

FIRST AND SECOND CLASSES – PROPERTIES AND CHARACTERISTICS OF MATERIALS

Teacher Guidelines: pp 123-128

Linkage:

- Living Things
- Materials and change - p 123 – effects of heating and cooling
- Light – materials that allow light through
- Heat – materials that conduct heat
- Magnetism and electricity – materials that are magnetic; materials that conduct electricity

Integration:

- Geography: Natural Environments – Weather
- Oral Language Development – English and Gaeilge
- Visual Arts
- History
- Maths - sorting

FIRST AND SECOND CLASSES – PROPERTIES AND CHARACTERISTICS OF MATERIALS

Content Objective:

- **IDENTIFY AND INVESTIGATE A RANGE OF COMMON MATERIALS USED IN THE IMMEDIATE ENVIRONMENT**

Food and its ingredients

Materials used to construct buildings

Materials used to make furniture

Materials used to make clothes

Materials used to make tools

Materials used to make toys, school equipment

Some suggested activities:

- Make rice crispy buns. Brainstorm what ingredients are needed to make them. Did you ever see anyone making a cake or bread? Can you remember the ingredients that were used to make it?
- Look at the materials used in the building of the school. Can you name them? Do you think the same materials would be used to build a house? Can you spot two things made from the same material?
- Examine some pieces of furniture in the school. What are they made from? How many materials can you name? Which material do you think is the strongest for making furniture? Do you think there are different types of wood? Examine these pieces of wood (chipboard, plywood, white deal, beech or ash) Do you notice any difference in them? Look at the grain in the timber. Which one would you choose to make a table/desk? Why? Make a rubbing of each piece. Are they all the same?
- Can you name the clothes you are wearing? What are they made from? Are they hard/soft wet/dry rough/smooth? Why do you think these items of clothing are made from the materials mentioned?

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Content Objective:

- **DESCRIBE AND COMPARE MATERIALS, NOTING THE DIFFERENCE IN COLOUR, SHAPE AND TEXTURE**

Some suggested activities:

- Make rubbings of different surfaces; walls, tarmac stones, bark of trees, doors, etc. Examine the different textures. Discuss and compare.
- Children compare four items noting difference in colour shape and texture. Draw the items on paper. Colour them in and add texture to your drawing. Make a picture with the drawings.
- Children examine one object. Is it shiny? Is it metal/glass? Can you see anything in the classroom made from the same material? Name one other thing made from the same material. Name one object you see that is different from this one. How is it different? (Colour, shape texture)
- Each group takes one object i.e. (a stone, a wooden spoon, a plastic toy, a piece of fabric). Each group describes the material in terms of it being warm/cold; rough/ smooth; soft/hard; Flexible/stiff, Magnetic/non magnetic.

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Content Objective:

- **BEGIN TO DISTINGUISH BETWEEN NATURAL AND MANUFACTURED MATERIALS**

Some suggested activities:

- From a selection of materials children guess which ones are natural materials and which ones are synthetic. (Materials could include a ball of clay, a piece of wood, a stone, a plastic bottle, a piece of paper, an aluminium can) Discuss the difference between natural and manufactured materials.
- Name/Find other materials which are natural/manufactured. Wool/acrylic, clay pot/plastic one. Feel these materials how are they different? Which one would you use/wear?
- Name/find six different objects made from the same/similar material e.g. Plastic or wood. What are they used for? Is there a connection between what the object is made of and what it is used for?
- Look at one object in the classroom e.g. the door. What is it made from? Is it a good material? Why? Suppose the door was made of iron, would iron be a good material for a door Why/Why not? Plastic? Paper? Glass?
- Examine a school bag, describe the properties of the materials of the bag and identify which are natural and synthetic.

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Content Objective:

• GROUP MATERIALS ACCORDING TO THEIR PROPERTIES

Flexibility, transparency, magnetism, strength

Some suggested activities:

- Children identify two items that are flexible; two that are transparent; two that are magnetic, and two that are strong. Why are these items made like this?
- Examine a coat hanger. What is it made from? Is it strong/weak? Will it bend? If you bend it will it break? Now look at a polythene bottle. What is it made from? Is it strong/weak, heavy/light/transparent? Is it flexible? Can it be damaged? How? Take a coat hanger and try to bend it. Try crushing the plastic bottle. What happened to both? Record your findings.
- Using a different set of materials for each group and taking two of the above properties at a time, divide the materials into 2 sets. Are there any materials common to both sets? Repeat for the next two etc. until the children have experienced all four properties. Using the Venn diagram group all of the materials. Which ones are common to all properties? Discuss.
- Using the same materials, discuss what colour they are. Is the material transparent, reflective, hard, soft, smooth, rough, does it smell? If you press it does it change shape? Can you pull it? Will it break easily?
- Examine water. What does it look like? What can we do with it? Can we freeze it? Predict what will happen to it in the freezer. Will it melt again? When/How? Is there anything else we can do with it? How can we make it hot? If we leave it boiling for a long time what will we see? What will happen to the water in the kettle? Introduction to water as a solid, liquid and gas.

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Content Objective:

- **IDENTIFY AND INVESTIGATE MATERIALS THAT ABSORB WATER AND THOSE THAT ARE WATERPROOF**

Investigate the absorbency factor of various fabrics and materials and design and make a new kitchen cloth or roll

Some suggested activities:

- Discuss what you would wear on a wet day and why. Look at a raincoat. Children might ask questions about how it feels does it soak up water does it keep water away. Then get a selection of materials and discuss the possibilities of “soaking” and “keeping out” with each material. Discuss how we might find this out.

Some suggested investigations:

- Using the same size piece of paper, cloth, soft plastic, and plasticine, the same amount of water, same size containers test the materials to find out which one soaks up the water best. See exemplar 41 Teacher Guidelines.
- Try this experiment again using some pieces of fabric, cotton, wool, nylon, and oilcloth. Predict what will happen this time.

Some suggested designing and making:

- A kitchen cloth. Which of the materials would you not use to make the cloth? Which ones will you use? Could you combine two materials? Which ones?

FIRST AND SECOND CLASSES – PROPERTIES AND CHARACTERISTICS OF MATERIALS

Content Objective:

- **BEGIN TO EXPLORE HOW DIFFERENT MATERIALS MAY BE USED IN THE CONSTRUCTION OF HOMES SUITED TO THEIR ENVIRONMENTS**

Homes, homes of animals, models, structures

Some suggested activities:

- Discuss the story “The three little pigs” and the suitability of the materials used to build the three houses. Discuss where straw comes from, and if the sticks were stronger than the straw etc. Which material was best? Why? Is your house the same? Which house was built fastest/slowest? Why? Look at different houses. How are they different? Size, shape, colour, texture of walls etc?
- Choose animals/minibeasts/pond animals/birds, common to the local environment. Where do they live? What are their homes like? What are they made of? Examine a bird’s nest. How was it constructed? What materials were used? Look at its shape colour and size. Is the size related to the size of the bird? Where was it found? Has the colour any special significance? Investigate habitats of minibeasts, garden snail, pond snail, earthworm, birds that nest in tall trees, hedgerows, or on the ground, and why they choose these places.
- Choose a larger animal e.g. rabbit, fox, otter. Examine the kind of home used. Why is it under the ground/on riverbank. What food does it eat and when/how does it get its food? What does it look like? Why is it this colour? Draw a picture of what one of these homes might look like. What colours will you use and why?
- Look around the classroom. Why do we use glass for windows? bricks or cement for walls? Tiles/slates for roofs? Wood for doors? Carpet tiles for floors? Metal for taps and sinks etc.