

Hartburn Key Science Concepts

At Hartburn Primary School the children learn science through a concept-based curriculum which enables them to identify connections between their learning. In the Early Years Foundation Stage, children learn scientific concepts through activities which enable them to explore the natural world around them. They do this through making observations; identifying similarities and differences; and learning important processes and change such as seasons and changing states of matter. The early years provides a variety of rich contexts in which children are exposed to and learn a wide range of vocabulary. These words form the beginnings of scientific concepts that will be built upon in subsequent years.

The curriculum in Key Stages one and two has been organised into four main concepts: Animals including Humans, Plants, Materials and Phenomena. The concepts have been sequenced in the curriculum over time which allows pupils to revisit and therefore build upon their knowledge in order for it to be embedded within their long- term memory. In addition to learning through concepts, working scientifically is also taught in a context which is appropriate for each concept.

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| Animals including Humans  |
| Plants  |
| Materials  |
|  Phenomena  |

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|  | Autumn | Spring | Summer | Working scientifically |
|  | Phenomena (Seasonal Changes) to be covered across all topics. | Observing CloselyPerforming TestsIdentifying and ClassifyingRecording Findings  |
| EYFS Cycle A | Me and My Community | Once Upon A TimeSparkle & Shine  | Starry Night | Dangerous Dinosaurs | Sunshine &Sunflowers | Big Wide World |
| Exploring Autumn |  | Winter Wonderland | Puddles & Rainbows | Shadows &Reflections | Splash |
|  | Phenomena (Seasonal Changes) to be covered across all topics. |
| EYFS Cycle B | Let’s exploreBuild it Up  | Marvellous MachinesPuppets & Pop Ups | Long Ago | Ready, Steady, GrowSigns of Spring | Animal SafariCreep, Crawl &Wriggle | On the BeachMove It |
| Expectation for the end of EYFS | Animals including Humans Identify different animals and their physical characteristics. | Plants Observe and draw different plants.  | MaterialsTo compare different materials and describe their properties. | Phenomena Recognise that plants and animals change over time.To recognise contrasting environments.To know there are different seasons.To know that states of matter can change (water and ice) |
| Y1&2 Cycle A | Everyday Materials | Human Senses | Seasonal Changes | Plant Parts | Animal Parts | Observing CloselyPerforming TestsIdentifying and ClassifyingRecording FindingsTypes of investigations |
| Y1&2 Cycle B | Human Survival | Habitats | Plant Survival | Uses of Materials | Animal Survival |
| Y3&4 Cycle A | Skeletal and Muscular Systems | Rocks & Soils(Topic Linked) | Forces and Magnets | Light and Shadow | Plant Nutrition & Reproduction | PlanningObtaining and Presenting evidenceConsidering evidence and evaluatingTypes of investigations |
| Y3&4 Cycle B | Digestive System | Sound | States of Matter | Grouping & | Electrical Circuits & Conductors |
| Classifying |
| Y5&6 Cycle A | Forces & Mechanisms | Earth & Space | Plant Life Cycles(Topic Linked) | Human Reproduction & Aging | Properties & Changes of Materials |
| Y5&6 Cycle B | Circulatory System | Electrical Circuits & Components | Evolution &  | Light Theory |
| Inheritance |

Please find below a list of concepts that the children at Hartburn focus upon in Science.

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| Concept | Progression through concepts. | Year group  |
| **Animals****Including Humans** | **Human Senses: In t**his project children will develop their knowledge from EYFS by learning that humans are a type of animal known as a mammal. **Human Survival:** In this project, children revisit learning about humans from **Human Senses and Animal Parts.****Animal Parts:** In this project children revisit and extend their learning about humans being animals from **Human Senses.****Habitats:** In this project, children will develop their knowledge from EYFS about what a habitat needs to provide.**Animal Survival:** In this project, children revisit and develop learning from **Habitats.****Grouping and Classifying:** In this project, children learn about classification keys and how they are constructed. They revisit and develop their learning from **Animal & Plant Parts** in Key Stage 1.**Skeletal and Muscular Systems:** In this project, children revisit learning about living things from the projects **Animal Parts, Animal Survival and Human Survival.****The Digestive System:** In this project, children revisit learning about carnivores, omnivores and herbivores taught in **Animal Parts and Animal Survival.****Human Reproduction and Aging:** In this project, pupils revisit learning from **Grouping and Classifying.****The Circulatory System:** In this project, children learn about the circulatory system and its main parts. They revisit and develop learning from **Human Senses, the Skeletal System & Muscular system and the Digestive System.****Evolution and Inheritance:** In this project, pupils revisit and extend their learning from **Grouping and Classifying.** They also build on their learning about Sexual Reproduction and Inheritance from **Human Reproduction and Aging.** | Year 1/2Year 3/4Year 5/6 |
| **Plants** | **Plant Parts:** In this project, children build upon their learning from EYFS projects about **plants as living things.** Inaddition, they also revisit **Seasonal Changes** to observe changes over time from winter to spring.**Plant Survival:** In this project, children revisit and develop their knowledge from **Plant Parts and Seasonal Changes.****Plant Nutrition and Reproduction:** In this project, pupils revisit **Plant Parts and Plant Survival.** In addition, they build upon their knowledge of life cycles from **Animal Survival.****Evolution and Inheritance:** In this project, children revisit and develop their learning from **Grouping & Classifying.** In addition, they build upon their knowledge about sexual reproduction and inheritance from **Human Reproduction & Ageing.** | Year 1/2Year 3/4Year 5/6 |
| Materials | **Everyday Materials:** In this project, children build upon their knowledge about **materials** from EYFS.**Uses of Materials:** In this project, children revisit and develop their knowledge from **Everyday Materials.****States of Matter:** In this project, children learn about solids, liquids and gases.**(Rocks, Relics and Rumbles**): In this companion project, pupils build upon their learning about **Everyday Materials** from Key Stage 1.**Properties and Changes of Materials:** In this project, pupils revisit earning about the properties of materials including magnetism and electrical conductivity. They also recap the reversible changes they have explored in **States of Matter.** | Year 1/2Year 3/4Year 5/6 |
| Phenomena | **Seasonal Changes:** In this project, children revisit and extend their learning from EYFS about the **four seasons** and the weather associated with each one.**Forces and Magnets:** In this project, children build upon their learning about the **properties of materials** from Key Stage 1.**Light and Shadow:** In this project, children are introduced to the phenomena of light. In addition, they build upon their prior learning about their knowledge of materials from **Properties of Materials and Forces & Magnets.** They also build upon their knowledge of **Seasonal Changes.****Sound:** In this project, children learn about how sounds are made and travel. It will extend their prior learning from what they learned about **Senses** in Key Stage 1.**Electrical Circuits and Conductors:** In this project, children learn about electricity and electrical conductivity as a property of M**aterials** for the first time.**Forces and Mechanisms:** In this project pupils revisit learning about contact and noncontact forces from **Forces & Magnets.** **Earth and Space:** In this project, children learn about the solar system and its spherical bodies. It extends their knowledge learnt from **Forces.****Electrical Circuits and Components:** In this project, children revisit their learning from **Electrical Circuits and Conductors.****Light Theory:** In this project, pupils revisit learning from **Light & Shadow and Earth & Space.** | Year 1/2Year 3/4Year 5/6 |