<u>Animals including human.</u>** Know that there are similarities and differences between animals including humans.	Name, identify and compare a variety of wild and garden plants. Discuss, identify, and explain the basic function of parts of plants and trees. Observe, describe and investigate how plants grow. Identify, explain, and prove what is needed in order for plants to grow. **<u>Animals including human.</u>** Recall, interpret and explain what herbivores, carnivores, and omnivores are.	Recall, interpret, and explain more complex functions of different parts of plants and trees. Recognise, explain and investigate the life and growth of a variety of plants. Describe, summarise and explain the life cycle of flowering plants. **<u>Animals including human.</u>** State, summarise and explain the right type and amount of nutrition that animals need. Recall, describe and articulate the role of skeletons, muscles and the digestive system in animals including humans.	Recognise, infer meaning, and hypothesise how fossils provide information that living things have changed over time. Recall, summarise and explain how offspring vary. Identify, interpret and explain that animals and plants adapt to environments which may lead to evolution. **<u>animals including human.</u>** Highlight, summarise and validate the changes as humans develop to old age.

		Understand how animals grow and develop.	Describe, compare, and categorise the different characteristics of groups of animals. Name, label and explain the basic parts of the human body including senses. Notice, explain and question how animals reproduce and grow. Describe, explain and argue the basic needs of animals. Recognise, explain and investigate the importance of human exercise, diet and hygiene. **<u>Living things and their habitats.</u>**	Name, describe and explain human teeth and their functions. Identify, understand and construct a variety of food chains. **<u>Living things and their habitats.</u>** Use, explain and justify a classification key. Identify, explain and prove the effect a change in environments has on livings things.	Outline, explain & justify the main parts of the human circulatory system. Recall, interpret and hypothesise the impact of diet, exercise, drugs and lifestyle on bodies functions. Recall, explain and compare how the digestive system works in animals including humans. **<u>Living things and their habitats.</u>** Recall, articulate and discuss the process of reproduction.

		<u>Living things and their habitats</u> Compare different habitats. Notice the plants and animals in the surrounding natural environment.	Describe, classify and justify things that are living, dead or not been alive. Recognise, explain and prove why animals & plants are suited to their habitats. Describe, interpret and debate how animals obtain their food.		Recall, annotate and compare life cycles of living things. Create, develop and articulate a classification key.