

PROGRESSION IN KNOWLEDGE – SCIENCE

The Big Ideas	Foundation - TBC	KS1	Lower KS2
Biology	Animals including humans – Be Inspired by Patricia Bath, Rebecca Lee Crumpler, Jane Cooke Wright, Flemmie Pansy, Asima Chatterjee and Margaret Strickland Collins, Ernest Everett Just, Charles H Turner, Jane Goodhall, Sir David Attenborough		
	<ul style="list-style-type: none"> • Name animals and their young (farm animals) • Observe and describe the life cycle of an animal – insect/ chick • Identify and describe how people grow and change (baby, child, teenager, adult, elderly person) 	<ul style="list-style-type: none"> • Identify, draw name and label the basic parts of the human body • Which part of the body is associated with each sense • A variety of common animals including fish, amphibians, reptiles, birds and mammals • A variety of common animals that are carnivores, herbivores and omnivores • The structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) • That animals, including humans, have offspring which grow into adults • The basic needs of animals, including humans, for survival (water, food and air) • The importance for humans of exercise, eating the right amounts of different types of food, and hygiene 	<ul style="list-style-type: none"> • Animals, including humans, need the right types and amount of nutrition • Animals cannot make their own food; they get nutrition from what they eat • Humans and some other animals have skeletons and muscles for support, protection and movement • Living things can be grouped in a variety of ways • Use of classification keys to help group, identify and name a variety of living things in their local and wider environment • Simple functions of the basic parts of the digestive system in humans • Different types of teeth in humans and their simple functions
	Plants – Be Inspired by George Washington Carver		
<ul style="list-style-type: none"> • Recognise deciduous and evergreen trees • Name the key parts of a flower/plant • Know some things a plant needs to survive 	<ul style="list-style-type: none"> • A variety of common wild and garden plants, including deciduous and evergreen trees • The basic structure of a variety of common flowering plants, including trees • How seeds and bulbs grow into mature plants • Plants need water, light and a suitable temperature to grow and stay healthy 	<ul style="list-style-type: none"> • The requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) • Variation from plant to plant • The functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers • Transportation of water within plants • Flowers and the life cycle of flowering plants, including pollination, seed formation and seed dispersal 	
Living things and their Habitats – Be Inspired by Charles Darwin			

	<ul style="list-style-type: none"> • Explore the natural world • Explore and describe local animal habitats • Recognise and begin to describe differences and similarities between living things 	<ul style="list-style-type: none"> • The difference between things that are living, dead, and things that have never been alive • Most living things live in habitats to which they are suited • Different habitats provide for the basic needs of different kinds of animals and plants, • Interdependency of animals and habitats • A variety of plants and animals in their habitats, including micro-habitats • How animals obtain their food from plants and other animals, using a simple food chain • Different sources of food 	<ul style="list-style-type: none"> • Habitats provide living things with what they need. • Recognise that environments can change and that this can sometimes pose dangers to living things • I can construct and interpret a variety of food chains, identifying producers, predators and prey
Chemistry	Everyday Materials – Be Inspired by Sir Humphry Davey		
	<ul style="list-style-type: none"> • Use senses in hands-on exploration of natural materials. • Explore collections of materials with similar and/or different properties • Talk about the differences between materials and changes they notice 	<ul style="list-style-type: none"> • Distinguish between an object and the material from which it is made • A variety of everyday materials, including wood, plastic, glass, metal, water and rock • A variety of everyday materials on the basis of their simple physical properties • The shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching • The suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses 	
	Rocks – Be Inspired by Mary Anning		
			<ul style="list-style-type: none"> • Fossil formation through things that have lived being trapped within rock • Soils are made from rocks and organic matter • Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties
States of Matter – Be Inspired by Antoine Lavoisier, Robert Boyle, Marie Curie, John Dalton			
			<ul style="list-style-type: none"> • Compare and group materials together, know whether they are solids, liquids or gases

			<ul style="list-style-type: none"> • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature • Some materials change state when heated or cooled • Research the temperature at which this occurs and record in celsius
Physics	Seasonal Change – Be Inspired by John Dalton (he was a chemist?)		
	<ul style="list-style-type: none"> • Understand the effect of changing seasons on the natural world 	<ul style="list-style-type: none"> • The four seasons and changes across them • Weather and day length associated with the seasons 	
	Forces and Magnets – Be inspired by Albert Einstein, Stephen Hawking and Isaac Newton		
	<ul style="list-style-type: none"> • Explore and talk about different forces felt. 		<ul style="list-style-type: none"> • Compare how things move on different surfaces • Some forces need contact between two objects, but magnetic forces can act at a distance • 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, • Identify some magnetic materials • Magnets have two poles • Relationship between attracting and repelling and magnetic poles
Light – Be Inspired by Isaac Newton, Euclid Lewis Latimer			
<ul style="list-style-type: none"> • Explore and comment on how colours change • Know that lights helps us to see and begin to explore light and dark (linked to day and night) 			<ul style="list-style-type: none"> • Light is required to see • Dark is the absence of light • Light is reflected from surfaces • Light travels in straight lines • Object are seen by reflecting light to the eye • Light from the sun can be dangerous (eye protection) • Shadows are formed when the light from a light source is blocked by a solid object

			<ul style="list-style-type: none"> • Patterns in the way that the size of shadows change
	Sound – Be Inspired by James West		
			<ul style="list-style-type: none"> • Association of vibration with how some sounds are made • Vibrations from sounds travel through a medium to the ear • Light & sound can be reflected & absorbed and enable us to see & hear • sounds get fainter as the distance from the sound source increases • Patterns between the pitch of a sound and features of the object that produced it • Patterns between the volume of a sound and the strength of the vibrations that produced it
	Electricity – Be Inspired by Michael Faraday, Benjamin Franklin and Nikola Tesla		
			<ul style="list-style-type: none"> • Identify common appliances that run on electricity • Electricity makes circuits work and can be controlled to perform useful functions • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers • Recognise some common conductors and insulators, • Associate metals with being good conductors • 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 • A switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
Working Scientifically	Asking Questions		
	<ul style="list-style-type: none"> • Ask simple questions about environment and things that change 	<ul style="list-style-type: none"> • Ask simple questions • Answer a question in different ways. 	<ul style="list-style-type: none"> • Ask relevant questions

Observing Measuring and Recording		
<ul style="list-style-type: none"> • Use senses to explore • Observe changes in animals and plants over time • Observe and comment on how things grow and change • Record observation through drawing and comment 	<ul style="list-style-type: none"> • Observe closely, using simple equipment • Identify and classify • Conduct simple tests. 	<ul style="list-style-type: none"> • Set up simple and practical enquiries (investigations) • Set up comparative and fair tests • Make systematic observations using simple equipment • Take measurements using standard units • Make systematic and careful observations using a range of equipment, including thermometers and data loggers
Concluding		
<ul style="list-style-type: none"> • Talk about what they see, using a wide vocabulary • Ask questions about what they see • Begin to sort and group objects by basic classification 	<ul style="list-style-type: none"> • Collect and record findings in a range of ways to answer questions using simple scientific language • Use observations and ideas to answer questions 	<ul style="list-style-type: none"> • Record findings using simple scientific language, drawings and labelled diagrams • record findings using keys, bar charts, and tables • Record, group and display evidence • Gather, record, classify and present data in a variety of ways to answer questions • Report on findings from enquiries, including oral and written explanations, of results and conclusions, and using displays and presentations • Record data about similarities, differences and changes related to simple scientific ideas and processes • use straightforward scientific evidence to answer questions or to support findings
Evaluating		
<ul style="list-style-type: none"> • To use their observations to make suggestions about how something could be changed to alter the outcome 		<ul style="list-style-type: none"> • Suggest possible improvements or further questions to investigate • use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions