Development of Science Knowledge at George Spicer

Year Group	Plants	Humans and animals	Materials and states of matter	Living things and their habitats/ Evolution and Inheritance.	Light	Electricity	Forces
6		Biology -Identify the main parts of the human circulatory system. -Describe the functions of the heart, blood vessels and blood. -Recognise the impact diet, exercise, drugs and lifestyle has on the body. -Describe the ways nutrients and water are transported within animals and humans. Biology - Describe the life process of reproduction in humans.	Physics -Compare and group materials based on their properties. (solubility, conductivity, response to magnets) -Know that some materials dissolve and can describe how to recover the substance. -Use knowledge of solids, liquids and gases to decide how mixtures should be separated. -Demonstrate that changes of state are reversible changes. -Understand that some changes result in the forming of new materials.	Biology -Describe how living things are classified according to characteristics, similarities and differences. -Give reasons for classifying plants and animals based on specific characteristics. -Recognise that living things have changed over time and that fossils can give us lots of information about the past. -Identify how animals and plants are adapted to suit their environment and this may lead to evolution.			
5	Biology -Describe the reproductions of some plants and animals.	Biology -Describe the changes as humans develop to old age.		Biology -Describe the differences in the lifecycles of mammals, amphibians, insects and birds.	Physics -Recognise that light travels in straight lines and use this to explain how objects are seen. -Explain how light travels from light sources to our eyes. - Use knowledge of light travelling in straight lines to explain the shape of shadows.	Physics -Associate the brightness of a lamp or volume of a buzzer with the number and voltage of cells used in a circuit. -Compare and give reasons for variations in how components function. Use recognised symbols when representing a circuit.	Physics -Understand how gravity impacts unsupported objects. -Identify the effects of air resistance, water resistance and friction. -Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.
4		Biology -Describe the simple functions of part of the human digestive system. -Identify types of teeth and explain their function. -Construct and interpret food chains.	Physics/chemistry -Compare and group materials together based on whether they are solids, liquids or gases. -Observe that some materials can change state when heated or cooled and can measure the temperature.	Biology -Use a classification key to identify and group living things. -Recognise that the environment can be a danger to living things.		Physics -Construct a simple electrical circuit. -Identify the parts of a circuit. -Problem solve, identify if things will buzz/turn on in a circuit. Recognise some common conductors and insulators.	
3	Biology -Identify and describe the functions of different parts of a plant. -Identify the plants requirements for life. (air, light, water, nutrients, room) -Investigate how water is transported in plants. -Explore the flowers role in the plant's lifecycle.	Biology -Understand that humans and animals get nutrition from what they eat. -Identify that humans and some animals have skeletons and muscles for support, protection and movement.			Physics -Recognise that they need light to see things. -Notice that light is reflected. _recognise that sunlight can be dangerous. -Understand how shadows are formed. -Find patterns in the way the size of shadows change.		Physics -Compare how things move on different surfaces -Compare and group objects based of whether or not they are magnetic. -Identify magnetic materials. -Predict if magnets will attract or repel depending on which poles are facing.
2	Biology -Observe and describe how seeds and bulbs grow.	Biology	Chemistry	Biology -Identify and describe habitats, explaining how they			

	-Describe how plants need water, light and a suitable temperature to grow.	-Describe the basic needs of animals and humans for survival. -Describe the importance of exercise, eating properly and hygiene.	-Identify and compare the suitability of a variety of materials for particular uses. -Find out how materials can be changed by squashing, bending, etc	provide the basic needs for different animals and plants. -Compare differences between things that are living, dead and have never been alive. -Describe how animals obtain their food from plants and other animals using the idea of a food chain.			
1	Biology -Identify and name a range of wild and garden plants. -Describe the structure of a variety of plants.	Biology -Identify, describe and compare common animals including fish, amphibian, reptiles, birds and mammals. -Identify basic parts of the human body.	Chemistry -Identify, describe and compare materials including wood, plastic, glass, metal, water and rock.				
R	Biology - Grow plants from seeds to observe the process. - Identify the main parts of a plant, root, shoot, stem and leaves. - Beginning to name what a plant needs in order to grow.	Biology - Discuss healthy food choices and begin to understand the importance of a healthy diet. - To know that a good sleep routine is important to my health.	Physics - Changing states of water through seasonal changes e.g. ice to water	Biology - Life-cycle of a caterpillar to a butterfly by being involved in the process - Exploring the natural world around us, for example, nature walks to collect leaves.			

Stand Alone Science Units

EYFS	**Year 1:**	**Year 3:**	**Year 5:**	**Year 6:**
Physics Seasonal changes: -Observe seasonal changes by exploring the natural world around us to experience these first hand. -Observe and describe weather.	Physics Seasonal changes: -Observe changes across the 4 seasons. -Observe and describe weather.	Chemistry Rocks: -Compare and group different kinds of rock. -Describe how fossils and formed. -Recognise that soil can be made from rocks and/or organic matter.	Physics Sound: -Recognise how sounds are made and how they travel. -Find patterns in the pitch and volume of a sound and the features and strength of vibrations of the object that produced it.	Physics Space -Describe the movement of the Earth and some planets relative to the sun. Describe the movement of the moon relative to the Earth. -Use the idea of the Earth's rotation to explain day and night.

Development of Scientific Skills at George Spicer

	EYFS, Year 1 and 2:	Year 3 and 4:	Year 5 and 6:
Classification	-identifying and classifying		
Enquiries and questioning	-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	-planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
Experiments and tests	-performing simple tests	-setting up simple practical enquiries, comparative and fair tests	
Making observations	-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	-using their observations and ideas to suggest answers to questions -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 findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	-recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs
Use of data		-using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions -reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions -identifying differences, similarities or changes related to simple scientific ideas and processes -using straightforward scientific evidence to answer questions or to support their findings	-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 -identifying scientific evidence that has been used to support or refute ideas or arguments