

St. Benedict's Primary School
SCIENCE
KNOWLEDGE AND SKILLS BUILDER

Science element from the National Curriculum – **MATERIALS**

Phase	Context for learning	Knowledge and Skills for Animals
EYFS	RECEPTION Topic Big Question Context	Skills Knowledge
KEY STAGE 1	Year 1 Spring 1 ILP Superheroes Context – Villains or Superheroes? Sorting images into comic villains and superheroes by key features Big Question What is a superhero? Programmes of Study Compare and group together a variety of everyday materials on the basis of their simple physical properties. Identify and Classify	Skills Observe objects, materials, living things and changes over time, sorting and grouping them based on their features. Knowledge Objects, materials and living things can be looked at and compared.
	YEAR 2 Autumn 2 ILP Land Ahoy! Context Abandon Ship! – Floating and Sinking Big Question How is an explorer different to a pirate? Programme of Study linked to EVERYDAY MATERIALS Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.	Skills Compare the suitability of a range of everyday materials for particular uses, including wood, metal, plastic, glass, brick, rock, paper and cardboard Knowledge A material's physical properties make it suitable for particular purposes, such as glass for windows and brick for building walls. Many materials are used for more than one purpose, such as metal for cutlery and cars. Skills Sort and group objects that float and sink. Knowledge Some objects float and others sink. Objects that float are typically light or hollow. Objects that sink are typically heavy or dense.

	<p>YEAR 2 Spring 1 ILP Muck, Mess and Mixtures Context: Investigating Melting Big Question What impact does heating and cooling have on materials? Programme of Study linked to EVERYDAY MATERIALS Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>YEAR 2 Autumn 1 ILP Street Detectives Context: Natural and Manmade Materials Big Question What do you find on a street? Programme of Study linked to EVERYDAY MATERIALS Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>YEAR 2 Spring 2 ILP Towers, Tunnels and Turrets Context: Sorting and Grouping Bridges Big Question What was life like inside a castle? Programme of Study linked to EVERYDAY MATERIALS Identify and classify.</p>	<p>Skills Observe what happens when a range of everyday materials, including foods, are heated and cooled, sorting and grouping them based on their observations.</p> <p>Knowledge Some foods, such as ice and chocolate, melt when heated, but then harden (solidify or freeze) when cooled.</p> <p>Skills Compare the suitability of a range of everyday materials for particular uses, including wood, metal, plastic, glass, brick, rock, paper and cardboard</p> <p>Knowledge A material's physical properties make it suitable for particular purposes, such as glass for windows and brick for building walls. Many materials are used for more than one purpose, such as metal for cutlery and cars.</p> <p>Skills Observe objects, materials, living things and changes over time, sorting and grouping them based on their features and explaining their reasoning.</p> <p>Knowledge Objects, materials and living things can be looked at, compared and grouped according to their features.</p>
<p>LOWER KS2</p>	<p>YEAR 3 ILP Mighty Metals Context: Magnetic Object Hunt Big Question How do different forces effect metals? Programme of Study Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.</p>	<p>Skills Compare and group materials based on their magnetic properties.</p> <p>Knowledge Some materials have magnetic properties. Magnetic materials are attracted to magnets. All magnetic materials are metals but not all metals are magnetic. Iron is a magnetic metal.</p>

	<p>YEAR 4 ILP Potions Context: Change of State – heating and cooling Big Question What is the difference between a solid, liquid and a gas? Programme of Study Compare and group materials together, according to whether they are solids, liquids or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)</p>	<p>Skills Group and sort materials into solids, liquids or gases. Knowledge Materials can be grouped according to whether they are solids, liquids or gases. Solids stay in one place and can be held. Some solids can be squashed, bent, twisted and stretched. Examples of solids include wood, metal, plastic and clay. Liquids move around (flow) easily and are difficult to hold. Liquids take the shape of the container in which they are held. Examples of liquids include water, juice and milk. Gases spread out to fill the available space and cannot be held. Air is a mixture of gases. Skills Observe and explain that some materials change state when they are heated or cooled and measure or research the temperature in degrees Celsius (°C) at which materials change state Knowledge Heating or cooling materials can bring about a change of state. This change of state can be reversible or irreversible. The temperature at which materials change state varies depending on the material. Water changes state from solid (ice) ⇌ liquid (water) at 0°C and from liquid (water) ⇌ gas (water vapour) at 100°C. The process of changing from a solid to liquid is called melting. The reverse process of changing from a liquid to a solid is called freezing. The process of changing from a liquid to a gas is called evaporation. The reverse process of changing from a gas to a liquid is called condensation.</p>
UPPER KS2	<p>Year 5 Spring Term 1 ILP Alchemy Island Context Examining samples from Alchemy Island Big Question Programmes Of Study Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</p>	<p>Skills Compare and group everyday materials by their properties, including hardness, solubility, transparency, conductivity (electrical and thermal) and magnetism. Knowledge Materials can be grouped according to their basic physical properties. Properties include hardness, solubility, transparency, conductivity (electrical and thermal) and magnetism.</p>