Science at Beechwood Primary School

By the end of studying Science at Beechwood Primary School, children will be able to talk about the below themes which they cover through Biology, Chemistry and Physics:
In Biology, the children will discover and learn about animals including humans, plants, living things and their habitats and evolution and inheritance.
In Chemistry, the children will explore everyday materials, rocks, states of matter and properties and changes in materials.
In Physics, the children will study forces, light, electricity, sound and Earth and space.

Practical investigations will be planned in each topic to provide children with the opportunity to apply their core knowledge, deepen their understanding and make links with prior learning. Through the investigations children will be required to apply scientific enquiry skills; questioning, predicting, concluding, testing, identifying and classifying, recording, observing and measuring.

Children in Year 1 and Year 5 will complete the Star and SuperStar CREST awards by completing 8 challenges which explore a variety of different science topics and inspire children to work and think like scientists and engineers.
We are proud to be a partner school of Ogden Trust, growing the science capital of our children through collaboration with other Halton schools. We will be working collaboratively with the partnership to promote the teaching and learning of physics.

Key Themes	Year Group Covered						
	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Animals including Humans							
Plants							
Materials							
Seasonal changes							
Living things and habitats							
Rocks							
Forces							
Light							
Electricity							
Sound							
Earth and Space							
Evolution and Inheritance							
Investigations							

Units and End Points		
EYFS	**Understanding the world (ELG)** *Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.*	
Year 1	**Animals inc. humans** *Classify animals/amphibians/reptiles. Mammals. Fish and birds* *Know and classify herbivore/carnivore/omnivore* *Know and sort living and non living* *Know and name parts of body that can be seen*	**Plants** *Know and name wild and garden plants* *Know and name petals, stem. Leaves and roots* *Know and name roots, trunk, branches and leaves*
	Everyday materials *Know and name materials an object is made from* *Know properties of everyday materials*	**Seasonal changes** *Name seasons and explain typical type of weather for each*
Year 2	**Living things and habitats** *Classify living/dead/never lived* *Habitats provide basic needs for plants and animals* *Match living things to habitats. Name different sources of food* *Know and explain simple food chains*	**Animals inc. humans** *Know basic stages of life cycle in animals inc humans* *Know why exercise, a balanced diet and good hygiene is important*
	Plants *Know and explain how seeds/bulbs grow into plants*	**Everyday materials** *Know how materials can be changed by squashing, bending, twisting and stretching.*

<table>
<tr><td></td><td>Know what plants need in order to grow and stay healthy</td><td>Know why a material might or might not be used for a specific job</td></tr>
<tr><td rowspan="3">Year 3</td><td><u>Animals inc. humans</u>

Importance of a nutrition balanced diet
How nutrients, water and oxygen are transported in animals/humans
Skeletal and muscular system in humans</td><td><u>Plants</u>

Function of different parts of a flowing plant/tree
Water is transported within plants
Life cycle of plant – importance of flower</td></tr>
<tr><td><u>Rocks</u>

Compare/group rocks based on appearance/physical properties
Know how soil is made/how fossils are formed
Difference between sedimentary/metamorphic/igneous rock</td><td><u>Forces</u>

How objects move on different surfaces
Simple pulley works
Contact/non-contact force
Magnets – attract/repel</td></tr>
<tr><td colspan="2"><u>Light</u>

Dark is absence of light
Need light to see
Reflected from a surface
Demonstrate/explain shadows
Dangers of direct sunlight</td></tr>
<tr><td>Year 4</td><td><u>Animals inc. humans</u>

Identify and name parts of human digestive system.
Know the functions of organs in human digestive system
Identify and know different types /functions of human teeth.
Use and construct food chains to identify producers, predators and prey</td><td><u>Living things and habitats</u>

Use classification keys to group/identify/name living things
Know how changes to an environment could endanger living things</td></tr>
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	States of matter *Group materials based on their state of matter (solids, liquid, gas)* *Know the temperature materials change state* *Know and explore how materials can change state* *Know about evaporation/condensation in water cycle.*	**Electricity** *Identify and name appliances that require electricity to function* *Construct a series circuit* *Identify/name components in series circuit* *Predict/test whether lamp will light* *Know function of switch* *Differences between conductor/insulator with examples*
	Sound *Know how sound is made – vibrating* *Know sound travels from source to ears* *Correlation between pitch and object producing a sound* *Correlation between volume and strength of vibrations* *Know what happens to a sound as it travels away from its source.*	
Year 5	**Living things and habitats** *Know the life cycle of different living things – mammal, amphibian, insect & bird.* *Know the differences between different life cycles* *Process of reproduction in plants* *Process of reproduction in animals*	**Animals inc humans** *Timeline indicating stages of growth in humans*
	Earth & space *Know about and explain movement of Earth and other planets relative to the sun* *Know about and explain movement of the moon relative to Earth* *Know and demonstrate how day and night are created* *Describe the sun, earth & moon using term spherical* *Explain levers, pulleys and gears work*	**Forces** *Know what gravity is and its impact on our lives* *Identify and show effect of air and water resistance* *Identify and know effects of friction*

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<tr><td></td><td colspan="2"><u>Properties and changes in materials</u>

Compare and group materials based on properties – hard soluble, transparency, conductivity, electrical, thermal, magnetic
Know and explain how materials dissolve to form a solution
Know and show how to recover a substance from a liquid
Know and demonstrate materials can be separated
Reversible/irreversible changes
Changes can result in formation of a new material which is usually irreversible</td></tr>
<tr><td rowspan="3">Year 6</td><td><u>Animals inc humans</u>

Identify and name main parts of circulatory system
Know function of heart, blood vessels and blood
Know impact of diet, exercise, drugs, lifestyle on health
Know ways nutrients and water are transported in animals inc humans</td><td><u>Living things and habitats</u>

Classify living things into broad groups according to observable characteristics based on similarities and differences
Know how living things have been classifies
Give reasons for classifying plants and animals in specific ways</td></tr>
<tr><td><u>Electricity</u>

Compare and give reasons why components work /don’t work in circuits
Draw circuit diagrams using correct symbols
Know how number and voltage of cells in a circuit links to brightness of bulb or volume of buzzer</td><td><u>Evolution & inheritance</u>

Know how Earth and living things have changed over time
Know how fossils can be used to find out about the past
Know about reproduction and offspring
Know how plants and animals are adapted to suit their environment
Link adaptation over time to evolution
Know about evolution and can explain what it is</td></tr>
<tr><td colspan="2"><u>Light</u>

Know how light travels
Know and demonstrate how we see objects
Know why shadows have the same shape as the objects that cast them
Know how simple optical instruments work-periscope, telescope, binoculars etc</td></tr>
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In addition to the above, children will also have one off theme days to support their understanding and develop their skills.