

		KS1 Science progression	
Area of study			Skills
Biology			
Habitats provide living things with what they need		Identify that a habitat supplies living things with what they need.	
		Explain how, for a named animal or plant, it gets what it needs from its habitat and other living things that are there.	
		Identify a range of living things in habitats of various sizes.	
		Identify a predator–prey relationship.	
		Construct a simple food chain and identify what is eating what.	
		Explore and identify what plants need to thrive <i>eg water, light and warmth</i>	
Life exists in a variety of forms and goes through cycles – Plants		Identify and name a limited range of plants.	
		Identify a range of local plants.	
		Identify and describe the basic structure of a common flowering plant.	
		Name parts of a range of familiar plants eg roots, trunk, branches and leaves of trees.	
		Identify that seeds and bulbs grow into mature plants.	
		Describe stages of development of a full grown plant.	
		Sort items into 'once living' and 'never lived'.	
Life exists in a variety of forms and goes through cycles – Animals		Compare and contrast a collection of items, sorting into categories: 'living', 'dead' & 'things that have never been alive'.	
		Name a variety of common animals.	
		Recognise the difference between carnivores, herbivores and omnivores.	
		Identify and group a range of familiar animals.	
		Recognise that all animals, including humans, have offspring.	
		Describe the relationship between adult animals and their offspring.	
		Identify the basic needs of animals, including humans, for survival (water, food and air).	
		Identify human's basic needs.	
The human body has a number of systems, each with own function		Identify key features of a range of common animals.	
		Describe each of the human senses.	
		Recognise the importance to humans of exercise, diet and hygiene.	
Chemistry			
Materials have physical properties which can be investigated and compared		Identify the material from which an object has been made.	
		Correctly identify both object and material.	
		Identify that the shape of some objects can be changed	
		Describe changes achieved by applying forces in different directions.	
		Identify and name a range of materials.	
		Recognise that a material has properties.	
		Describe a range of properties of a variety of materials.	

		Compare and contrast two everyday materials.
		Classify a variety of materials into groups based on physical properties.
The physical properties of materials determine their uses.		Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
		Select and justify a material for a particular use.
Physics		
Day, night, month, seasonal change & year are caused by position and movement of Earth		Recognise that there are seasonal changes.
		Describe seasonal changes.
		Recognise that day length alters in different seasons.
		Relate weather patterns and day length to seasons.
Working scientifically		
Planning investigations		Ask simple questions that can be tested, <i>e.g. about the local environment and how organisms depend on each other.</i>
		Suggest different ways of answering a question, <i>e.g. testing the suitability of materials for different purposes.</i>
Conducting experiments		Examine carefully, <i>e.g. using a hand lens.</i>
		Conduct simple tests, <i>e.g. setting up comparative tests to show that plants need water and light.</i>
		Identify and classify
Recording evidence		Pupil can, with assistance, draw and label diagrams, <i>e.g. recording plants changing over time, starting from seed or bulb.</i>
Reporting findings		Identify key findings from an enquiry.
		Identify and group key outcomes from enquiry, <i>e.g. describing conditions in different habitats and how these affect the numbers and types of organisms.</i>
Conclusions and predictions		Collect data relevant to the answering of questions, <i>e.g. seeing how the shapes of some materials can be changed.</i>
		Answer enquiry questions using data and ideas, <i>e.g. to help decide how the properties of certain materials make them suitable for certain applications</i>

Lower KS2 Science progression		
Area of study		Skills
Biology		
Living things can be classified according to observable features		Suggest different ways of sorting the same group of living things, <i>e.g. grouping birds according to where live, what eat and size of adults.</i>
		Use classification keys to group and identify members from a range of familiar and less familiar living things.
Habitats provide living things with what they need		Explain what all plants need to flourish and recognise how these requirements vary in amount.
		Describe how environments might change.
		Describe examples of living things that are threatened by changes to environments, <i>e.g. owls and habitat loss.</i>
Life exists in a variety of forms and goes through cycles – Plants		Describe what each part of a flowering plant does.
		Identify that water is transported within plants.
		Explain, with the aid of a diagram or plant, how water is carried up from the soil.
		Describe the processes of pollination, seed formation and seed dispersal.
Life exists in a variety of forms & goes through cycles – Animals		Explain how pollination, seed formation and seed dispersal play a role in the reproduction of flowering plants.
		Identify that animals, including humans, need the correct nutrition.
		Describe why animals depend on the correct nutrition
The human body has a number of systems, each with own function		Explain which parts of the skeleton provide support and protection, and how they allow for movement.
		Describe the purpose of the digestive system in humans.
		Identify what each of the principal organs in the digestive system do.
		Recognise that humans have different types of teeth.
		Describe the function of each type of tooth in the human skull.
		Understand the roles of producers, predators and prey.
		Use a food chain to represent predator-prey relationships.
Chemistry		
Different rocks have different properties and the formation of soil & fossils can be explained.		Understand that fossils indicate the shape of previous life forms.
		Explain how fossils are formed.
		Describe the appearance of soil, recognising that it is a mixture of materials.
		Describe how soil is made.
Materials have physical properties which can be investigated and compared		Identify that rocks vary in terms of appearance and physical properties.
		Examine and test rocks, grouping them according to the results.
		Recognise the state of matter of different materials.
		Group materials according to their state of matter.
Materials can exist in different states & states can sometimes be changed		Relate the terms 'evaporation' and 'condensation' to water.
		Describe how evaporation and condensation happen in the water cycle, and how temperature affects evaporation.
		Recognise that materials may change state.
		Identify changes of state and research values of degrees Celsius at which changes happen.

Physics		
There are contact and non-contact forces; these affect the motion of objects.		Compare how an object, such as a toy car, will move on different surfaces.
		Recognise that magnetic forces don't require physical contact.
		Recognise the difference between contact and contact forces.
		Identify that magnets affect each other.
		Describe how magnets attract or repel each other, and attract magnetic materials.
		Recognise that some materials are magnetic and that others are not.
		Group materials on the basis of testing for being magnetic.
		Describe and identify the poles of a magnet.
		Recognise that magnets affect each other differently, depending on which poles are facing.
		Predict outcomes of a particular arrangement of magnets.
Light & sound can be reflected & absorbed and enable us to see & hear		Relate being able to see to the presence of light.
		Identify that mirrors reflect light.
		Describe how some objects reflect light.
		Recognise that light from the sun can be dangerous.
		Describe how and why our eyes should be protected from sunlight.
		Recognise that light cannot pass through some objects.
		Explain how shadows are made.
		Describe how to change the size of a shadow.
		Explain, with reference to vibrations, how an object makes a sound.
		Recognise that the ear detects vibrations.
		Describe the role of a medium in the transmission of sound.
		Suggest why some sounds are louder than others.
		Describe the effect of moving further from the source of a sound.
		Explain with reference to a particular object how the pitch of the sound can be changed.
		Explain with reference to a particular object how the volume of the sound can be changed.
Electricity can make circuits work and can be controlled to perform useful functions		List examples of appliances that run on electricity.
		Construct a simple circuit.
		Construct a simple circuit and name its components.
		Identify metal as a conductor.
		Sort materials into conductors and insulators, identifying metals as conductors.
		Understand that a complete circuit is needed for a circuit to operate.
		Predict whether a particular arrangement of components will result in a bulb lighting.
		Describe the function of a switch.
		Predict how the operation of a switch will affect bulbs lighting.
Working scientifically		
Planning investigations		Develop relevant, testable questions, <i>e.g. based on observations of animals.</i>

		Plan enquiries, such as a comparative or fair test.
		Plan investigations using different types of scientific enquiry, <i>e.g. exploring various materials by observing change over time, running comparative tests and conducting surveys.</i>
		Set up a comparative test.
		Set up comparative and fair tests, <i>e.g. finding patterns in the sounds made by elastic bands of different thicknesses.</i>
Conducting experiments		Use various equipment, as instructed, repeatedly and with care, <i>e.g. thermometers.</i>
		Use standard measurements when taking measurements.
		Recognise the importance of using standard units and measures accurately, <i>e.g. measuring temperature when investigating its effect on washing drying.</i>
Recording evidence		With prompting, draw and label diagrams
		Use words and diagrams to record findings, <i>e.g. how habitats change during the year.</i>
		With prompting, use tables to record evidence.
		Use various ways to record evidence, <i>e.g. comparing the teeth of herbivores and carnivores.</i>
		With prompting, gather and display evidence in various ways.
Reporting findings		Use various ways to record, group and display evidence, <i>e.g. grouping and classifying various materials.</i>
		With prompting, write a conclusion based on evidence.
		Write a conclusion based on evidence, <i>e.g. effect on brightness of bulbs if more cells are added.</i>
		Indicate findings from an enquiry that could be reported.
Conclusions and predictions		Present findings either in writing or orally, <i>e.g. relating to investigating which materials are conductors.</i>
		With prompting, recognise patterns that relate to scientific ideas.
		Recognise patterns that relate to scientific ideas, <i>e.g. finding out which materials make better earmuffs.</i>
		With support, use evidence to produce a simple conclusion.
		Use evidence to produce a simple conclusion, <i>e.g. the effect of temperature on various substances.</i>
		Suggest how an investigation could be extended.
		Use evidence to suggest further relevant investigations, <i>e.g. making own instruments, using ideas about pitch & volume.</i>

		Upper KS2 Science progression	
Area of study		Skills	
Biology			
Living things can be classified according to observable features		Identify the broad groups into which living things are classified, <i>e.g. mammals</i> .	
		Use similarities and differences in observable features to decide how living things should be grouped <i>e.g. a cat is a mammal because it is warm blooded and gives birth to live young</i> .	
		State how plants and animals can be classified using specific characteristics.	
		Explain why certain features are useful in classifying living things, <i>e.g. backbones in animals and flowers in plants</i> .	
Living things exhibit variation and adaptation and these may lead to evolution.		Recognise that fossils provide information about living things from millions of years ago, <i>e.g. understand that they are preserved remains of extinct living things</i> .	
		Use fossils as evidence that living things have changed over time, <i>e.g. explain that these have died out and others have taken their place</i> .	
		Recognise that living things produce offspring of the same kind	
		Recognise that offspring normally vary from each other and from their parents, e.g. that puppies vary from each other and from their parents.	
		Identify ways in which certain animals and plants are adapted to suit their environment in different ways.	
		Describe examples of a living thing that has adapted to live in a particular habitat and evolved as a result, <i>e.g. a polar bear or cactus</i> .	
Life exists in a variety of forms and goes through cycles – Animals		Explain what a life cycle is, <i>e.g. that kittens grow into cats, have kittens and die</i> .	
		Identify similarities and differences in two different life cycles, <i>e.g. sparrow and butterfly, with reference to eggs and intermediate stages</i> .	
		Identify that people change as they age, <i>e.g. recognise differences in appearance, abilities etc</i> .	
		Describe the changes as humans develop to old age, e.g. trends in changes to size, weight, mobility etc.	
The human body has a number of systems, each with own function		Describe the life process of reproduction in humans.	
		Describe in sequence the stages of reproduction in some plants and animals, <i>e.g. dog and a thistle</i> .	
		Name the main parts of the human circulatory system, <i>e.g. heart, arteries, veins</i> .	
		Describe what heart, blood vessels and blood do, e.g. carry oxygen to all parts of the body.	
		Recognise that diet, exercise, drugs & lifestyle impact on way the body functions, <i>e.g. knowing exercise changes body</i> .	
		Suggest how their bodies are affected by substances and actions, <i>e.g. that a high fat diet coupled with little exercise is likely to lead to obesity</i> .	
		Describe that nutrients and water are transported within humans.	
		Describe with aid of diagrams the route that water takes within animals, <i>e.g. through the human body</i> .	
Chemistry			
Materials have physical properties which can be investigated and compared		Compare and group together everyday materials on the basis of their appearance and feel.	
		Test and sort a range of materials based on their physical properties.	
		Know that some materials will dissolve in liquid to form a solution.	
		Describe how some materials, e.g. sugar, will dissolve and can be retrieved.	
		Suggest how mixtures might be separated.	

	Justify separation techniques proposed, with reference to materials being separated.
	Understand that some processes are reversible.
	Show how the original materials can be retrieved from each of these changes.
	Understand that burning is irreversible.
	Identify reactants and products of chemical changes and recognise these as being irreversible.
The physical properties of materials determine their uses.	Give reasons for the particular uses of everyday materials, including metals, wood and plastic.
	Use evidence to justify the selection of a material for a purpose.
Physics	
There are contact and non-contact forces; these affect the motion of objects.	Describe the effect of gravity on unsupported objects.
	Explain that gravity causes objects to fall towards Earth.
	Recognise that motion may be resisted by forces.
	Describe how motion may be resisted by air resistance, water resistance or friction.
	Recognise that simple machines transfer force.
	Describe how some devices may turn a smaller force into a larger one.
Day, night, month, seasonal change & year are caused by the position and movement of the Earth	Recognise that the planets move, relative to the Sun.
	Draw a diagram or use a model to describe planetary orbits.
	Recognise that the Moon moves relative to the Earth.
	Draw a diagram or use a model to describe the Moon's orbit around the Earth.
	Sketch the outlines of the Sun, Earth and Moon.
	Describe the Sun, Earth & Moon as spheres.
	Relate day and night to the apparent position of the Sun.
	Use a diagram or model to explain why the Sun seems to travel across the sky, and what causes day and night.
	Day, night, month, seasonal change & year are caused by the position and movement of the Earth
Light & sound can be reflected & absorbed and enable us to see & hear	Recognise that light travels from one point to another.
	Represent light using straight line ray diagrams.
	Recognise that some objects reflect light.
	Draw diagrams using straight lines showing light travelling to the eye.
	Describe how light travels from light sources to our eyes.
	Explain how we can see an object by referring to light travelling into the eye.
	Relate the shape of shadows to the shape of the object that makes them.
	Draw a diagram showing an object, shadow and light to relate object shape to shadow shape.
Electricity can make circuits work and can be controlled to perform useful functions	Recognise that changing the number and voltage of cells may alter the operation of a circuit.
	Explain how number and voltage of cells affects the lamp or buzzer.
	Identify the function and operation of different components.
	Explain the use of switches, how bulbs can be made brighter and buzzers made louder.
	Understand that components can be represented by symbols.

		Represent a circuit that has been constructed using symbols.
Working scientifically		
Planning investigations		With support, can answer questions using evidence gathered from different types of scientific enquiry.
		Answer questions using evidence gathered from different types of scientific enquiry, <i>e.g. operation of circulatory system from experiment, survey and secondary research.</i>
		With prompting, identifies and manages variables.
		Identify and manage variables, <i>e.g. distances and sizes in shadow formation.</i>
Conducting experiments		Following discussion of alternatives, select appropriate equipment, <i>e.g. measuring jug to measure volume</i>
		Use appropriate equipment, such as meter rule, to take measurements, <i>such as distance travelled by light.</i>
		Take measurements that are precise as well as accurate.
		Consider how by modifying instrument or technique, measurements can be improved, <i>e.g. when recording route of light rays.</i>
		Know how to process repeat readings.
Recording evidence		Identify situations in which taking repeat readings will improve the quality of evidence, <i>e.g. investigating the behaviour of components in a circuit.</i>
		Start to use labelled diagrams to show more complex outcomes.
		Use labelled diagrams to show complex outcomes, <i>e.g. relating specific adaptations of organisms to environmental factors.</i>
		With prompting, uses various ways to record complex evidence.
		Use various ways, as appropriate, to record complex evidence, <i>e.g. in the construction of a key to aid plant identification.</i>
		Use a line graph to record basic data.
Reporting findings		Use line graphs to display complex data, <i>e.g. size of object in relation to the size of the shadow it casts.</i>
		With prompting, write a conclusion using evidence and identifying causal links.
		Write a conclusion using evidence and identifying causal links, <i>e.g. in the design of a periscope.</i>
		With support, display and present key findings from enquiries orally and in writing.
		Display and present key findings from enquiries orally and in writing, <i>e.g. deciding how well classifications fit unfamiliar animals and plants.</i>
		With support, indicate why some results may not be entirely trustworthy.
Conclusions and predictions		In conclusions, indicate how trustworthy they are, <i>e.g. in relating brightness of bulb to voltage supplied.</i>
		Show how evidence supports a conclusion.
		Identify how an idea is supported or refuted by evidence, <i>e.g. selective breeding to produce animals or plants with desirable characteristics.</i>
		Suggest further relevant comparative or fair tests.
		Use evidence to suggest further comparative or fair tests that would develop the investigation, <i>e.g. in the design of rear view mirrors for cars.</i>