Steam Mills Science Overview: Year A

	Autumn	Spring	Summer
Year R	• Make simple observations • Draw what interests them	• Enjoy finding out about things • Draw what interests them	• Join in e.g. leaf collections • Draw what interests them
Class 2 Year 1/2	**Unit: Animals including Humans (Sc1/2.2 and Sc2/2.3)** ➢ Sc1/2.2a identify and name a variety of common animals including, fish, amphibians, reptiles, birds and mammals ➢ Sc1/2.2b identify and name a variety of common animals that are carnivores, herbivores and omnivores ➢ Sc1/2.2c describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) ➢ Sc1/2.2d identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense ➢ Sc2/2.3a notice that animals, including humans, have offspring which grow into adults ➢ Sc2/2.3b find out about and describe the basic needs of animals, including humans, for survival (water, food and air) ➢ Sc2/2.3c describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. • Make observations	**Unit: Everyday Materials (Sc1/3.1)** ➢ Sc1/3.1a distinguish between an object and the material from which it is made ➢ Sc1/3.1b identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock ➢ Sc1/3.1c describe the simple physical properties of a variety of everyday materials ➢ Sc1/3.1d compare and group together a variety of everyday materials on the basis of their simple physical properties • Perform simple tests using simple equipment e.g. a timer • Talk about some reasons why things might happen, or why something has happened • Understand basic rules about testing out their ideas • Find things out, with help and suggestions • Begin to make predictions about what might happen	**Unit: Plants (Sc1/2.1)** ➢ Sc1/2.1a identify and name a variety of common wild and garden plants, including deciduous and evergreen trees ➢ Sc1/2.1b identify and describe the basic structure of a variety of common flowering plants, including trees • Observe closely using simple equipment to help them e.g. magnifying glass • Recognise that scientific ideas are more than guesses, and based on evidence • Record what they have seen or done in different ways, including drawing and labelled diagrams • Record some information onto a pre-prepared chart • Make relevant observations • Give simple reasons and explanations for what they have seen • Identify simple parts for what they see e.g. petal • Use simple apparatus effectively and safely • Gather and record data to help in answering questions and understand why this is important

	• Talk simply about what they see • Answer simple questions about what they see • Describe simple features with simple vocabulary – parts of the body • Answer questions using evidence • Ask questions about they see		
Class 3 Year 3/4	**<u>Unit: Animals including Humans (Y4)</u>** ➢ 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. • Classify simple features – producer, predator, prey • Recognise and label sketches and diagrams, sometimes with notes • Ask relevant questions	**<u>Unit: States of Matter (Y4)</u>** ➢ 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 ➢ Compare what happened to what might have happened and give simple explanations ➢ Use ICT to record results ➢ Record a series of observations in different ways ➢ Decide on the best approaches for enquiry ➢ Count and measure quantities accurately ➢ Order results scientifically **<u>Unit: Sound (Y4)</u>** ➢ 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. • Use graphs to find out and interpret patterns • Begin to plot points for simple graphs	**<u>Unit: Plants (Y3)</u>** ➢ 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. • Make a precise series of observations and measurements • Think of questions to ask during testing • Decide on approaches to answer questions and suggest own ideas • Recognise the importance of collecting data • Compare observations over time • Review work and check predictions • Suggest improvements giving reasons • Record and present data in a variety of ways e.g. tables, bar charts, line graphs **<u>Unit: Electricity (Y4)</u>** ➢ 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

		• Record systematically • Understand and begin to use quantitative and qualitative data	➢ 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. • Make predictions based on scientific knowledge • Describe or show how to vary a factor and keep others the same • Repeat tests and explain differences • Question others about their work • Use a range of scientific conventions
Class 4 Year 5/6	**Unit: Space (Y5)** • 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. • Report on findings from enquiries, including orals and written explanations, displays or presentations of results and conclusions • Modify tests for accuracy • • Report and present findings from enquiries, including conclusions, casual relationships and explanations of and degree of trust in reults	**Unit: Animals including Humans (Y5)** ➢ describe the changes as humans develop to old age. • Offer explanations for differences **Unit: Evolution and Inheritance (Y6)** ➢ 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. • Justify their own theories through observation and conclusions • Identify differences, similarities or changes related to simple scientific ideas and processes • Identify scientific evidence that has been used to support or refute ideas or arguments	**Unit: Living Things and their Habitats (Y6)** ➢ 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. • Gather and classify data in a variety of ways • Record data and results of increasing complexity using scientific diagrams and tables, classification keys, tables, scatter graphs, bar and line graphs **Unit: Properties and Changes of Materials (Y5)** ➢ 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 that this kind of change is not usually reversible, including changes

			associated with burning and the action of acid on bicarbonate of soda. • Recognise and control variables • Use results to draw simple conclusions, make predictions for new values, suggest improvements • Develop further observations and experiments from results • Combine observations to give new hypotheses • Take accurate measurements using a range of equipment, including thermometers, with increasing accuracy and precision • Repeat reading when appropriate

Steam Mills Science Rainbow Continuum Overview: Year B

	Autumn	Spring	Summer
Year R	• Join in e.g. leaf collections • Draw what interests them	• Make simple observations • Draw what interests them	• Enjoy finding out about things • Draw what interests them
Class 2 Year 1/2	**Unit: Uses of Everyday Materials (Sc2/3.1)** ➢ Sc2/3.1a identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for different uses ➢ Sc2/3.1b compare how things move on different surfaces. ➢ Sc2/3.1c find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching • Remember and recall important information • Underline important facts • Record things they have seen or done from memory • Understand key factors that make a fair test • Identify, classify and use bulleted lists	**Unit: Living Things and Their Habitats (Sc2/2.1)** ➢ Sc2/2.1a explore and compare the differences between things that are living, dead, and things that have never been alive ➢ Sc2/2.1b 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 ➢ Sc2/2.1c identify and name a variety of plants and animals in their habitats, including microhabitats ➢ Sc2/2.1d 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. • Sort data within given criteria e.g. blue eyes • Remember and recall information • Underline important facts • Label objects according to simple criteria • Identify simple parts of what they see e.g. leg • Use books to find information	**Unit: Plants (Sc2/2.2)** ➢ Sc2/2.2a observe and describe how seeds and bulbs grow into mature plants ➢ Sc2/2.2b find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. • Collect data • Count data sets e.g. trees in a field • Sort data within given criteria e.g. tall trees • Underline important facts • Use tallies to count in surveys • Begin to use cause and effect in their explanations, and some scientific vocabulary • Use simple tables and charts • Make sketches of their observations • Use line graphs to present their findings

Class 3 Year 3/4	**Unit: Living Things and their Habitats (Y4)** ➢ 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. • Examine closely and question what is seen • Begin to suggest ways to collect data • Recognise the importance of the evidence collected • Compare and identify data patterns	**Unit: Forces and Magnets (Y3)** ➢ 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. • Know that questions can be answered in different ways • Select suitable equipment • Predict before testing • Provide explanations using scientific language • Use precise scientific language • Select from a range of sources **Unit: Light (Y3)** ➢ 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. • Identify features of a fair test and carry out a fair test with help • Suggest improvements in their work • Begin to repeat observations and measurements • Know the work of some scientists • Begin to make theories	**Unit: Animals including Humans (Y3)** ➢ 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. • Use books and other sources of information • Use sources of information to analyse **Unit: Rocks (Y3)** ➢ 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. • Choose what observations to make • Make suggestions about how to collect data • Make systematic and careful observations and comparisons • Categorise observations

Class 4 Year 5/6	**Unit: Electricity (Y6)** ➢ 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. • Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables • Use test results to make predictions and to set up further comparative and fair tests **Unit: Forces (Y5)** ➢ 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. • Modify tests for accuracy • Plan different types of scientific enquiries to answer questions • Look for and understand poor data	**Unit: Light (Y6)** ➢ 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. • Begin to relate conclusions to patterns, previous knowledge and observational evidence • Make practical suggestions about working methods and improvements ➢ Evaluate the results of observations **Unit: Living things and their Habitats (Y5)** ➢ 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. • Make judgements and conclusions about what has been seen, and support these with known facts	**Unit: Animals including Humans (Y6)** ➢ 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. • Distinguish and discriminate between different elements of data • Use a range of scientific enquiry to answer questions **Unit: Scientists and Inventors (Post SATs) and SRE**