



South Gosforth First School
Science - Whole School Progression & Assessment

In line with the National Curriculum, the South Gosforth Science Curriculum aims to ensure that all pupils:

- Develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- Develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- Use the 6 areas of working scientifically to develop enquiry skills; observing over time, pattern seeking, secondary research, identifying grouping and classifying, comparative tests and fair tests.
- Are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future.

Whole School Progression of Substantive & Disciplinary Knowledge				
Working Scientifically	Nursery		Reception	
	To show curiosity and ask questions. To make observations using their senses. To use their observations to help them answer their questions.		To show curiosity and ask questions. To make observations using their senses and simple equipment. To make direct comparisons and identify, sort and group. To record their observations by drawing, taking photographs, using sorting rings or boxes on simple tick sheets. To use their observations to help them to answer their questions.	
	Year 1	Year 2	Year 3	Year 4
	To ask simple questions and recognise that it can be answered in different ways. To observe closely using simple equipment. To perform simple tests. To identify and classify. To use observations and ideas to suggest answers to questions. To gather and record data to help in answering questions.		To ask relevant questions and use different types of scientific enquiries to answer them. To set up simple, practical enquiries, comparative and fair tests. To make systematic and careful observations and where appropriate take accurate measurements using standard units, using a range of equipment including thermometers and data loggers. To gather, record, classify and present data in a variety of ways to help in answering questions. To record findings using simple scientific language, drawings labelled diagrams, keys, bar charts and tables. To report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. To identify differences, similarities, or changes related to simple scientific ideas and processes. To use straightforward and scientific evidence to support their findings.	



Biology	Nursery		Reception	
	To use all their senses in hands-on exploration of natural materials. To explore collections of materials with similar and/or different properties. To talk about what they see, using a wide vocabulary. To plant seeds and care for growing plants. To understand the key features of the life cycle of a plant and an animal. To begin to understand the need to respect and care for the natural environment and all living things.		To describe what they see, hear and feel whilst outside. To recognise some environments that are different from the one in which they live. To understand the effect of changing seasons on the natural world around them. To explore the natural world around them (e.g. discussing how we care for the natural world around us).	
	Year 1	Year 2	Year 3	Year 4
	Plants To identify and name a variety of common wild and garden plants, including deciduous and evergreen trees To identify and describe the basic structure of a variety of common flowering plants, including trees. Animals Including Humans To identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals To identify and name a variety of common animals that are carnivores, herbivores and omnivores To describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) To identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Plants To observe and describe how seeds and bulbs grow into mature plants To find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. Animals Including Humans To notice that animals, including humans, have offspring which grow into adults To find out about and describe the basic needs of animals, including humans, for survival (water, food and air) To describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. Living Things and Their Habitats To explore and compare the differences between things that are living, dead, and things that have never been alive To identify that most living things live in habitats to which they are suited and describe how different habitats	Plants To identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers To 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 To investigate the way in which water is transported within plants To explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. Animals Including Humans To 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 To identify that humans and some other animals have skeletons and muscles for	Animals Including Humans To describe the simple functions of the basic parts of the digestive system in humans To identify the different types of teeth in humans and their simple functions To construct and interpret a variety of food chains, identifying producers, predators and prey. Living Things and Their Habitats To recognise that living things can be grouped in a variety of ways To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment To recognise that environments can change and that this can sometimes pose dangers to living things



		provide for the basic needs of different kinds of animals and plants, and how they depend on each other To identify and name a variety of plants and animals in their habitats, including microhabitats To 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.	support, protection and movement.	
Chemistry	Nursery		Reception	
	To talk about the differences between materials and changes they notice.		To explore the natural world around them (e.g. as ice melting).	
	Year 1	Year 2	Year 3	Year 4
	Everyday Materials To distinguish between an object and the material from which it is made To identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock To describe the simple physical properties of a variety of everyday materials To compare and group together a variety of everyday materials on the basis of their simple physical properties.	Everyday Materials To identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses To find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.		States of Matter To compare and group materials together, according to whether they are solids, liquids or gases To 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) To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.



Physics	Nursery		Reception	
	To explore how things work. To explore and talk about different forces they can feel.		To explore the natural world around them (e.g. floating and sinking, magnets).	
	Year 1	Year 2	Year 3	Year 4
	Seasonal Change To observe changes across the four seasons To observe and describe weather associated with the seasons and how day length varies.		Rocks To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties To describe in simple terms how fossils are formed when things that have lived are trapped within rock To recognise that soils are made from rocks and organic matter. Light To recognise that they need light in order to see things and that dark is the absence of light To notice that light is reflected from surfaces To recognise that light from the sun can be dangerous and that there are ways to protect their eyes To recognise that shadows are formed when the light from a light source is blocked by an opaque object To find patterns in the way that the size of shadows change. Forces To compare how things move on different surfaces.	Sound To identify how sounds are made, associating some of them with something vibrating To recognise that vibrations from sounds travel through a medium to the ear To find patterns between the pitch of a sound and features of the object that produced it To find patterns between the volume of a sound and the strength of the vibrations that produced it To recognise that sounds get fainter as the distance from the sound source increases. Electricity To identify common appliances that run on electricity. To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. To 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.



			To notice that some forces need contact between two objects, but magnetic forces can act at a distance. To observe how magnets attract or repel each other and attract some materials and not others 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 To describe magnets as having two poles To predict whether two magnets will attract or repel each other, depending on which poles are facing.	To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit To recognise some common conductors and insulators, and associate metals with being good conductors
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Assessment Tasks			
	Autumn	Spring	Summer
Year 1	<u>Everyday Materials</u> Show picture of playground/classroom/school – children to label as many materials as they can.	<u>Plants</u> Match pictures and labels of common flowers and trees (Wordwall)	<u>Animals Including Humans</u> Sort animals into groups of omnivore, carnivore and herbivore – draw in different foods that they might eat. <u>Seasonal Changes</u> Retell – What do children know about the 4 seasons. Using picture prompts or children to draw their own.
Year 2	<u>Living Things and Their Habitats</u> Draw and label a diagram of a simple food chain for each item of a human meal	<u>Uses of Everyday Materials</u> Sort materials into groups of suitability for a specific purpose ie. Materials that could be used for a new playground and what object they could be used for. <u>Animals Including Humans</u> Match pictures of animals and their offspring (including those where offspring is dissimilar eg. Frog and butterfly) (Wordwall)	<u>Plants</u> Short Explanation Text – How do plants grow?
Year 3	<u>Forces and Magnets</u> Quiz – Matching definition to key vocabulary (Wordwall)	<u>Light</u> Diagrams to explain how shadows are made (shadow, object, opaque, formed, block, light, shape) <u>Animals Including Humans</u> Create a diet and exercise poster for hospital setting	<u>Plants</u> Pupils order life cycle of an unseen plant and label each stage of it. <u>Rocks</u> Pictures of a range of rocks – Children to label type and describe how they were formed.
Year 4	<u>States of Matter</u> States of matter picture Explain how things change from one state to another <u>Electricity</u> Quiz – Match labelled diagram of a circuit (Wordwall)	<u>Animals Including Humans</u> Quiz on the digestive system, teeth and food chains.	<u>Sound</u> Hexagons showing how sound travels to the ear. <u>Living Things and Their Habitats</u> Create their own Venn/Carroll diagram, including deciding sorting criteria, to classify and sort a range of known living things.