YEAR 1

Unit 1C Sorting and using materials

ABOUT THE UNIT

Through this unit children learn about the characteristics and uses of a range of common materials and vocabulary for describing and comparing materials.

Experimental and investigative work focuses on:

- thinking about what is expected to happen
- turning ideas into a form that can be tested
- making observations and comparisons.

Work in this unit also offers opportunities for using IT (see IT Unit 1D) to store information and for relating understanding of science to materials found in the home.

This unit takes approximately 9 hours.

WHERE THE UNIT FITS IN

Builds on Unit 1A 'Ourselves'

Children need:

- to know about the five senses
- to know vocabulary associated with the senses.

Links with Units 2D, 2E, art, design and technology.

VOCABULARY

In this unit children will have opportunities to use:

- names of materials *eg metal, plastic, wood, paper, glass, clay, rock, fabric, sand*
- words used to describe materials *eg hard, soft, rough, smooth, shiny, dull, magnetic, transparent, bendy, waterproof, strong*
- words and phrases for making comparisons *eg the same as, different from, harder, smoother*
- words which may have different meanings in a non-science context *eg group, material*
- expressions giving reasons using 'because'.

RESOURCES

- collection of common materials
- collection of wooden objects
- feely bags/blindfold
- collection of objects/materials to illustrate particular properties
- magnets of different types
- selection of papers and fabrics including some that are waterproof containers *eg yoghurt pots, margarine tubs, beakers/jugs for pouring water*

EXPECTATIONS

at the end of this unit

most children will:	name some common materials; make observations of these and of common objects, communicate these using terms *eg bendy, rough, hard*; suggest how to test an idea and say what the result of the test shows
some children will not have made so much progress and will:	make observations of common objects and communicate these
some children will have progressed further and will also:	suggest several reasons why a material may or may not be suitable for a particular purpose and predict the results of tests they are going to do

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LEARNING OBJECTIVES	POSSIBLE TEACHING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE
CHILDREN SHOULD LEARN		CHILDREN	
• that every material has many properties which can be recognised using our senses and described using appropriate vocabulary • to record observations of materials	◆ Ask children to handle a variety of objects and collections of objects *eg spoons, keys, wooden objects, papers, fabrics* and ask them to describe them *eg hard, soft, shiny, dull, bendy*. Introduce words children are not familiar with. Record *eg by writing descriptions round a picture of the object.*	• use words *eg hard, shiny, rough* to describe materials and objects	⚠ **SAFETY** – Glass objects should be avoided with young children but they could touch windows etc. ⚠ **SAFETY** – Do not use sharp objects.
• to ask questions and to explore materials and objects using appropriate senses, making observations and communicating these	◆ Ask children to suggest other senses they could use to find out what objects are like. Use feely bags or a blindfold game to encourage children to use senses of touch, hearing and smell to describe or identify materials. Ask children who are not blindfolded to ask questions *eg Is it hard, smooth, rough? Does it make a noise?*	• ask suitable questions about objects • describe materials in terms of senses *eg this feels smooth, this rattles when I shake it, I know this is soap because of its smell and feel*	
• that there are many materials and these can be named and described	◆ Present children with a collection of familiar materials *eg wood, metals, plastic, clay, sand* to observe. Talk about what the materials are like and name them. Ask children to go on a material hunt inside/outside the classroom and identify other objects made of the same material. Record results by drawing in groups with labels.	• name several common materials and describe them using terms *eg rough, hard, shiny* • identify different objects made of the same material and name the material	Children sometimes confuse the word 'material' with the word 'fabric'. Children often have difficulty in distinguishing the material from the object made from the material. It is helpful to have some pieces of material not made into particular objects.
• that objects are made from materials, and different, everyday objects can be made from the same materials	◆ Make a display of wooden objects choosing attractive or unusual objects, if possible. Invite children to add to the display. Discuss where the material to make the objects came from. Ask children to choose an object they particularly like and to use as many words as they can to describe it *eg how it feels, looks*. Build up collections *eg of plastic objects, metal objects, glass objects.* Label each set. Use simple reference books to find out more about each material.	• describe the object they chose *eg I chose this wooden egg, it's smooth, hard and won't break* • group together objects made of the same material and name the material	
• that materials can be used in a variety of ways • to group materials together and make a record of groupings	◆ Give children a collection of papers, cardboards, and challenge them to find different ways of grouping them *eg rough, smooth, shiny, dull.* Ask children to record *eg by sticking papers in sets and labelling* and to explain their groups.	• identify a common characteristic and make a simple record *eg grouping and labelling*	
• that materials can be sorted in a variety of ways according to their properties • to use appropriate vocabulary to describe materials	◆ Tell children you want to find a material to use *eg to make a window for a doll's house, to make a toy slide.* Ask children to suggest what the material would need to be like and sort out, from a variety of materials, which would be suitable and which would not. Ask them to explain the criteria they used *eg bendy/not bendy, transparent/not transparent, rough/smooth.* Record by drawing or sticking materials in sets and labelling or writing simple sentences.	• identify and name properties of materials *eg transparent, bendy, flexible* and sort into groups on the basis of these	
• that some materials are magnetic but most are not • to think about which objects they expect to be attracted to a magnet • to make observations, communicate what happened, and with help, use results to draw conclusions saying whether their predictions were right	◆ Give children some magnets to explore *eg fishing game, fridge magnets, 'wand' magnets to catch their attention,* and ask them to explore what objects are attracted to, or 'stick to', a magnet. Group objects by magnetic or non-magnetic behaviour. Present children with a range of objects, ask them to predict whether they will be attracted to a magnet, to test their predictions and make a record of what happened.	• identify some objects that are attracted to a magnet • predict which objects will be attracted to a magnet and say whether they were right • recognise that objects that are attracted to magnets are made of metal but that not all metal objects are attracted	Children need plenty of time to explore the magnets before they start grouping. At this stage children should learn that iron is attracted to a magnet but other metals and other materials are not attracted.

Continued overleaf

LEARNING OBJECTIVES	POSSIBLE TEACHING ACTIVITIES	LEARNING OUTCOMES	POINTS TO NOTE
CHILDREN SHOULD LEARN • that materials are chosen for specific purposes on the basis of their properties	◆ Ask children to draw a picture of their house or school or of themselves on a cold, wet day and label materials that parts of the house or their clothes are made from OR show children a large picture and ask them to attach labels to show what materials parts of the house/school/clothes are made from. Discuss with children why the materials are suitable and ask questions about unsuitable materials *eg 'Would this paper make a good rainhat?' 'Would you like a scarf made of this plastic bag?'*	CHILDREN • identify reasons for using materials for particular purposes *eg wood for doors because it is strong, wool for a scarf because it keeps me warm* • identify a range of materials and correctly associate them with properties and uses *eg glass, transparent, windows*	
• to suggest how to test an idea about whether a fabric or paper is suitable for a particular purpose	◆ Show children different fabrics and papers. Remind them of work they did earlier in grouping papers and ask for their ideas about which would be best for wrapping a parcel. Discuss what the material would need to be like *eg strong, easy to write on, easy to fold*. Discuss with children how they could find out which papers are *eg strong*. Give children different papers and ask children to test their ideas. Discuss what they did *eg by asking 'How did you try to find out?'*	• make a suggestion of what paper for wrapping a parcel should be like • suggest a way of testing the papers appropriate to the characteristic chosen	
• to suggest how to test whether materials are waterproof • to explore ways of answering the question • to communicate what they did and what happened, making simple comparisons • to use what happened to draw a conclusion and to say what they found out	◆ Give children a different selection of materials and say you want to make a toy umbrella. Ask them what the material for an umbrella would need to be like *eg waterproof, won't let water through*. Help children to decide how to test the materials *eg by exploring what happens using small quantities of water.* Ask them to compare how waterproof the materials are. Ask children to describe what they did and help them to tell others what they found out.	• recognise that an umbrella would need to be waterproof • find a way to decide whether a material is waterproof *eg putting a material on a table, adding a few drops of water and seeing if the table is wet, holding the material over a container and dropping water on it* and describe this to others • use their results *eg to order materials or to group materials into waterproof and not waterproof materials*	This activity offers children the opportunity to carry out a whole investigation. It may be helpful to concentrate on the aspects of investigation highlighted in the learning objectives.
	Review and bring together information *eg by helping children to make an information chart about materials and their uses for another class.* Ask children to suggest names of materials, characteristics *eg rough, transparent, magnetic,* and uses. This could be IT-based (see IT Unit 1B 'Using a word bank').		

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