

## **Science at Haworth**

At Haworth, we want all our children to have a passion for, and be excited by, Science. We encourage children to be inquisitive throughout their time at the school and beyond! We aim to achieve this through a carefully designed curriculum; fostering a healthy curiosity in children about our universe and promoting respect for living and non-living things. We believe science encompasses the acquisition of knowledge, concepts, skills and positive attitudes. Throughout the programmes of study, the children will acquire and develop the key knowledge that has been identified within each unit and across each year group, as well as the application of scientific skills. We ensure that the Working Scientifically skills are built-on and developed throughout children's time at school so that they can apply their knowledge of science when using equipment, conducting experiments, building arguments and explaining concepts confidently, whilst continuing to ask questions and be curious about their surroundings

We recognise that we are lucky to live in an area where we are surrounded by amazing grounds and landscapes, filled with endless habitats, animals and opportunities for discovery. As children move through Key Stage 1, they will acquire key knowledge in various topics which include animals, plants and everyday materials. Re-visiting these topics in Key Stage 2, children will build on previous knowledge, learning key facts about the parts of a plant, their function and importance to our world as well as being able to identify the key elements that plants need to be able to thrive. Children will begin to identify the nutritional needs of us as humans and will begin to explore the way the body works, focusing on key functions and processes such as the skeleton, the digestive system, teeth and circulatory system. By year 6, children will also be able to debate lifestyle choices and how the things we do impact upon our own bodies. Throughout Key Stage 2, children will also explore other exciting topics including light, sound, electricity and states of matter.

### **EYFS**

Children begin their scientific journey in EYFS where they begin to identify similarities and differences between objects, materials and living things as well as beginning to make observations of animals and plants and explain why some things occur. Long term planning ensures children deepen their knowledge and understanding across a range of areas such as investigating ice, light and shadows, and floating and sinking. Haworth children learn about living things, their environment, the world around them and the people who are important in their lives.

### **SEN**

At Haworth, we want all children to develop a love of Science and be hands-on investigators. Throughout school, science lessons/teaching are expertly adapted to ensure that learning is accessible to all children at Haworth Primary. This includes using technology, images, adapted equipment and additional scaffolds as required. Our staff have very strong, positive relationships with our children, knowing them on an individual basis, and are therefore able to design and implement bespoke adaptations when required.

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	In Nursery children are learning to: <ul style="list-style-type: none"> <li>- Use all their senses in hands on exploration</li> <li>- Explore collections of materials with similar and different properties</li> <li>- Talk about what they see using a wide vocabulary</li> <li>- Explore how things work</li> <li>- Plant seeds and care for growing plants</li> <li>- Understand the features of the life cycle of a plant and an animal</li> <li>- Begin to understand the need to respect and care for the natural environment and all living things</li> <li>- Talk about different forces they can feel</li> <li>- Talk about the changes they notice between materials and changes they notice</li> </ul>					
		Investigating ice	light and shadows	Floating and sinking	Planting and growing	The Life-cycle of a butterfly
Reception	In Reception children are learning to: <ul style="list-style-type: none"> <li>- Explore the natural world around them; making observations and drawing pictures of animals and plants</li> <li>- Describe what they see, hear and feel whilst outside</li> <li>- Understand the effect of changing seasons on the natural world around them</li> <li>- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;</li> <li>- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</li> </ul>					
Year 1/2 A	Everyday materials <ul style="list-style-type: none"> <li>- Materials</li> <li>- Wood</li> <li>- Plastic</li> <li>- Glass</li> <li>- Metal</li> <li>- Rock</li> </ul>	Everyday materials <ul style="list-style-type: none"> <li>- Comparing materials</li> <li>- Choosing materials</li> <li>- Impact of water</li> <li>- Which material would be best to...</li> </ul>	Animals including humans <ul style="list-style-type: none"> <li>- Common animals</li> <li>- Mammals</li> <li>- Fish</li> <li>- Amphibians</li> <li>- Reptiles</li> <li>- Birds</li> </ul>	Animals including humans <ul style="list-style-type: none"> <li>- Carnivores, herbivores and omnivores</li> <li>- Comparing and sorting animals</li> <li>- Parts of the human body</li> <li>- The five senses</li> </ul>	Plants <ul style="list-style-type: none"> <li>- Garden plants</li> <li>- Planting: broad beans</li> <li>- Wild plants</li> <li>- Flowering plants</li> <li>- Comparing plants</li> </ul>	Plants <ul style="list-style-type: none"> <li>- Trees</li> <li>- Evergreen trees</li> <li>- Deciduous trees</li> <li>- Identifying and sorting trees</li> </ul>

				- Exploring senses		
Year 1/2 B	<b>Uses of everyday materials</b> <ul style="list-style-type: none"> <li>- Objects and materials</li> <li>- Plastic</li> <li>- Wood</li> <li>- Which material is best?</li> <li>- Squashing, bending, twisting and stretching</li> </ul>	<b>Living things and their habitats</b> <ul style="list-style-type: none"> <li>- Living and non-living things</li> <li>- MRS GREN</li> <li>- Living things</li> <li>- Alive, dead or never lived?</li> <li>- Habitats</li> <li>- Grouping plants and animals</li> </ul>	<b>Living things and their habitats</b> <ul style="list-style-type: none"> <li>- Plant and animal adaptations</li> <li>- Explaining adaptations</li> <li>- Animals in our local environment</li> <li>- Habitats in our local environment</li> <li>- Microhabitats</li> <li>- Food chains</li> </ul>	<b>Animals including humans</b> <ul style="list-style-type: none"> <li>- Life cycles</li> <li>- Animals and their offspring</li> <li>- Stages of human life</li> <li>- Survival of animals</li> <li>- Eating healthy</li> <li>- Sleep</li> </ul>	<b>Plants</b> <ul style="list-style-type: none"> <li>- Seeds and bulbs</li> <li>- Seed and bulb growth</li> <li>- Life cycle of a plant</li> <li>- Germination</li> </ul>	<b>Plants</b> <ul style="list-style-type: none"> <li>- Flowering plants and light</li> <li>- What plants need to grow.</li> <li>- Plants and trees in our local environment</li> </ul>
Year 3/4 A	<b>Forces and magnets</b> <ul style="list-style-type: none"> <li>- Magnetic materials</li> <li>- Strength of magnets</li> <li>- Magnetism at a distance</li> <li>- Magnetism on different surfaces</li> </ul>	<b>Forces and magnets</b> <ul style="list-style-type: none"> <li>- Magnetic poles</li> <li>- The use of magnets</li> <li>- The Earth's magnetic field</li> <li>- A magnetic compass</li> </ul>	<b>Animals including humans</b> <ul style="list-style-type: none"> <li>- Balanced diets</li> <li>- Healthy diets of different animals</li> <li>- The human skeleton</li> <li>- How muscles work</li> <li>- Animals and their skeletons</li> <li>- Recognising different types of skeletons</li> </ul>	<b>Plants</b> <ul style="list-style-type: none"> <li>- Parts of a flowering plant</li> <li>- Water transportation</li> <li>- What a plant needs to survive</li> <li>- Dissecting a flowering plant</li> <li>- Flowers and the life cycle of a plant</li> </ul>	<b>Light</b> <ul style="list-style-type: none"> <li>- Light and sight</li> <li>- Reflection</li> <li>- Shadow formation</li> <li>- Why do shadows change size?</li> <li>- Shadow clocks</li> </ul>	<b>Rocks</b> <ul style="list-style-type: none"> <li>- Different types of rocks</li> <li>- Which type of rock would be best?</li> <li>- Permeability of rocks</li> <li>- Soil composition</li> <li>- Different types of soil</li> <li>- Fossil formation</li> </ul>
Year 3/4 B	<b>Electricity</b> <ul style="list-style-type: none"> <li>- Electrical appliances</li> <li>- Simple circuits</li> <li>- Complete circuits</li> </ul>	<b>Electricity</b> <ul style="list-style-type: none"> <li>- Conductors and insulators</li> </ul>	<b>Sound</b> <ul style="list-style-type: none"> <li>- Sound: near and far</li> <li>- How are sounds made?</li> </ul>	<b>Animals including humans</b> <ul style="list-style-type: none"> <li>- Food chains</li> <li>- Teeth</li> </ul>	<b>Living things and their habitats</b> <ul style="list-style-type: none"> <li>- Grouping living things</li> </ul>	<b>States of matter</b> <ul style="list-style-type: none"> <li>- Solids, liquids and gases</li> <li>- Gases</li> </ul>

	<ul style="list-style-type: none"> <li>- How does a torch work?</li> </ul>	<ul style="list-style-type: none"> <li>- Making a simple switches</li> <li>- Making a torch</li> </ul>	<ul style="list-style-type: none"> <li>- Sound: from source to ear</li> <li>- Volume and vibrations</li> <li>- Pitch and objects</li> <li>- How can we impact the pitch of a sound</li> </ul>	<ul style="list-style-type: none"> <li>- How can our teeth be damages?</li> <li>- Different types of teeth</li> <li>- The digestive system</li> </ul>	<ul style="list-style-type: none"> <li>- Vertebrates and invertebrates</li> <li>- Animal classes</li> <li>- Classification keys</li> <li>- Classifying living things in our environment</li> <li>- Changing environments</li> </ul>	<ul style="list-style-type: none"> <li>- Changing of states</li> <li>- Evaporation and condensation</li> </ul>
Year 5/6 A	<b>Properties and changes of materials</b> <ul style="list-style-type: none"> <li>- Grouping materials</li> <li>- Use of materials</li> <li>- Heat conductivity</li> <li>- Electrical conductivity</li> </ul>	<b>Properties and changes of materials</b> <ul style="list-style-type: none"> <li>- Dissolving</li> <li>- Reversible changes</li> <li>- Irreversible changes</li> </ul>	<b>Living things and their habitats</b> <ul style="list-style-type: none"> <li>- Life cycle of an amphibian</li> <li>- Life cycle of a mammal</li> <li>- Life cycle of an insect</li> <li>- Life cycle of a bird</li> <li>- Comparing life cycles</li> <li>- Flowering plant reproduction</li> </ul>	<b>Animals including humans</b> <ul style="list-style-type: none"> <li>- Gestation periods of animals</li> <li>- How a human foetus develops</li> <li>- Child development</li> <li>- Puberty</li> <li>- Adulthood and old age</li> <li>- The life cycle of a human</li> </ul>	<b>Earth and space</b> <ul style="list-style-type: none"> <li>- The solar system</li> <li>- Planets in our solar system</li> <li>- Beliefs about the solar system through time</li> <li>- The Lunar cycle</li> <li>- Day and night</li> <li>- Why do we have seasons?</li> </ul>	<b>Forces</b> <ul style="list-style-type: none"> <li>- Gravity</li> <li>- Friction</li> <li>- Air resistance</li> <li>- Water resistance</li> <li>- Levers</li> </ul>
Year 5/6 B	<b>Electricity</b> <ul style="list-style-type: none"> <li>- Electrical symbols</li> <li>- The impact of voltage and cells</li> <li>- How does the voltage affect the brightness of a bulb?</li> <li>- Compare and give reasons for variations in how</li> </ul>	<b>Living things and their habitats</b> <ul style="list-style-type: none"> <li>- Classifying animals</li> <li>- Linnaean and evolutionary taxonomy</li> <li>- Investigating taxonomy</li> <li>- Identifying trees</li> <li>- Trees in our local environment</li> </ul>	<b>Animals including humans</b> <ul style="list-style-type: none"> <li>- The circulatory system</li> <li>- How the heart works</li> <li>- Heart rate</li> <li>- Exercise, diet and the circulatory system</li> <li>- The impact of smoking</li> </ul>	<b>Evolution and inheritance</b> <ul style="list-style-type: none"> <li>- Mary Anning</li> <li>- The fossil record</li> <li>- How did Darwin develop his theory?</li> <li>- Evolution through</li> </ul>	<b>Light</b> <ul style="list-style-type: none"> <li>- Importance of light</li> <li>- How light travels</li> <li>- Light sources and reflection</li> <li>- How shadows are formed</li> </ul>	<b>Light</b> <ul style="list-style-type: none"> <li>- How do we see things?</li> <li>- Periscopes</li> <li>- Which objects can light pass through?</li> </ul>

	components function - Using recognised symbols when drawing diagrams	- Vegetative reproduction	- The impact of drugs and alcohol	natural selection - Inherited features - Plant and animal adaptations		
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