BROOMFIELD PRIMARY SCHOOL

Science Progression Document

Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Working scientifically	Working scientifically	Working scientifically	Working scientifically	Working scientifically	Working scientifically
Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary. Explore how things work. 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. Explore and talk about	Ask simple questions that begin with why, what, if, how or when Make suggestions about how to do things when we plan a simple test. With help, use simple equipment and non-standard units to find things out. Observe using senses. With help, gather and record data to help answer questions. Talk about what happened and/or what was seen.	Ask simple questions and recognise these questions can be answered in different ways. Decide with help, what to find out, observe or measure. Observe closely, using simple equipment and non-standard units. Identify and classify. Perform a simple test. Gather data and record data to help answer questions. Record what has been found out using e.g. words or pictures, tables or simple prepared formats. Use observations and ideas to suggest answers to questions. Talk about how "I found out what I found out."	Ask questions and recognise that there are different types of enquiry. Set up a simple practical enquiry and begin to understand how to make a test fair. Make suggestions about what observations and measurements to make and what equipment is needed. Begin to make systematic and careful observations. Sometimes use standard units. With help, use information sources provided to find things out Gather data and using a pre-prepared table record data. Record findings using a drawing and/or words. With help, present data. Use results when talking about what happened.	Ask relevant questions and use different types of scientific enquiries to answer them. Set up simple practical enquiries, comparative or fair tests. Decide what observations and measurements to make and what equipment to use. Use a range of equipment (including thermometers and dataloggers). Make systematic and careful observations and take accurate measurements using standard units. Use information sources provided to find things out. Gather, record and classify data in a variety of ways to help answer questions. Record findings using simple scientific language, tables, drawings and labelled diagrams.	Ask relevant questions (containing scientific knowledge and understanding) and with help recognise which type of enquiry is best to answer a question. Decide what observations and measurements to make (controlling variables ¨ with help where necessary) and what equipment to use to ¨ make measurements ¨ and observations. Use a range of equipment independently. Make observations and measurements which are adequate for the task. Use information sources provided to find things out. Gather and record non-complex results (data and observations) using e.g. tables and scientific diagrams. Present the results (data and observations) in a range of formats e.g. bar	Ask relevant questions (containing scientific ¨ knowledge and ¨ understanding). Recognise which type of enquiry is best to answer a question. Plan different types of science enquiries to answer questions. Recognise and control variables where necessary. Decide what observations and measurements to make and what equipment to use (giving reasons) to make measurements and observations. Take measurements, using a range of scientific equipment with increasing accuracy and precision. Take repeat readings when appropriate. Use relevant information sources to find things out Identify possible risks to myself and others.

different forces they can feel. Talk about the differences between materials and changes they notice. Explore the natural world around them. Describe what they see, hear and feel while they are outside. Recognise some environments that are different to the one in which they live. Understand the effect of changing seasons on the natural world around them. AUTUMN Children can observe changes in the local environment throughout Autumn and Winter. ·Children know that there are four seasons. ·Children can name the seasons and discuss features of each. Children know and can describe different weathers.			Talk about what went wrong! Have ideas about what else to find out	Present data in a variety of ways using e.g. Venn diagrams, bar charts, simple scatter graphs and keys. Use results to draw simple conclusions and make predictions for new values. Communicate what has been found out using straightforward scientific ideas and report findings using oral and written explanations and displays. Suggest improvements to the way enquiries were carried out. Suggest further questions to investigate.	and line graphs, simple scatter graphs, keys and frequency charts. Draw conclusions from data and observations. Begin to use basic scientific evidence to support or refute ideas or arguments. Look at results and decide if any observations or measurements are unsuitable. Use what has been found out to suggest improvements to work giving reasons. Set up further questions to investigate.	Record data and results of increasing complexity using e.g. scientific diagrams and labels and tables. Choose a method to suit the results, e.g. a two column table. Present the data and results in suitable formats using e.g. line graphs, bar graphs, scatter graphs and classification key From data and observations draw valid conclusions (i.e. consistent with the evidence) including causal relationships. Identify scientific evidence to support or refute the ideas or arguments Look at results and decide if any observations or measurements are unsuitable and need to be carried out again. Offer simple explanations for differences in results. Use test results to make predictions to set up further enquiries e.g. comparative and fair tests and suggest how working methods could be improved, with reasons.
	ANIMALS AND HUMANS	ANIMALS AND HUMANS	ANIMALS AND HUMANS	ANIMALS AND HUMANS	ANIMALS AND HUMANS	ANIMALS AND HUMANS
Children know that weather can be different in different countries.	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals	Notice that animals, including humans, have offspring which grow into adults	Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food;	Describe the simple functions of the parts of the digestive system in humans Identify the different	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

Children can talk about similarities, differences, pattern and change in relation to people. · Children know about the life cycle of a human. I can talk about how I have changed since I was a baby. ·Children know how to keep their bodies healthy, e.g. eating healthy food, exercising, screen-time, etc. ·Children know the names of body parts. ·Children know that we have a skeleton. ·Children can explore their five senses.	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	Find out about and describe the basic need of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	they get nutrition from what they eat Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	types of teeth in humans and their simple functions Construct and interpret a variety of food chains, identifying producers, predators and prey.		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.

SPRING Exploring schools' grounds and observing seasonal changes in the Winter and Spring. Explore compare/contrast our environment with Polar regions. Discuss global warming and the impact on Polar regions. Observe, question and draw spring plants/spring growth. Explore natural spring resources in Tuff Tray, asking questions and making/drawing observations. Spring walk around School grounds describing and discussing what is found. ***Melting and freezing*** Children know that some things can change, e.g. water into ice, chocolate can be melted, etc. Children will be able to explain and describe these changes. (ice exploration) ***Materials floating and sinking*** Children will explore a variety of materials and objects that float and sink.				**ELECTRICITY** Identify common appliances that run on electricity Construct a simple series electrical circuit, identifying and naming its basic parts, including cells (batteries),wires, bulbs, switches and buzzers Identify whether or not a lamp (bulb) will light in a simple series circuit, based on whether or not the lamp (bulb) is part of a complete loop with a battery Recognise some common conductors and insulators, and associate metals with being good conductors Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp (bulb) lights in a simple series circuit		**ELECTRICITY** Associate the brightness of a lamp (bulb) or the volume of a buzzer with the number and voltage of cells (batteries) 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.
						EVOLUTION AND INHERITANCE 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

Children can explore and describe some different materials. · Children will use their knowledge of different materials to design their own constructions. · Children will explain why						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.
they have chosen the materials they have. Children can use their senses to describe different materials. · Children will be able to discuss mirrors, magnifying glasses and magnets. They will be able to say what they are used for. · Children know that darkness is an absence of light. · Explore with torches to make different shadows and colours. · Explore magnets. · Name planets in the solar system. · Talk about famous scientists who are linked to space. SUMMER *Around the world:* Observe, explore and compare contrasting natural environments around the world.			FORCES AND MAGNETS 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 attractor repel each other. Describe magnets as having two poles. Compare, predict and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials		FORCES 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.	
			LIGHT 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			LIGHT 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

Explore, compare, contrast, observe, draw and discuss different animals. Know where different animals come from. Explore creatures that live in the sea. *The UK outdoors:* Explore, observe and identify UK minibeasts. Look after our local environment – build minibeast houses. Children will make observations of different animals and be able to use specific vocabulary to describe them. Children know how plants grow and can explain this to an adult. Planting seeds and plants Discover, compare and contrast food produce/grown in different climates around the world. Children know that plants grow from a seed. Children know how plants grow and can explain this to an adult. Children know that plants need water, soil and sun to grow. Children can name different parts of a plant. Children will grow their own plant from a seed.			Recognise that shadows are formed when the light from a light source is blocked by a solid object Find patterns in the way that the sizes of shadows change			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.
		LIVING THINGS AND THEIR HABITATS 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 micro-habitats 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		LIVING THINGS AND THEIR HABITATS 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	LIVING THINGS AND THEIR HABITATS 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.	LIVING THINGS AND THEIR HABITATS Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and difference, including micro-organisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics.
	MATERIALS Everyday materials	MATERIALS Uses of everyday materials		MATERIALS States of matter	MATERIALS	

Explore the life cycle of plants Explore the life cycle of frogs and butterflies. Know some features of our school environment and how they might vary from another (habitats) Children know the need to care for the natural environment and all living things.	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.		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.	Properties and changes of materials 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 Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic 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 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.	
	PLANTS	PLANTS	PLANTS			

	Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, including tree	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, room to grow 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			
			ROCKS 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.			
	SEASONAL CHANGES AND EARTH AND SPACE Seasonal changes				SEASONAL CHANGES AND EARTH AND SPACE Describe the movement of the Earth, and other	

	Observe changes across the four seasons Observe and describe weather associated with the seasons and how day length varies				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.	
				SOUND 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		