Clipston Primary School – Curriculum Overview for Science

Reception	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
The Seasons	Investigation Skills	Investigation Skills	Investigation Skills
Investigating Plants	Everyday materials	Light	Light
Exploring Materials	Animals including humans	Forces & Magnets	Electricity
Begin to know about animals: life-cycles and where they live (butterfly, frog, chicken, sheep)	Seasonal Changes across the year	Rocks	Properties and changes in materials
	Living things & their Habitats	Animals including Humans	Human Development
All about me: My Body - Growing and Being Healthy	Plants	Sound	Earth and Space
		Electricity	Forces
		States of Matter	Evolution and Inheritance
		Plants	Humans: The Heart & Staying Healthy
		Living Things and their Habitats	Living Things and their Habitats

Clipston Primary School – End Points EYFS to Year 6 for Science

Working Scientifically			
*5 types of scientific enquiry: *observing over time *identifying and classifying *pattern seeking *research *comparative and fair testing* A combination of these types of enquiry should be carried out throughout the year across all year groups			
Reception	**Year 1 or 2**	**Year 3 or 4**	**Year 5 or 6**
Plan			
Choose the resources they need for their chosen activities	Ask simple questions.	Ask relevant questions when prompted and use different types of scientific enquiry to answer them.	Plan different types* of scientific enquiries to answer their own questions.
Make decisions about how they might enquire e.g. about what a plant needs to grow.	Say and record what they think might happen. Begin to recognise what is a fair/unfair test.	With support, set up simple and practical enquiries for comparative and fair testing. Recognise and explain why it is a fair test. Begin to make predictions.	Make predictions based on scientific knowledge and understanding. Set up different types of scientific enquiry, recognising and controlling variables where necessary.
Do			
Explore similarities and differences in relation to places, objects, materials and living things. Make observations of animals and plants. Explore a variety of materials, tools and techniques.	Perform simple tests observing closely, using simple equipment. Identify and classify objects into groups.	Make systematic and careful observations. Take accurate measurements using standard units.	Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
Represent their own ideas, thoughts and discoveries.	Gather and record data to help in answering questions.	Gather, record, classify and present data in a variety of ways, using simple scientific language, drawings, labelled diagrams, keys.	Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.

Review			
Talk about the features of their own immediate environment.	Identify and classify. Use appropriate scientific language to communicate ideas and findings.	Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. With support, use results to draw simple conclusions, suggest improvements and raise further questions. Use straightforward scientific evidence to answer questions or to support their findings.	Report and present findings from enquiries, including conclusions and causal relationships, in oral and written forms such as displays and other presentations, using appropriate scientific language.
Explain why some things occur and talk about changes	Use their observations and ideas to suggest answers to questions.	Use results to draw simple conclusions, make predictions, suggest improvements and raise further questions. Use straightforward scientific evidence to answer questions or support their findings.	Explain degree of trust in results. Identify scientific evidence that has been used to support or refute ideas or arguments.

Plants			
Reception	Year 1 or 2	Year 3 or 4	Year 5 or 6
Identify and name a variety of plants – daffodil, sunflower, cress, bean, oak, holly. Talk about what plants need to grow.	Identify and name a variety of common wild and garden plants. Identify the basic structure of a variety of common flowering plants, including trees: roots, stem, leaves, flowers, petals, fruit. Observe and describe how seeds and bulbs grow into mature plants. Describe how plants need water, light and a suitable temperature to grow healthily.	Identify and describe the functions of different parts of flowering plants. Know the requirements of plants for healthy growth - air, light, water, nutrients from soil, and room to grow - and how they vary from plant to plant. Know how water is transported in a plant through roots, stems and leaves. Name and describe the function of flowers in the life cycle of flowering plants.	Explain reproduction in plants (see living things and their habitats).

Animals including humans			
Reception	Year 1 or 2	Year 3 or 4	Year 5 or 6
To be able to name and identify common groups of animals. Locate and name the basic parts of the human body and say which part of the body. To know that all animals have offspring that grow into adults. Talk about the lifecycle of a human (baby, toddler, child, teenager, adult)	To be able to identify and name common animals and the group they belong to: mammals, fish, reptiles, birds and amphibians Identify, name and label the basic parts of the human body and say which part of the body is associated with each sense. To be able to identify, name and sort animals that are carnivores, herbivores and omnivores. To know that mammals produce live young and other animals lay eggs – both of which develop into adults. To know and compare basic lifecycles of a human and of a frog To know that to stay alive all animals have three basic needs for survival (water, air, food) Describe the importance for humans of exercise, eating the right amount of different food types (fruit and veg, carbohydrates, proteins and dairy) and hygiene to stop the spread of germs.	Know 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. To know some of the bones that make up the human skeleton. To know the difference between vertebrates and invertebrates and to be able to sort animals into groups with different types of skeleton: exoskeleton, endoskeleton, hydrostatic skeleton. 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. Describe how and why the types of teeth in carnivores, herbivores and omnivores are different. Construct and interpret a variety of food chains. Identify producers and consumers, and how the arrows show the flow of energy through the food chain.	Describe the changes as humans 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. Describe the ways in which nutrients and water are transported within animals, including humans. Recognise and describe the impact of diet, exercise, drugs (including medicine) and lifestyle on the way their bodies function.

Materials

Everyday materials, materials and their uses, states of matter and properties and changes in materials

Reception	Year 1 or 2	Year 3 or 4	Year 5 or 6
Name the material from which objects are made: paper, wood, plastic, glass, metal, pottery, fabric. Explain that when water gets very cold it freezes and ice can melt when it is warmed.	Describe the simple physical properties of a variety of everyday materials: wood, glass, metal, paper, cardboard, fabric and rubber. 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 know people who developed new materials e.g. John McAdams – tarmac for roads; John Dunlop –use of air-filled rubber for tyres; Charles Macintosh- waterproof fabric for coats.	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.	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. Include changes associated with burning and the action of acid on bicarbonate of soda.

Seasonal Changes			
Reception	Year 1 or 2	Year 3 or 4	Year 5 or 6
To know there are four seasons in a year. Name the four seasons: spring, summer, autumn and winter. Describe the weather generally associated with these different seasons.	To know which months of the year are in which season and observe changes across the four seasons within the school habitat. Observe and describe weather associated with the seasons and how day length changes.		
Living things and their habitats			
Reception	Year 1 or 2	Year 3 or 4	Year 5 or 6
Identify and sort things that are living and have never lived. Know that most living things live best in a habitat to which they are suited.	Talk about the differences between things that are living, dead, and things that have never been alive. Describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other e.g. food sources. Identify and name a variety of plants and animals in their habitats e.g.: woodland, urban, costal, rainforest, ocean and desert, Talk about microhabitats e.g. short grass, under leaves, rotten wood, in soil. Describe how animals obtain their food from plants and other animals, using a simple food chain. Know that the arrows show 'that it is eaten by.'	Recognise that living things can be grouped in a variety of ways based on their characteristics. Use classification keys to help group, identify and name a variety of living things in their local and wider environment based on their similarities and differences. Recognise that environments can change due to natural disasters (earthquake, fire etc.) or by man-made issues (pollution, littering, and deforestation). Talk about how 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. 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.

Rocks			
Reception	Year 1 or 2	Year 3 or 4	Year 5 or 6
		Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. Know the three types of rocks: Igneous, sedimentary and metamorphic. Know how these are formed. 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.	
Light			
Reception	Year 1 or 2	Year 3 or 4	Year 5 or 6
		Recognise that we 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. Explore patterns in the way that the size of shadows change.	Recognise that light waves appear to travel outwards 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.

Forces and Magnets			
Reception	Year 1 or 2	Year 3 or 4	Year 5 or 6
		Talk about how 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.	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Talk about 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.
Sound			
Reception	Year 1 or 2	Year 3 or 4	Year 5 or 6
		Describe 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.	

Electricity			
Reception	Year 1 or 2	Year 3 or 4	Year 5 or 6
		Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts: cells, wires, bulbs, switches, 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 - associate metals with being good conductors.	Describe how the brightness of a lamp or the volume of a buzzer is affected by 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.
Earth and Space			
Reception	Year 1 or 2	Year 3 or 4	Year 5 or 6
			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.

Evolution and Inheritance			
Reception	Year 1 or 2	Year 3 or 4	Year 5 or 6
			Know that living things have changed (evolved) over time and that fossils provide information about living things that inhabited the Earth millions of years ago. Know that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Describe how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution, including inherited traits.