



STRAND – EVERYDAY MATERIALS/ STATES OF MATTER

<u>2/3 YEAR OLDS</u> • Explores different materials freely both inside and outside. • Will use talk to describe materials such as hot, big, hard, soft. • Will use talk to describe changes they see 'its all gone', 'it melt', 'it cold'	
<u>NURSERY</u> • Use all their senses in hands-on exploration of natural materials • Explore collections of materials with similar and/or different properties • Talk about what they see, using a wide vocabulary • Explore how things work e.g. pulleys • Explore & talk about different forces they can feel e.g. stretch, snap, rigid, magnetic repulsion, water pushing up when pushing a boat under it • Talk about the differences between materials and changes they notice e.g. cooking, melting, shadows, floating & sinking • Characteristics of liquids & solids e.g. cooking eggs, melting chocolate	<u>RECEPTION</u> • Observe & interact with natural processes, such as ice melting, a sound causing a vibration, light travelling through transparent material, an object casting a shadow, a magnet attracting an object & a boat floating on water • Use vocabulary to name specific features of the natural world, both natural & man-made • Notice & discuss patterns around them e.g. the effect of seasons on flora & fauna
<u>NATIONAL CURRICULUM OBJECTIVES</u>	<u>FORDBRIDGE SUGGESTIONS</u>
<u>YEAR ONE</u> • distinguish between an object and the material from which it is made • identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • describe the simple physical properties of a variety of everyday materials • compare and group together a variety of everyday materials on the basis of their simple physical properties	<u>Exploring materials</u> • make and record observations about materials • begin to name common materials and describe their properties. • distinguish between an object and the material it is made from. <u>Sorting and grouping materials</u> • know that materials can be used in a variety of ways • group materials together and make a record of groupings • know that materials can be sorted in a variety of ways according to their properties • know that materials are chosen for specific purposes on the basis of their properties



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	Material and their uses • know that there is a range of materials with different characteristics • develop the vocabulary needed to describe material properties More about properties • explore materials using appropriate senses, making observations and simple comparisons • know that objects made from elastic or malleable materials can be altered by squashing, bending, twisting and stretching • know that transparent objects let the light through but opaque objects do not Investigating materials • carry out simple tests • use their observations and ideas to suggest answers to questions • gather and record data to help in answering questions. • present the data in a suitable manner
YEAR TWO • identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	Changing the shape of material • revise work on materials from Year 1 • find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. Materials used for more than one thing, more than one material used for the same thing – spoons • compare and contrast the advantages of using different materials for the same object • list the uses of a particular material in and around school Natural and man-made, old and new materials • recognise that some materials are naturally occurring and some are not • name some naturally occurring materials • compare the range and use of materials in a different time period with their use nowadays



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	- describe in simple terms how and why the use of materials has changed Comparing the strength of crepe paper ropes - ask simple questions and recognise that they can be answered in different ways - performing simple tests - gather and record data to help in answering questions. Materials investigation - investigate the best paper for a food bag
YEAR FOUR - 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) - identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	Introducing solids, liquids and gases - Identify materials as solids, liquids or gases - Begin to assign properties to different states of matter Solids and liquids - Describe the properties of solids, liquids and gases - Know that solids consisting of very small pieces (e.g. sand) behave like liquids in some ways Gases - Know that there are gases all around us but they are invisible - State the properties of gases Melting and freezing - Know how to use a thermometer - Know that the same material can exist as both solid and liquid - Name the changes of state Evaporation - Set up simple comparative and fair tests to establish the factors that affect evaporation - Record findings using simple scientific language, bar charts and/or tables - Use results to draw simple conclusions The water cycle - Describe the water cycle in terms of changes of state



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YEAR FIVE

- 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
- know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- demonstrate that dissolving, mixing and changes of state are reversible changes
- explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda

Review of material properties

- Extend their knowledge of properties to include more abstract properties such as hardness, thermal and electrical conductivity, magnetic attraction
- Know that metals have similar, specific properties
- Match material properties to their use

Dissolving

- Know that some materials dissolve in water and others do not and give examples of both
- Know that a substance is still present in the solution when it has dissolved
- Describe ways in which dissolved substances can be recovered from solution

The Big Stink

- Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering and sieving
- Plan an investigation to determine ways in which solids can be removed from liquids
- Report the findings from their investigation into treating sewage including conclusions and explanations of their findings

Chemical change – burning

- Know that burning results in the formation of new materials including gases that we cannot see
- Know that chemical changes are usually not reversible
- Identify hazards associated with burning materials

Chemical change

- Recognise that chemical reactions form new substances and that this kind of change is not usually reversible
- Identify some changes as irreversible and explain reasons for doing so
- Identify substances through their chemical and physical changes



STRAND – EVERYDAY MATERIALS/ **STATES OF MATTER**