Mapping progression across KS1 to KS2

National Curriculum Framework

Chase Side Primary School – Science Knowledge and Enquiry Progression

Sc:1 Working Scientifically		
KS1	**Lower KS2**	**Upper KS2**
During **Years 1 and 2,** pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:	During **Years 3 and 4,** pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:	During **Years 5 and 6,** pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:
Asking simple questions and recognising that they can be answered in different ways	Asking relevant questions and using different types of scientific enquiries to answer them	
Performing simple tests	Setting up simple practical enquiries, comparative and fair tests	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
observing closely, using simple equipment	Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
Gathering and recording data to help in answering questions	Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	
Identifying and classifying	Identifying differences, similarities or changes related to simple scientific ideas and processes	Identifying scientific evidence that has been used to support or refute ideas or arguments

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Using their observations and ideas to suggest answers to questions	Using straightforward scientific evidence to answer questions or to support their findings Using results to draw simple conclusions, make predictions for new values and suggest improvements and raise further questions	Using test results to make predictions to set up further comparative and fair tests
		Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations
	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations

Sc2: Biology (Plants)		
KS1	**Lower KS2**	**Upper KS2**
Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers	
Identify and describe the basic structure of a variety of common flowering plants, including trees	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	
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	
Observe and describe how seeds and bulbs grow into mature plants	Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	Describe the life process of reproduction in some plants (and Animals, including humans)

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Sc2: Biology (Living things and their habitats)		
KS1	**Lower KS2**	**Upper KS2**
Explore and compare the differences between things that are living, dead, and things that have never been alive	Recognise that living things can be grouped in a variety of ways	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants, and animals
	Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment	
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	Recognise that environments can change and that this can sometimes pose dangers to living things.	Give reasons for classifying plants and animals based on special characteristics
Identify and name a variety of plants and animals in their habitats, including micro-habitats.		Describe the life process of reproduction in some plants and animals
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.	Construct and interpret a variety of food chains, identifying producers, predators and prey.	

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Sc2: Biology (Animals including humans)		
KS1	**Lower KS2**	**Upper KS2**
Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals		
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.	Identify that humans and some other animals have skeletons and muscles for support, protection and movement	
Find out about and describe the basic needs of Animals, including humans, including humans, for survival (water, food and air)		Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.
Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.		Describe the ways in which nutrients and water are transported within Animals, including humans, Identify and name the main parts of the circulatory system, and explain the functions of the heart, blood vessels and blood.

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Notice that animals, including humans, including humans, have offspring which grow into adults		Describe the life processes of reproduction in some Animals, including humans
		Describe the changes as humans develop from birth to old age
		Describe the differences in the life cycles of mammal, amphibian, insect & bird
Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	Describe the simple functions of the basic parts of the digestive system in humans	
Identify and name a variety of common animals that are carnivores, herbivores and omnivores	Identify that Animals, including humans, 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	
	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	

Sc2: Biology (Evolution and Genetics)		
KS1	**Lower KS2**	**Upper KS2**
		Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.
		Identify how animals, including humans and plants, are adapted to suit their environment in different ways and that adaptation may lead to evolution

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		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

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Sc3: Chemistry (Materials)		
KS1	**Lower KS2**	**Upper KS2**
Distinguish between an object and the material from which it is made	Compare and group materials together, according to whether they are solids, liquids or gases	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
Describe the simple physical properties of a variety of everyday materials	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)	Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
Identify and name a variety of everyday materials, including wood, metal, plastic, glass, metal, water and rock		
Compare and group together a variety of everyday materials on the basis of their simple physical properties	Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.
Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses		Demonstrate that dissolving, mixing and changes of state are reversible changes
Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching		Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating

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		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

Sc3: Chemistry (The Earth: Rocks and Atmosphere)		
KS1	Lower KS2	Upper KS2
	Recognise that that soils are made from rocks and organic matter	
	Describe in simple terms how fossils are formed when things that have lived are trapped within rock.	
	Compare and group together different kinds of rocks on the basis of their simple physical properties	

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Sc4: Physics (Forces and Motion)		
KS1	**Lower KS2**	**Upper KS2**
Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	Notice that some forces need contact between two 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
	Compare how things move on different surfaces	Identify the effects of air resistance, water resistance and friction, that act between moving surfaces
		Recognise that some mechanisms, including gears, pulleys, levers and springs, allow a smaller force to have a greater effect

Sc4: Physics (Light)		
KS1	**Lower KS2**	**Upper KS2**
	Notice that light is reflected from surfaces	Recognise that light appears to travel in straight lines
	Recognise that light from the sun can be dangerous and that there are ways to protect their eyes	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
	Recognise that they need light in order to see things and that dark is the absence of light	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
	Recognise that shadows are formed when the light from a light source is blocked by a solid object	Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them

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	Find patterns that determine the size of shadows	

Sc4: Physics (Sound)		
KS1	**Lower KS2**	**Upper KS2**
	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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Sc4: Physics (Magnetism)		
KS1	**Lower KS2**	**Upper KS2**
	Notice that some forces need contact between two objects and some forces act at a distance	
	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.	
	Observe how magnets attract or repel each other and attract some materials and not others	
	Describe magnets as having two poles	
	Predict whether two magnets will attract or repel each other, depending on which poles are facing	

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Sc4: Physics (Electricity)		
KS1	**Lower KS2**	**Upper KS2**
	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	Use recognised symbols when representing a simple circuit in a diagram
	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	Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
	Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series 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
	Recognise some common conductors and insulators, and associate metals with being good conductors	

Sc4: Physics (Earth and Space)		
KS1	**Lower KS2**	**Upper KS2**
Observe changes across the four seasons		Describe the movement of the Earth and other planets relative to the Sun in the solar system
Observe and describe weather associated with the seasons and how day length varies		Describe the movement of the Moon relative to the Earth
		Describe the Sun, Earth and Moon as approximately spherical bodies

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		Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.

Sc4: Physics (Energy)		
KS1	**Lower KS2**	**Upper KS2**
		Understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs