Red Hill Science Progression

Biology Plants Living things and their habitats Animals and humans Evolution and inheritance	Plants				
	EYFS	Year 1	Year 2	Year 3	
	There is a difference between animals and plants. Plants need water to grow.	Evergreen trees maintain their leaves throughout the year and deciduous trees shed their leaves in Autumn. Common flowering plants, including trees have key features including roots, trunk/stem, flowers and leaves Changes can be seen across the four seasons.	Plants need water, light and a suitable temperature to grow and stay healthy. Plants are suited to different conditions around the world Plants change over time	The function of the root is to give the plant stability Water is transported within plants through the stem. Flowers reproduce and disperse their seeds in different ways. Pollination, seed formation and seed dispersal all play a part in the flowers life cycle	
	Living things and their habitats				
	EYFS	Year 2	Year 4	Year 5	Year 6
	There is a difference between animals and plants. Some animals sleep during the winter and are called nocturnal Some animals sleep during the winter and are called nocturnal	Living things move, grow, consume nutrients and reproduce. Habitats are places where creatures live to provide food and shelter. A simple food chain follows the direction of a food source.	Animals can be grouped based on their physical characteristics. Classification keys use questions to sort and identify different living things. Changes to the environment can make it more difficult for living things to survive and reproduce.	There are differences in the life cycles of a mammal, an amphibian, an insect and a bird. Asexual reproduction takes place in some plants, Sexual reproduction requires male and female parts	Living things are classified into broad groups including microorganisms, plants and animals. Animals can be subdivided into classes of reptiles, amphibians, mammals, fish, birds, cold blooded and warm blooded A classification key can categorise living things
	Animals including humans				

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Some foods that are healthy and not healthy We need to wash our hands and brush our teeth to be hygienic. I need to get myself dressed. The human body parts include head, arms, legs, eyes, nose, mouth and they do different things	Our ears help us to hear, Our noses help us smell Our eyes help us see Our skin helps us touch Our tongue helps us to taste Common animals can be grouped into fish, amphibians, reptiles, birds and mammals. Common animals can be grouped into carnivores, herbivores and omnivores. Birds and mammals are warm blooded Fish, amphibians and reptiles are cold blooded	The basic needs of animals for survival include water, food and air. Exercise and eating the right amounts of different types of food is important for humans. Basic food groups include carbohydrates, fats, protein, dairy and fruits and vegetables	Humans and some animals have skeletons and muscles for support, protection and movement. Muscles work in pairs. A nutritious diet can be achieved in a variety of ways.	The digestive system helps us to digest our food. The digestive system includes the stomach, small/large intestine and the rectum A human has three types of teeth, incisors, canines and molars and these each perform different functions. Food chains include producers, predators and prey. Primary consumers are herbivores. Secondary consumers are carnivores.	Humans change as they develop to old age. Human bodies change as they go through puberty. Animals have different gestational periods compared to humans.	The human circulatory system circulates oxygen around the body. The heart includes ventricles, chambers, arteries and veins. Diet, exercise, drugs and lifestyle impact on the way bodies function. Nutrients and water are transported within animals including humans.
	Evolution and Inheritance						
	Year 6						
	Living things change over time and that this is called evolution. Fossils provide information about living things millions of years ago Living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Animals and plants are adapted to suit their environment						

Chemistry Materials Rocks States of Matter	Uses of Everyday Materials			
	EYFS	Year 1	Year 2	Year 5
	Ice melts when it gets hot. Water turns into ice when it freezes. Some materials float and some sink.	An object is made from/of a material. There are a range of materials including wood, plastic, glass, metal and rock. Materials have properties for example hard, bendy, soft Some materials are waterproof	Materials have properties that make them suitable or unsuitable for particular purposes. Some materials are absorbent The shapes of solid objects can be changed by squashing, bending, twisting and stretching.	Some materials will dissolve in liquid to form a solution Some substances can be recovered from a solution through evaporation Mixtures might be separated through filtering, sieving and evaporating. Some changes are irreversible
	Rocks			
	Year 3			
	There are three types of rocks: igneous, sedimentary and metamorphic. Fossils are formed when things that have lived are trapped within rock. Soils are made from rocks and organic matter.			
	States of Matter			
	Year 4			
	Materials can be grouped as solids, liquids or gases. Some materials change state when they are heated or cooled When liquids turn into gasses, this is called evaporation and the reverse process is called condensation.			

Physics Light Forces and Magnets Sound Electricity Earth and Space	Light		
	EYFS	Year 3	Year 6
	There is light and dark	Objects can be opaque, translucent or transparent. Light is reflected from a surface. Shadows are formed when light from the light source is blocked by an opaque object	Light appears to travel in straight lines. Objects are seen because they reflect light into the eye. Shadows have the same shape as the objects that cast them

		Shadows can change shape based on the height and direction of the light source	
	Forces and Magnets		
	Year 3		Year 5
	Friction causes different objects to move on different surfaces Magnets have two poles (north and south) Magnets attract or repel each other and attract some materials and not others.		Unsupported objects fall towards the Earth because of the force of gravity Gravity acts stronger when objects have more mass and are close together. Air resistance, water resistance and friction act differently between moving surfaces. Gears move in opposite directions to each other. Gears, Levers and Pulleys allow a smaller force to have a greater effect.
	Sound		
	EYFS	Year 4	
	There are different sounds around our environment	Sound is generated when an object vibrates. Vibrations from sounds travel through a medium to the ear. Volume of a sound can depend on the strength of the vibrations that produced it.	
	Electricity		
	Year 4		Year 6
	• A simple series electrical circuit includes cells, wires, bulbs, switches and buzzers. • Electrical current can flow if there is a complete circuit. • A switch opens and closes a circuit • Some materials are conductors and some materials are insulators		The brightness of a lamp is dependant on the number and voltage of cells used in the circuit. There are recognized symbols for a battery, bulb, motor, buzzer and wire.
	Earth and Space		
	Year 5		
	The Earth orbits around the sun in our solar system The moon orbits the earth		

	The Earth takes 365.25 days to orbit the sun The Earth rotates on its axis every 24 hours.

Working Scientifically

Working Scientifically							
	Designing Experiments						
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Observations	-Describe what they see, hear and feel whist outside. Explore the natural world around them, making observations	To know that the term observe means to watch someone or something carefully. To observe closely using simple equipment I.e. a pippet of water (supported).	To observe closely using simple equipment I.e. a magnifying glass.	To know how to use a range of equipment to make systematic and careful observations accurately, including metre sticks, rulers and stopwatches (supported).	To know how to use a range of equipment to make systematic and careful observations accurately, including apps, thermometers rulers and stopwatches.	To know how to take measurements using a range of scientific equipment with increasing accuracy and precision, including digital and analogue scales, stopwatches, Newton metres, measuring cylinders and beakers (supported)	To know how to take measurements using a range of scientific equipment with increasing accuracy and precision
Predictions	To suggest what might be the 'best' or 'worst.'	To predict what might happen (supported).	To predict what might happen.	To predict cause and effect (causal prediction).	To predict a trend (relationship prediction).	To use knowledge and understanding to	To use knowledge and understanding to make a hypothesis.

						explain a prediction (relationship).	
Equipment	To use a range of everyday items to investigate.	To use limited range of science equipment correctly (supported).	To use a range of scientific equipment correctly eg. pipettes	To select and use suitable equipment for the task (supported).	To select and use suitable equipment for the task.	To select equipment with the right scale for the task including weight and Newton Metres (supported).	To select and use equipment for increased precision.
Design	To suggest an idea to investigate with help. To follow a demonstration and spoken instructions (with support).	To suggest an idea to investigate and ask questions. • To know that we carry out a test to check our predictions. • To know the meaning of 'fair' and 'unfair' in an experiment (supported). • To follow a demonstration, spoken and picture instructions.	• To know that we carry out a test to check our predictions. • To know the meaning of 'fair' and 'unfair' in an experiment • To identify variables in an investigation (label and describe). • To follow short spoken and written instructions in order.	• To identify cause and effect in my investigation. • To know that in a fair test one thing is altered (independent variable) and one thing that may change as a result is measured (dependent variable) while all other things are kept the same (constant variables). • To know how to set up a fair or comparative test to explore and answer simple practical enquiries	• To plan a fair test by selecting variables to change and measure. • To know that in a fair test one thing is altered (independent variable) and one thing that may change as a result is measured (dependent variable) while all other things are kept the same (constant variables). • To suggest a data range and an interval for a variable. • To design and write a simple ordered method (from a plan).	• To plan a fair test and ensure controlled variables kept the same. • To suggest a data range, interval and sufficient readings. • To design an ordered method including controls variables, dependent variables and constant variables	• To plan a reliable fair test (use of variable terminology). • To plan to collect repeat readings for accuracy • To design and write an ordered reliable method (with repeated readings).

					• To know how to set up a fair or comparative test to explore and answer simple practical enquiries.		
Data, graphs and tables							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Data	To position numbers on a number track up to 20. To use non-standard units to measure and compare.	To gather and record data to help in answering questions using counters • To measure in nonstandard units and compare e.g. heavier/lighter.	To gather and record data to help in answering questions eg. tally To measure in standard units (including length)	To measure unmarked divisions on a number line or metre stick • To measure and compare values units in standard units.	To measure divisions on a thermometer below zero (negative numbers).	• To measure and convert values in standard units (including area)	• To scale a number line on an axis • To measure and calculate with standard units
Tables	To use appropriate pictures and words to label items.	To compile a simple table with an adult by recording in numbers.	To use a simple table recording in words and numbers (e.g. tally). To organise information into venn diagrams	To use a frame to construct a simple table of results.	To plot information into a venn diagram and carroll diagram	To use a frame to construct a complex table of results.	To construct a table to show repeated data.
Graphs		To use a frame to add to block charts. To add to block charts by counting up	• To construct simple block charts. • To use the scale on a block chart to add the correct blocks	To use a frame to construct a bar chart (supported). - To draw bars on a bar chart.		To use a frame to construct a bar graph and to scale axes (with support).	To construct graphs and to scale at least one axis independently.
Conclusions							
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

Patterns	To recognise, create and describe simple patterns (e.g. size). To begin to use 'more' or 'less' to compare observations	To recognise, create and describe number patterns. To begin to use 'more' or 'less' to compare numbers.	To describe simple features and patterns in data • To see obvious differences in sets of numbers.	To describe simple patterns in data, charts and graphs. • To see subtle differences in sets of numbers.	To describe simple patterns, trends and relationships in data. • To see differences (error) in repeated data.	To describe patterns, trends and relationships in data. • To spot anomalous data that doesn't fit the pattern. • To use test results to make predictions to set up further comparative and fair tests (supported).	To describe changing patterns, trends and relationships. • To use test results to make predictions to set up further comparative and fair tests.
Conclusions	To talk about changes that I observe during activities. To explore, 'what if...' questions through play.	• To describe the changes that are happening. • To suggest answers to questions using their observations and ideas (supported).	• To describe the changes that have happened. • To suggest answers to questions using their observations and ideas. • To suggest a different way to do things (supported)	• To describe results by linking cause and effect. • To gather, record, classify and present data in a variety of ways to help in answering questions (supported). • To use scientific evidence to answer questions or to support their findings (supported). • To suggest improvements to the method	• To describe trends and begin to use scientific knowledge to explain. • To gather, record, classify and present data in a variety of ways to help in answering questions. • To use scientific evidence to answer questions or to support their findings. • To suggest sensible improvements to the method and raise further questions.	• To use data in my conclusion and use science to explain. • To know how to report and present findings from enquiries in a variety of oral and written forms (supported). • To know how to identify scientific evidence that has been used to support or refute ideas or arguments (supported). • To identify strengths and weaknesses and improvements	• To use data and science ideas in my conclusions. • To know how to report and present findings from enquiries in a variety of oral and written forms. • To know how to identify scientific evidence that has been used to support or refute ideas or arguments. • To suggest limitations (data) and practical improvements.