Progression of skills and knowledge in Science

Menu		Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
WORKING SCIENTIFICALLY	*Questioning and Predicting*	•Ask questions	•Ask simple questions	•Use observations and ideas to suggest answers to questions	•Ask relevant questions • Start to make predictions	•Make sensible predictions •Suggest possible further questions •Use straightforward scientific evidence to answer questions and support their findings	•Use test results to make appropriate, linked predictions and ask further questions •Recognise when other sources of information (secondary sources) will help answer questions that cannot be answered through practical investigations	•Make predictions for new values •Use a range of sources to support own evidence and talk about how scientific ideas have developed over time •Evaluate the reliability of their methods and suggest improvements •Identify scientific evidence that has been used to support or refute ideas or arguments
	Planning and carrying out investigations	•Talk about what is being done in order to answer their questions	•Recognise that questions can be answered in different ways •Perform simple tests	•Carry out pre-planned investigations – with support	•Use different types of scientific enquiries to answer questions •Set up simple practical enquiries •Set up simple comparative tests	•Set up fair tests •Identify differences, similarities or changes related to simple scientific ideas and processes	•Plan different types of scientific enquiries to answer questions – including recognising and controlling variables where necessary •Suggest sensible improvements to experiments	•Set up further comparative and fair tests in response to results
	Taking and recording observations, measurements and results	•Make observations	•Observe closely •Use simple equipment	•Gather and record data to help answer questions – with support	•Start to make systematic and careful observations •Take accurate measurements using standard units •Gather and record data to help answer questions •Start to record findings using simple scientific language	•Make systematic and careful observations •Take accurate measurements using standard units using a range of equipment including thermometers and data loggers •Record findings using simple scientific language – demonstrate through drawings, labelled diagrams, keys, bar charts and tables	•Take accurate, precise measurements using appropriate equipment •Know and explain when it is appropriate to take repeat measurements •Gather, record, classify and present data in a variety of ways including scientific diagrams and labels, keys, graphs and tables	•Choose the most appropriate method for recording data and results of increasing complexity •Make a series of observations, comparisons and measurements with precision

	Explaining results and drawing conclusions	•Talk about why things happen •Talk about changes	•Talk about what they have found out	•Start to use simple scientific language in context •Identify and classify objects as part of an investigation	•Report back on findings verbally •Form conclusions from findings •Suggest improvements to investigations •Use straightforward scientific evidence to answer questions	•Classify and present data in a variety of ways to help in answering questions •Report back on findings verbally and through written explanations, displays, presentations etc.... •Form sensible conclusions from findings	•Use scientific evidence to answer questions •Use scientific evidence to support findings •Use results to draw conclusions	•Present observations and data using appropriate methods •Report and present results including conclusions, causal relationships and explanations •Make conclusions consistent with evidence and related to scientific understanding

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BIOLOGY	Seasonal Changes	•Talk about the features of their own immediate environment and how environments might vary from one another •Talk about changes	•Observe changes across the four seasons •Observe and describe weather associated with the seasons and how day length varies					
	Animals	•Make observations of animals, explain why some things occur and talk about changes	•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)	•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, air)	•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	•Construct and interpret a variety of food chains, identifying producers, predators and prey		•Describe the ways in which nutrients and water are transported within animals (including humans)
	Humans		•Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	•Notice that humans have offspring which grow into adults •Find out about and describe the basic needs for survival (food, water, air) •Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	•Identify that 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 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	•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 •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 humans (and other animals)

	Plants	•Make observations of plants, explain why some things occur and talk about changes	•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 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			

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Menu		Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
BIOLOGY	Living Things and their Habitats Evolution and Inheritance (Y6 only)	•Know about similarities and differences in relation to living things •Talk about the features of their own immediate environment and how environments might vary from one another		•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 •Describe how animals obtain their food from plants and other animals using the idea of a simple food chain – identify and name different sources of food		•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 processes 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 •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, but normally offspring vary and are not identical to their parents •Identify how animals and plants are adapted to suit their environment and that adaptations lead to evolution

CHEMISTRY	Materials Including: Everyday uses of materials, Rocks, Properties and changes, States of matter	•Know about similarities and differences in relation to materials and objects	•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 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	•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: measure or research the temperature at which this happens in degrees C (°C) •Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	•Compare and group everyday materials based on their properties, including hardness, solubility, transparency, conductivity (electrical and thermal) and magnetism •Know some materials dissolve in liquid to form a solution and describe how to recover a substance from 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 these changes are not usually reversible eg: changes from burning or the action of acid on bicarbonate of soda	

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PHYSICS	Light				•Recognise that light is needed 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			•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
	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 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 •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	

	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		

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PHYSICS	Electricity					•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		•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
	Earth and Space						•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	