

Year 1 – Everyday Materials

Prior Learning	In Year 1 What they need to know	Later learning: Children do not need to be taught this year.	Key Vocabulary ASE
Children know about similarities and differences in relation to places, objects, materials and living things. They talk about features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes (Early Learning Goal 14).	• 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	In Year 2 pupils will be taught to: • 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	object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see through, not see through <i>tentative language: perhaps, maybe, I was wondering, Does anyone else think.....?</i>
		In Year 3 pupils will be taught to: • Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties • Describe in simple terms how fossils are formed when things that have lived are trapped within rock • Recognise that soils are made from rocks and organic matter	
		In Year 4 pupils will be taught: • 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: measure or research the temperature at which this happens in degrees C (°C) • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature	

Year 1 - Everyday Materials

		In Year 5 pupils will be taught: • Compare and group everyday materials based on their properties, including including hardness, solubility, transparency, conductivity (electrical and thermal) and magnetism • Know some materials dissolve in liquid to form a solution and describe how to recover a substance from solution • Use knowledge of solids, liquids and gases to decide how mixtures might be separated, 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 these changes are not usually reversible eg: changes from burning or the action of acid on bicarbonate of soda	
Common Misconceptions Some children may think: • only fabrics are materials • only building materials are materials • only writing materials are materials • the word 'rock' describes an object rather than a material • 'solid' is another word for hard.	Possible Famous Scientists to study within unit William Addis - Toothbrush Inventor Charles Mackintosh - Waterproof coat John MacAdam - roads Chester Greenwood - Earmuffs		

Year 1 - Everyday Materials

Working Scientifically Skills - What they need to be able to do

1. Ask simple questions 
2. Recognise that questions can be answered in different ways 
3. Perform simple tests 
4. Observe closely 
5. Use simple equipment 
6. Talk about what they have found out 

Images taken from Primary-Science and PSTT.org

Year 1 - Everyday Materials

Identifying and Classifying 	Comparative Testing Fair Testing 	Pattern Seeking 	Research 	Observation over time 
Which materials will float and which will sink? How can we sort these items? Which materials are attracted to a magnet? Classify objects made from the same material (e.g. lots of things made from plastic). • Classify one object made from different materials (e.g. cups made of different materials). • Classify different fabrics based on texture (e.g. to make a feely-book for a child). • Classify paper/plastics/fabrics.	Which materials are the most flexible? Which materials are the most absorbent? Which material would make the best umbrella? Which material would make the best chair? <i>Test objects made of different materials to see how effective they are e.g. umbrellas/hats/coats for waterproofness, cloths/nappies for absorbency, socks for elasticity, bounciness of balls, sunglasses for protection from the sun, picnic plates for stiffness, door mats for wiping your feet, different papers for writing on/painting etc.</i>	N/A	How are bricks made? Which materials can be recycled? What do we mean by recycling? How can we help?	What happens to materials over time if we bury them in the ground? What happens to shaving foam over time? What happens to a jelly baby over time?

Year 1 - Everyday Materials

Snap Science link to subject content -**Everyday Materials** (10 lessons)
Enrichment activities to be set as challenges weekend/half termly or additional enquiry opportunities

Main Enquiry type covered by SS: Identifying and Classifying, Research (secondary sources and Fair Testing.

Book links

Billy Goat's Gruff
 3 Little Pigs
 Dragon in a Wagon
 The 3 little pigs
 Cinderella - shoes

Big Cat book links

New from Old: Recycling Plastic
 Anthony Robinson
 978-0-00-741299-0
 Band 4 Blue

We all know recycling is important, but what actually happens to the things we recycle?

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Pupils could work scientifically by:

- Classify objects made of one material in different ways e.g. a group of object made of metal.
- Classify in different ways one type of object made from a range of materials e.g. a collection of spoons made of different materials.
- Classify materials based on their properties.
- Test the properties of objects e.g. absorbency of cloths, strength of party hats made of different papers, stiffness of paper plates, waterproofness of shelters.

By the end of the unit the children should know that.....(Sticky Knowledge)

- There are many different materials that have different describable and measurable properties.
- Materials that have similar properties are grouped into metals, rocks, fabrics, wood, plastic and ceramics (including glass).
- The properties of a material determine whether they are suitable for a purpose



Year 1 - Everyday Materials

_____ demonstrates during different activities that they can distinguish between an object and the material from which it is made. _____ identifies and names a variety of everyday materials, including wood, plastic, glass, metal, water, and rock consistently. _____ describes the simple physical properties of a variety of everyday materials during hands on exploration, as well as comparing and grouping them based on their physical properties. _____ uses evidence from their simple test to answer a question.

Secure learning Indicators **PLAN knowledge matrices**

Can label a picture or a diagram of an object made from different materials
 Can describe the properties of different materials
 Can sort objects and materials using a range of properties
 Can choose an appropriate method for testing an object for a particular property
 Can use their test evidence to answer the questions about properties e.g. Which cloth is the most absorbent?

Please see www.ase.org.uk for **PLAN supporting science assessment resources** (found also in **TEAMs**)

Knowledge

Expected (guideline pupils do not have to be able to do all of this, it isn't a tick list)

- knows that the term material does not just apply to fabric

Knowledge

Exceeding (includes material from next stage but does not have to be taught!)

- names objects that, e.g. metal could be used to make
- says that an item is made of metal but also identifies the

Assessment Indicators for working scientifically in Year 1 -Perform simple tests to compare and group (context -compare materials that float and sink)

WT:With support, they can say which objects float or sink during the test.

Secure: Children can carry out a simple test and describe what they find out through grouping the materials according to whether they float or sink.

Mastery: Children show a systematic approach to carrying out an investigation and record their findings independently.

Assessment Indicators for working scientifically in Year 1 - Recognise that sorting questions can be answered in different ways (context - testing reflective materials)

WT - Can sort materials into two groups but not clear or gives a reason for the sorting that doesn't link to very reflective/less reflective. Or may not use a single criterion to sort " these are colourful, these are shiny". May confuse reflection with properties e.g. transparency or bright colours.

Secure: Describe how they sorted the materials according to how reflective they are, and how other groups used different ways to sort the materials.

Mastery: Able to order the materials from the most to least reflective and explain how the test helped them decide on the sequence. Can comment on effectiveness of different ways to test or compare the objects. May suggest what property of the material causes the reflectiveness.

Year 1 - Everyday Materials

- recognises different common materials, <i>e.g. wood, plastic, glass, metal and rock</i> - identifies the material an object is made from, <i>e.g. a plastic knife, a wooden train, a glass ornament of a bird</i> - sorts a collection of objects according to the materials they are made of identifies common materials in their immediate environment, <i>e.g. outdoors can say the fence is made of wood, the bike shelter roof is made of plastic</i> - uses adjectives and their antonyms to describe materials such as hard/soft, stiff/bendy, shiny/dull, rough/smooth, waterproof/not waterproof OR describes materials using their own (correct) vocabulary, <i>e.g. see through, doesn't let water through</i> - sorts a collection of objects according to the simple physical properties of the materials - given two different materials can say, <i>e.g. which is the hardest, which is the roughest</i>	metal, <i>e.g. a gold ring, copper wire (or any other types of common materials)</i> - uses more complex adjectives to describe materials, <i>e.g. absorbent, transparent, opaque, flexible</i> - devises and explains their own method of grouping materials based on simple physical properties - sorts a collection of objects using more than one physical property of the material it is made from, <i>e.g. smooth and shiny, rough and hard</i>	<i>Please see primary science consultancy enrichment activities for additional resources in TEAMs, consider use of Activities - Explorify: Big Question, Mission Survive, problem Solvers, Mystery bag for challenging more able pupils.</i>
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