Great Whelnetham C of E Primary School
Skills Progression
Subject area: Science

Skill	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Electricity		• Learn About everyday appliances that use electricity • Learn about the dangers of electricity. • About simple series circuits involving batteries, wires, bulbs and other components • How a switch can be used to break a circuit	• Identify electrical appliances. • Spot electrical hazards and explain why they are dangerous. • Create and draw a range of circuits including switches. Learn about the dangers of electricity. • Learn about simple series circuits involving batteries, wires, bulbs and other components • How a switch can be used to break a circuit	• 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. • Examine a range of appliances and sort which use electricity and which do	• 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. • Examine circuit diagrams and predict whether or not they will work, explaining scientific reasoning.	• 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

				not (including solar energy). • Construct a series of circuits and record diagrams using correct symbols.	• Experiment with a range of materials, investigating which are conductors and which are insulators.	simple circuit in a diagram • Use the correct scientific symbols to represent their circuit • Read and interpret circuit diagrams • Investigate how adding more components to a circuit affects the brightness of a bulb.
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Properties of Materials	• Recognise and name common types of material and recognise that some of them are found naturally • Find out how the shapes of objects made from some materials can be changed by some	• Distinguish between an object and the material from which it is made" " • Compare and group together a variety of everyday materials on the basis of their		• Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity	• Provide reasoned justifications for their views. • Identify characteristics of different objects using the correct scientific vocabulary.	

	processes, including squashing, bending, twisting and stretching • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for different uses • Use their senses to explore and recognise the similarities and differences between materials “ • Describe the simple physical properties of a variety of everyday materials” • Sort objects into groups on the basis of simple material properties “	simple physical properties” • Recognise and name common types of material and recognise that some of them are found naturally • Find out about the uses of a variety of materials and how these are chosen for specific uses on the basis of their simple properties • Testing: magnetic, waterproof, absorbent, flexible, rigid etc		(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. • Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. • Explain that some changes result in the formation of new materials, and that this kind of change is not usually	• Investigate how different materials respond to magnets. • Investigate how materials dissolve in water. Suggest ways to recover them from water.	

	• Distinguish between an object and the material from which it is made" " • Compare and group together a variety of everyday materials on the basis of their simple physical properties"			reversible, including changes associated with burning and the action of acid on bicarbonate of soda.		
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
States of matter		• Explore and describe the way some everyday materials change when they are heated or cooled. • Explore the concept of temperature, how it is measured and how it affects objects, living things and the world. • Children will look at how things are made exploring both baking and		• 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.	• Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. • Create a diagram of the water cycle. Model evaporation through making puddles in the	• Investigate changes to different materials. Which are reversible and irreversible? • Sort objects into solids liquids and gasses, having discussion around how some items have elements of both. For example, a

		manufacturing of common items. Teachers may wish to show 'how it is made' videos encouraging children to predict beforehand and explain back the process to show their understanding • Children will carry out a range of experiments involving heating, melting and cooling (taking appropriate safety precautions).		• Compare and group materials together, according to whether they are solids, liquids or gases.	playground and observing how they shrink, recording results • 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).	deodorant can.
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Forces	• That pushes and pulls can change the movement of objects and change their shape. • Explore everyday situations		• compare how things move on different surfaces • notice that some forces need contact between 2 objects, but magnetic forces can act at a distance	• Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object	• Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	

	involving forces and identify the forces involved e.g. push, pull and twist etc. • Carry out a range of investigations with toys e.g. cars on ramps, falling, floating and sinking.		• 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 which poles are facing	• Identify the effects of air resistance, water resistance and friction, that act between moving surfaces	• Use a force metre to investigate the relationship between mass and force. • Explore how forces effect different objects. Create concept cartoons • Fair test experiment to assess how water can effect weight and force of an object.	
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Rocks		• compare and group together different kinds of rocks on the basis of their appearance and	• describe in simple terms how fossils are formed when things that have lived are trapped within rock			

		simple physical properties • Linked with work in geography, pupils should explore different kinds of rocks and soils, including those in the local environment.	• recognise that soils are made from rocks and organic matter • Pupils might work scientifically by: observing rocks, including those used in buildings and gravestones, and exploring how and why they might have changed over time; using a hand lens or microscope to help them to identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them.			
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Sound		• That there are many kinds of sound and sources of sound	• That we hear sound with our ears • Make some basic junk model instruments.	• Identify how sounds are made, associating some of them with	• Investigate how sound is measured. Will the same sound create a different	

		• That sounds travel away from sources, getting fainter as they do so, and that they are heard when they enter the ear	• Investigate how sound travels and can be insulated.	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.	volume in different areas of the school? • Label the parts of the ear. • Use different hoses to create stethoscopes and investigate which is the best conductor of sound. • Create graphs to show the difference between high and low pitch sounds	
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Plants	• What is a plant? How are they different from animals and fungi? • Identify and name a variety of common wild and garden plants, including deciduous and	• Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. • investigate the way in which water is transported within plants	• 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			

	evergreen trees and also succulents. • Explore also plant-like organisms such as algae, seaweed and moss etc. • To recognise and name the basic structure of plants (including trees). • •Find out and describe how plants need water and light to grow and stay healthy.		growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant • explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal			
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Light	• To identify different light sources, including the sun • That darkness is the absence of light • Explore how it easy it is to see things in different lights.		• 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			• Recognise that light appears to travel in straight lines • Use the idea that light travels in straight lines to explain that

	• Look at how objects and clothes can be designed to show up in low light. Design some of their own.		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			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 • Make predictions about how light travels and how we see objects

						• Draw scientific diagrams to show how light travels
		Year2	Year3	Year 4	Year 5	Year 6
Animals including humans	• To recognise and compare the main external parts of the bodies of humans and other animals. • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. • Understand that animals, including humans, move, feed, grow, use their senses and reproduce. • Learn that humans and other animals need food and water to stay alive and how these processes		• 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 • Understanding how muscles and bone work together to create movement. • To understand that humans are part of their own life cycle including	• 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. • Name and labelled different types of teeth and explain their function. • Compare teeth from different skeletons (scientific reasoning) and compare similarities		• 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,

	are linked to processes in our bodies. • Understand how senses enable humans and other animals to be aware of the world around them.		the processes of aging.	and differences.		including humans. • Research the human circulatory system and report on their findings • Chn to create a human model to show how blood is pumped around the body • Show images of the human organs that have been affected by poor lifestyle and diet. • Discuss the impact that poor lifestyle and diet can have on the body
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals and their habitats	• Explore and compare the differences between things	• Identify and name a variety of common		• Recognise that living things can be grouped in a	• Describe the life process of reproduction in	• Describe how living things are classified into broad

	that are living, dead, and things that have never been alive.
	• Understand that animals, including humans, move, feed, grow, use their senses and reproduce.
	  • Recognise the differences between animals and plants.
	  • Describe and compare the structure of a variety of common animals
		animals including, fish, amphibians, reptiles, birds and mammals
		• Group living things according to observable similarities and differences
		• Identify and name a variety of common animals that are carnivores, herbivores and omnivores by noting indicative features
				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.
					some plants and animals.
					• Sort animals and plants based on characteristics or habitats.
					• Use classification keys to sort animals.
					• Study habitats and create a poster to explain how humans are destroying habitats around the world.
					• Create a range of lifecycles from different animal classes (reptiles, mammals etc).
						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 characteristic
						• Make their own classification keys to sort a set of given animals into smaller groups.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Earth and Space				• Name planets and identify what makes them unique.	• Create a non chronological report to explain the	

				• Create a scaled interactive model of the solar system. • Create an animation showing the relationship between the moon and the earth. • 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	earth's rotation and show how this creates day and night at different times in different parts of the world. • Possible planetarium experience. • 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.	rotation to explain day and night and the apparent movement of the sun across the sky.	
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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 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 • Study pictures of fossils – what can they infer from the pictures and what questions would they ask? • Identify inherited and acquired traits and explain the difference between the two • Describe how certain animals have adapted to their environment