

<b>Materials</b>		
	<b>Skills and Knowledge</b>	<b>Key Vocabulary</b>
EYFS	<ul style="list-style-type: none"> <li>• make observations of common objects</li> <li>• make very simplistic observations of materials</li> <li>• arrange materials into groups</li> <li>• identify when changes occur e.g. when food is cooked</li> </ul>	
Year 1 Everyday Materials	<ul style="list-style-type: none"> <li>• name some common materials</li> <li>• name some common objects around the school and home</li> <li>• distinguish between an object and the material from which it is made</li> <li>• name materials which have lots of different uses (e.g. paper- wrapping paper, tissue paper, writing paper, birthday card)</li> <li>• identify some naturally occurring materials: wood, rock, water</li> <li>• identify some man-made materials: glass, metal, plastic</li> <li>• identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</li> <li>• describe objects that are made from lots of different materials</li> <li>• names objects that are sometimes made from different materials (e.g. spoons- plastic, wooden, metal)</li> <li>• make observations of common objects and the different materials they are made of</li> <li>• communicate these observations using descriptive words (e.g. bendy, rough, hard)</li> <li>• identify some properties of materials (e.g. see through, waterproof, absorbent)</li> <li>• describe the simple physical properties of a variety of everyday materials</li> <li>• make predictions about which materials will float and sink</li> <li>• compare and group together a variety of everyday materials on the basis of their simple physical properties (both visible and non-visible)</li> <li>• explain why people started using plastic bags rather than paper bags</li> </ul>	Seasons: Autumn, Spring, Summer, Winter, deciduous, evergreen, shoot, fruit, earth, seeds, leaves, flowers, weather types: rain, hail, snow, ice, frost, sun, showers, wind, reproduce, babies/adults, life cycles, birds, insects, cold, warm, hot,
Year 2 Use of Everyday Materials	<ul style="list-style-type: none"> <li>• identify uses of some common materials</li> <li>• give a reason why a material is suitable for its job</li> <li>• recognise that some materials will have more than one property which increases its suitability for its purpose (e.g. glass is transparent, rigid and weatherproof)</li> </ul>	Brick, cardboard, transparent, waterproof, insulate, keep warm, hard, rigid,

	<ul style="list-style-type: none"> <li>• identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</li> <li>• suggest several reasons why a material may or may not be suitable for a particular purpose</li> <li>• explain why one material may be more suitable for a purpose than another by discussing properties</li> <li>• explain why plastics cause problems in the oceans</li> <li>• explain the importance of reusing and recycling plastic</li> <li>• describe how swimsuits have changed over time and how the fabric is now more suitable</li> <li>• describe how scientists have invented new materials (e.g. Macintosh, Dunlop)</li> <li>• identify materials that can be easily changed with force Brick, cardboard, transparent, waterproof, insulate, keep warm, hard, rigid, strong, flexible, squash, stretch, twist, bend</li> <li>• identify materials that cannot be easily changed with force</li> <li>• describe pushes and pulls needed to change a material as big or small</li> <li>• find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</li> <li>• describe changes in shapes as a result of the action of pushes, pulls and twists</li> <li>• explain why some materials change shape when a force acts (i.e. push, pull, twist, stretch) as a result of their properties</li> </ul>	<p>strong, flexible, squash, stretch, twist, bend</p>
<p>Year 3 Rocks, Fossils and Soil</p>	<ul style="list-style-type: none"> <li>• observe the characteristics of a variety of rocks</li> <li>• name and describe the characteristics of several rocks</li> <li>• identify fossils in rocks</li> <li>• classify rocks from the evidence of investigations</li> <li>• explain that rocks are used for different purposes dependent on their physical properties</li> <li>• explain that different types of rock react differently to physical forces (e.g. water, rubbing)</li> <li>• compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</li> <li>• understand that there are rocks under the Earth's surface</li> <li>• relate the simple physical properties of some rocks to their formation</li> <li>• explain why certain rocks are used for different purposes and why some rocks could be used for these jobs for example:</li> <li>• Marble- kitchen worktops or statues</li> </ul>	<p>Rock, soil, marble, granite, sand, stone, slate, chalk, clay, texture, absorbed, permeable, pebble, characteristic, surface, organic, impermeable, crystal, grains, crumbly, igneous, sedimentary, metamorphic, fossil,</p>

	<ul style="list-style-type: none"> <li>• Slate roof tiles</li> <li>• Granite walls</li> <li>• explain how a model (e.g. biscuits, chocolate bars) can be used to represent sedimentary, metamorphic and igneous rocks</li> <li>• explain why we might find lots of the same types of rock in one place</li> <li>• describe in simple terms how fossils are formed when things that have lived are trapped within rock</li> <li>• describe how Mary Anning discovered fossils</li> <li>• explain why we do not see the soft parts of animals in fossils</li> <li>• recognise that soil is a mixture of different materials and living things</li> <li>• recognise that soil contains dead plants and animals</li> <li>• recognise that there is rock under all surfaces and that soils come from rocks</li> <li>• recognise that soils are made from rocks and organic matter</li> </ul>	
<p>Year 4 Solids, Liquids and Gases.</p>	<ul style="list-style-type: none"> <li>• name some solids and liquids</li> <li>• state that air is a gas</li> <li>• state some differences between solids, liquids and gases</li> <li>• recognise everyday substances as mixtures of solids, liquids and/or gases</li> <li>• recognise that air is a material and that it is one of a range of gases which have important uses</li> <li>• recognise that gases flow from place to place</li> <li>• know that gases can be easily compressed</li> <li>• describe the differences between solids and liquids</li> <li>• describe the behaviour and properties of gases</li> <li>• compares simple solids and liquids (e.g. in terms of ease of squashing or pouring)</li> <li>• compare and group materials together, according to whether they are solids, liquids or gases</li> <li>• make clear distinctions between the properties of solids, liquids and gases</li> <li>• explain why granular solids have some of the properties associated with liquids</li> <li>• explain why some substances are hard to classify as solids, liquids and</li> <li>• observe what happens to a variety of materials when they are heated (e.g. chocolate, ice cream, butter, water)</li> <li>• identify a wide range of contexts in which changes of state take place describe a few examples where these changes occur</li> </ul>	<p>Water, air, ice, milk, lemonade, juice, metal, solid, liquid, gas, pour, flow, change shape, squash, heat, cool, grain/granular, temperature, thermometer, freeze</p> <p>melt, boil, evaporate, condense, steam, smoke, sea water, properties, melting point, degrees Celsius,</p>

	<ul style="list-style-type: none"> <li>• recognise that for a substance to be detected by smell, some of it must be in the gas state</li> <li>• 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)</li> <li>• compare the boiling point of different liquids</li> <li>• state that ice, water and steam are the same material</li> <li>• identify the processes of melting, freezing, evaporation and condensation</li> <li>• describe what happens to water when it is heated and cooled</li> <li>• recognise that these processes can be reversed</li> <li>• describe how when ice melts it turns to liquid and how when water freezes it becomes ice</li> <li>• describe how these processes can be reversed</li> <li>• describe how liquids evaporate to form gases and how gases condense to form liquids</li> <li>• sequence the changes that happen in the water cycle</li> <li>• describe the water cycle in terms of these processes</li> <li>• explain the relationship between liquids and solids in terms of melting and freezing</li> <li>• explain the relationship between liquids and gases in terms of evaporation and condensation</li> <li>• identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</li> <li>• know that temperature can affect the rate of evaporation or condensation</li> <li>• describe the effect of temperature on evaporation</li> <li>• explain how changing conditions affects processes such as evaporation and condensation</li> <li>• identify a range of contexts in which changes take place (e.g. evaporation of puddles in the school playground or from clothes on a washing line, condensation in the bathroom)</li> <li>• explore the effect of salt on ice</li> <li>• explain why salt is put on the roads in winter</li> </ul>	
Year 5	<ul style="list-style-type: none"> <li>• observe and explore the properties of materials (e.g. hardness, transparency, magnetism, electrical and thermal conductivity)</li> <li>• identify some materials that are good thermal insulators and some everyday uses of these</li> <li>• recognise that metals are both good thermal and good electrical conductors</li> <li>• suggest why particular materials are used for different jobs depending on their properties</li> <li>• compare and group together everyday materials on the basis of their properties, including their hardness,</li> </ul>	Hardness, solubility, transparency, conductivity, thermal, insulation, dissolve, solution, separation, polymers, reversible,

	<ul style="list-style-type: none"> <li>• solubility, transparency, conductivity (electrical and thermal), and response to magnets</li> <li>• give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials,</li> <li>• including metals, wood and plastic</li> <li>• describe the properties of new materials (e.g. aerogel, silly putty, wrinkle-free cotton)</li> <li>• explain why some materials are good thermal insulators</li> <li>• recognise that salt or sugar dissolves in water but sand won't</li> <li>• name some materials that will and some that will not dissolve in water</li> <li>• recognise that although it is not possible to see a dissolved solid, it remains in the solution</li> <li>• describe melting and dissolving and give everyday examples of each</li> <li>• describe the difference between melting and dissolving</li> <li>• identify and explore factors that affect the rate at which a solid dissolves</li> <li>• recognise that an undissolved solid can be separated from a liquid by filtering</li> <li>• recognise that a solid can be recovered from a solution by evaporation</li> <li>• describe the properties of mixtures which can be separated by filtration</li> <li>• describe some methods that are used to separate simple mixtures</li> <li>• explain that when solids dissolve they break up so small they can pass through the holes in the filter paper</li> <li>• know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</li> <li>• use knowledge about how a specific mixture can be separated to suggest ways in which other similar mixtures might be separated</li> <li>• use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</li> <li>• recognise that inks and dyes are often mixtures of different colours and these can be separated by chromatography</li> <li>• explain why ink or dye moves up the paper in chromatography</li> <li>• recognise that dissolving is a reversible change</li> <li>• recognise that some changes can be reversed and some cannot</li> <li>• recognise that changes of state are reversible</li> <li>• demonstrate that dissolving, mixing and changes of state are reversible changes</li> <li>• observe and explore a variety of chemical changes (e.g. burning)</li> </ul>	<p>irreversible, evaporating,</p>
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|  | <ul style="list-style-type: none"><li>• identify whether some changes are reversible or not</li><li>• recognise dissolving as reversible</li><li>• classify some changes as reversible (e.g. dissolving) and others as irreversible (e.g. burning)</li><li>• recognise that irreversible changes often make new and useful materials</li><li>• recognise the hazards of burning materials</li><li>• describe what happens when acid and bicarbonate of soda are mixed</li><li>• explain that some changes result in the formation of new materials, and that this kind of change is not usually</li><li>• reversible, including changes associated with burning and the action of acid on bicarbonate of soda</li><li>• explain that in some cases the new materials made are gases and identify some evidence for the production of gases</li><li>• (e.g. vigorous bubbling)</li></ul> |  |
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