ELSTON HALL
Primary School

Elston Hall Primary School
Science Progression of Skills Overview
Statements highlighted in green show incidental learning covered during topic lessons

Science progression of skills	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Working Scientifically	30-50 months Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world. Can talk about some of the things they have observed such as plants, animals, natural and found objects. Talks about why things happen and how things work. 40-60 months Looks closely at similarities, differences, patterns and change. Early Learning Goal Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate	Begin to shape questions using different question stems Try out different practical methods suggested to them Follow instructions for using simple equipment under adult supervision With support take some non-standard measurements Identify similarities and differences through observations Use drawings and labels to present evidence With support uses prepared simple tables and charts Describe simple observations of an object or an event With support make simple comparisons Reviews their work and with support recognises some of the difficulties encountered	Ask simple questions about the world around them Decides which questions can be answered practically and which cannot *(Different types of enquiry including – observing over time, noticing patterns, grouping and classifying, carry out simple comparative tests, finding things out from secondary sources)* Begin to choose appropriate equipment to make observations and follow simple instructions for using it correctly and safely. Begin to use basic equipment or measuring length or mass, in standard units Makes relevant observations and can describe in detail what they have seen. Uses drawing and captions to present evidence	Begin to ask relevant questions linked to the topic with support Begin to make decisions about which type of enquiry will be the best way of answering questions (including *different types of enquiry including – observing over time, noticing patterns, grouping and classifying, carry out simple comparative tests and **fair tests**, finding things out from secondary sources)* Choose appropriate equipment from a selection of equipment and follows instructions for using it correctly and safely. Uses standard measuring equipment for quantities such as volume and temperature Make relevant observations throughout an investigation when prompted	To ask relevant question linked to the topic independently Independently make decisions about which types of enquiry will be the best way of answering questions (including *different types of enquiry including – observing over time, noticing patterns, grouping and classifying, carry out simple comparative tests and **fair tests**, finding things out from secondary sources)* Selects from a wider range of equipment what to use in an investigation, for example thermometers and data loggers, correctly and safely. Chooses their own series of observation to carry out throughout an investigation Selects the most appropriate way to	Begin to explore and talk about ideas linked to the topic, ask their own questions that have a clear scientific purpose with support With support begin to select the most appropriate way to answer scientific questions using different types of scientific enquiry (including *different types of enquiry including – observing over time, noticing patterns, grouping and classifying, carry out simple comparative tests and fair tests, finding things out from secondary sources)* Begin to decide which variables to control Uses a wide range of equipment to carry out an investigation accurately Take measurements using a range of equipment with	Independently explore and talk about ideas linked to the topic, ask their own questions that have a clear scientific purpose Independently select the most appropriate way to answer scientific questions using different types of scientific enquiry (including *different types of enquiry including – observing over time, noticing patterns, grouping and classifying, carry out simple comparative tests and fair tests, finding things out from secondary sources)* To be able to decide which variables to control Independently select the most appropriate equipment Explain why particular pieces of equipment or information sources provide better quality evidence

	environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes. **Exceeding** They are familiar with basic scientific concepts such as floating, sinking, experimentation.		Uses prepared tables and block graphs Describe what has happened, making comparisons where appropriate With support sequence results e.g. from smallest to largest Begins to notice simple patterns in results Review their work and recognise some of the difficulties encountered. With support suggest how these might be avoided.	Begins to present data in a variety of ways to help in answering questions. e.g. bar charts, keys, tables, labelled diagrams Sometimes creates/draws own tables and bar charts Describe what has happened and suggests why Can make a general statement about simple patterns they notice in a set of results Provides explanations for simple patterns in results, referring to everyday experiences with explaining Suggest how an enquiry might be improved With support recognise weaknesses of the evidence	present evidence they have collected Independently records finding using drawings, labelled diagram, bar charts, tables, graphs (all tables and charts should be drawn independently by child) Use straightforward scientific evidence to answer questions or to support their findings To give a detailed explanation of results using scientific knowledge and understanding when explaining why they think something has happened Suggests how well evidence can be trusted Suggest improvements for setting up a further test	increasing accuracy and precision Choose to make a series of observations or measurements that will add to quality of evidence collected while investigating Records data and result of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, scatter graph Communicate findings in increasingly detailed written form using scientific language Draw scientific causal conclusions using the results of an enquiry to justify their ideas Use scientific knowledge and understanding to explain their findings Separate opinion from fact Recognises why evidence may not be trusted and begins to suggest why Uses test results to set up a further improved test	Repeats sets of observations or measurements where appropriate selecting suitable ranges and intervals, to give sufficient depth of evidence Decides on the most appropriate format to present sets of scientific data such as using line graphs for continuous variables Communicate findings in detailed written form, across a range of genre, including multi-media and other forms of presentation, using accurate scientific language Draw conclusions and identify scientific evidence that can support or refute a scientific point. Use test results to make predictions to set up further investigations. Evaluate the effectiveness of their working methods, making practical suggestions for improving them. Children source further evidence to back up or

							refute their own findings

ELSTON HALL
Primary School

Science progression of skills	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including humans	**3-4 Years (Nursery)** Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things. **4-5 Years (Reception)** Explore the natural world around them. **Early Learning Goal** Explore the natural world around them, making observations and drawing pictures of animals Know some similarities and differences between the	Identify and name a variety of birds 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, amphibians, reptiles, birds and mammals including pets). Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Identify and name a variety of common animals including, fish, amphibians, reptiles, birds and mammals Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets) Identify and name a variety of common animals that are carnivores, herbivores and omnivores Notice that animals, including humans, have offspring which grow into adults. 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	To know the different types of teeth on humans and their simple functions. To know and describe the simple functions of the basic parts of the digestive system. Construct and interpret a variety of food chains, identifying producers, predators and prey. 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.	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.	Describe the changes as humans develop to old age.	Describe the changes as human develop to old age 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.

	natural world around them and contrasting environments, drawing on their experiences and what has been read in class		amounts of different types of food, and hygiene.				

ELSTON HALL
Primary School

Science progression of skills	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	**3-4 Years (Nursery)** Talk about what they see, using a wide vocabulary. Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things. **4-5 Years (Reception)** Explore the natural world around them. Describe what they see, hear and feel whilst outside. Understand the effect of changing seasons on the natural world around them.	To know and describe how seeds and bulbs grow into mature plants (from Y2) To learn that plants need water, light and a suitable temperature to grow and stay healthy (from Y2) To know how animals obtain their food from plants and other animals using the idea of a simple food chain. Identify and name a variety of common wild and garden plants, including deciduous trees. Identify and describe the basic structure of variety of common flowering plants, including trees.	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.	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.	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.	Not taught	Not taught

	<u>Early Learning Goal</u> Explore the natural world around them, making observations and drawing pictures of 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						

ELSTON HALL
Primary School

Science progression of skills	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Living things and their habitats	**3-4 Years (Nursery)** Talk about what they see, using a wide vocabulary. Begin to understand the need to respect and care for the natural environment and all living things. **4-5 Years (Reception):** Recognise some environments that are different from the one in which they live. Understand the effect of changing seasons on the natural world around them. Explore the natural world around them. Describe what they see, hear and feel whilst outside.	To know the difference between living things and things that have never been alive (from Y2)	To recognise that environments can change and that this can sometimes post dangers to living things To know that some animals are endangered, the reasons why and what is being done to preserve these species(from Y4) 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. Identify and name a variety of plants and animals in their habitats, including microhabitats.	To recognise that living things can be grouped in a variety of ways (from Y4) To understand and use classification keys to help group, identify and name a variety of living things in their local and wider environment (from 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.	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	To know the differences in the life cycles of a mammal, an amphibian, an insect and a bird 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 on specific characteristics.

	Early Learning Goal 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.		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.				

ELSTON HALL
Primary School

Science progression of skills	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Materials	30-50 months Talks about why things happen and how things work. 40-60 months Looks closely at similarities, differences, patterns and change. Early Learning Goal Children know about similarities and differences in relation to places, objects, materials and living things. Exceeding They know the properties of some materials and can suggest some of the purposes they are used for.	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. Describe the simple 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.	Identify and compare the suitability of a variety 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. To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock, and to know, describe and compare how their simple physical properties vary. Group together a variety of everyday materials on the	Not taught To know that some objects float in water while some other sink To understand that displacement occurs when something is placed in liquid	Not taught	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	Not taught To know that some changes result in the formation of new materials, and that this kind of change is not usually reversible To compare and group together everyday materials based on evidence from comparative and fair tests, including their hardness, solubility, conductivity (electrical and thermal), and response to magnets To suggest how mixtures might be separated, including through filtering, sieving and evaporating, using their knowledge of

			basis of their simple physical properties			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 To distinguish between an object and the material from which it is made To understand the difference between man-made and natural materials and identify and sort both	solids, liquids and gases To know how to demonstrate that dissolving, mixing and changes of state are often reversible changes To understand how some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution To show understanding by giving reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials (including metals, wood and plastic)

ELSTON HALL
Primary School

Science progression of skills	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Light	Not taught	Not taught To recognise that we need light in order to see things and that dark is the absence of light (LKS2- NC) To know, name and observe a variety of sources of light, including electric lights, flames and the sun To recognise that light from the sun can be dangerous and that there are ways to protect their eyes (LKS2- NC) To understand that the sun provides energy, and that solar power is a sustainable energy source To be aware of simple ways to save electricity	Not taught	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.	Not taught To know that light is reflected from surfaces (NC) To find patterns in the way that shadows change (NC)	Not taught	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.

		To know that shadows are formed when the light from a light source is blocked by a solid object (LKS2 - NC) To understand the term 'nocturnal' and learn about nocturnal animals					

ELSTON HALL
Primary School

Science progression of skills	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electricity	Not taught	Not taught To observe and name a variety of sources of light, including electric lights, flames and the sun. To know that fire has been used throughout history for heat and light To know about simple circuits involving batteries, wires, bulbs and other components To know how a switch can be used to break a circuit	Not taught	Not taught	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. 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	Not taught IIdentify common appliances that run on electricity (from Y4) Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers (from Y4). To compare and give reasons in variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off positions of switches. (from Y6) To associate the brightness of a lamp or the volume of a buzzer with the number/ voltage of cells in a circuit. (from Y6) To know how to use recognised symbols when representing a simple circuit in a diagram.	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.

ELSTON HALL
Primary School

Science progression of skills	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Forces & Magnets	30-50 Months Talks about why things happen and how things work. 40-60 Months Looks closely at similarities, differences, patterns and change. Early Learning Goal They make observations of animals and plants and explain why some things occur, and talk about changes. Exceeding They are familiar with basic scientific concepts such as floating, sinking, experimentation.	Not taught	Not taught	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, depending on	Not taught To know how things move on different surfaces (NC) To know that and observe how some forces need contact between two objects and some forces act at a distance (NC) To know that and observe how magnets attract or repel each other and attract some materials and not others (NC) To describe magnets as having two poles (NC)	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.	Not taught To know that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object To identify the effects of air resistance and friction, that act between moving surfaces To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect

				which poles are facing	To predict whether two magnets will attract or repel each other, depending on which poles are facing (NC) To 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 (NC)		

ELSTON HALL
Primary School

Science progression of skills	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Sound		Not taught	Not taught Recognise that sounds get fainter as the distance from the sound source increases To understand that there are many kinds of sound and sources of sound	Not taught 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	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	Not taught	Not taught

ELSTON HALL
Primary School

Science progression of skills	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
States of Matter		Not taught		To compare and group materials together, according to whether they are solids, liquids or gases (NC)	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 in the water cycle and associate the rate of evaporation with temperature.	Not taught	Not taught

ELSTON HALL
Primary School

Science progression of skills	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Evolution and Inheritance		Not taught	Not taught	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago	Not taught	Not taught	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago

ELSTON HALL
Primary School

Topics not in the table – Only taught in one year group (no cross coverage)

Seasonal Changes – yr1 – Also covered in EYFS
Rocks – yr3
Earth and space – yr5