Science Progression Document Class 2 (version Oct 2020)

Part 1 : Knowledge and Understanding

Progression consideration : green, blue, red, purple

Knowledge and Understanding		Intended Year	Theme / challenge question	Dates covered Record when planned into yearly overview
To be taught about:	**This might include:**			
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 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	2018-19 2019-20	**Off Piste :** transport of water **How good is change?** Parts of plants and flowers. Pollination **Remote learning** Hydroponics. Growing plants on mars	Oct / Nov 19
Animals (including humans) Animals (including humans) Animals including humans Animals including humans	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. 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 ; construct and interpret a variety of food chains, identifying producers, predators and prey.	2019-20	**Shark Guardian visit and follow up work.** Sharks body and features Food chains, predators and prey **Wind in the willows picnic:** making poo. Digestive system	Dec 19 / Jan 2020

	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 animals, including humans.		Making a model digestive system.	
Rocks	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.	2018-19	**What would it be like to live on our Island?** Different types of rocks, fossils, what soil is made of.	Jan / Feb 19
Light	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.	2020-21	**Is Plotting and Planning always marvellous?** Light travels in straight lines, objects are seen as they reflect light. Different types of light rays. UV / blacklight. Luminescence (creating a luminous object using photo and chemiluminescence.) Creating and explaining shadows.	October / November 2020
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	2018-19	**What would it be like to live on our Island?** Magnets have 2 poles. 2 magnets attract or repel depending on poles. Magnetic fields.	Jan / Feb 19

Forces	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.	2018-2019 2029-20	**Ancient Egypt week** Off piste (Egyptian week) egg investigation Potato launchers : WW2 theme / remote learning investigation What affects the depth of a moon crater? Remote learning investigation (meteorites)	May 2019 May 2020 May 2020
Living things and their habitats Living things and their habitats Living things and their habitats	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 process 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 microorganisms, plants and animals ; give reasons for classifying plants and animals based on specific characteristics	2018-19 2018-19 2019-20	**Can you persuade me?** Grouping living things. Classification. Microorganisams. **What would it be like to live on our Island?** Recognise change in environment **How good is change?** How sharks reproduce	April 19 Jan / Feb 19 Dec 19
States of matter Properties and changes of materials	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, and measure or research the temperature at which this happens in degrees Celsius (°C) ; identify the	2019-20	**How good is change?** Properties of solids, liquids, gases. How a steam engine works.	Oct 19

	part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. 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 ; know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a 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 this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	2019-20	Hydraulics. Steam engine.	
			Bamboo and panda week Various investigations on bamboo kitchen roll (absorbancy)	Jan 2020
			Shall we play walls and warriors? Water cycle	January 2020
			Shopping theme week Life cycle assessment of shopping bags. Consider materials/ resources and manufacturing and disposal and impact.	January 2020
			Shall we play walls and warriors? Building a dam: properties such as impervious, rigid, malleable.	March 2020
			Soap boat investigation : which substance might make the boat go the quickest?	March / April 2020
		2020-21		

			Is Plotting and Planning Always Marvellous? Properties of liquids and gases. Solubility (immiscible, soluble, more / less dense, dissolve) (chromatography) which colour inks are more soluble? Investigation : frobscottle – can bubbles go down? Changes resulting in formation of new substance (CO2) Investigations using popping candy	September / October 2020
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.			
Electricity 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	2018-19	**What was life like in the post-war era of the 1920s?** Focus on electric circuits. Lamps, switches, conductors and insulators. Dimmers, symbols	Nov/Dec 2018

	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.		**WWII remote learning theme** Create a coding machine using a circuit	June 2020
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.	2019-20	**Remote learning summer 2020 (no question)** All elements Including meteorites, satellites and probes, the history of space exploration, how to survive on mars, how we see the universe.	June 2020
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.	18-19	**What was life like on our island?** How animals adapt to suit their environment.	Feb – April 2019

Part 2 : Types of investigation (working scientifically)

Ensure the following are built into the long and medium-term planning documents. Include these in the short / medium term objective grids (to go into books.) Audit at least once a term

	Audit point 1 Date : Feb 19	Audit point 2 Date: July 19	Audit point 3 Date: Jan 20	Audit point 4 Date : Oct 20 (since last audit)		
Fair Test	X	X	X	X		
Exploring	X	X	X	X		
Pattern seeking	X	X		X		
Sorting, classifying, identifying		X				
Research	X	X	X	X		
Modelling	x	X	X	X		

Part 3 : Science skills

Ensure the following are built into the long and medium-term planning documents. Include these in the short / medium term objective grids (to go into books.) Audit at least once a term

	Audit point 1 Date : Feb 19	Audit point 2 Date: July 19	Audit point 3 Date: Jan 20	Audit point 4 Date : Oct 20		
Planning	X	X	X	X		
Obtaining	X	X	X	X		
Reporting	X	X	X	X		
Analysis	X	X	X	X		
Evaluating		X	X	X		