

Let's get technical!

The Primary School Curriculum acknowledges the impact that technology has on children's everyday lives. Designing and making in the SESE science curriculum is the technological element which encourages children to use their scientific knowledge and skills in order to solve a practical problem. Children do this by designing and making something that functions or works. During the process, children are provided with the opportunity to be creative and imaginative in the application of scientific skills and concepts. The strands of *construction* and *fabric and fibre* in the visual arts curriculum have much in common with the design and make element of the science curriculum. The materials and tools

to complete the task. Several craft handling skills such as cutting, joining, fastening and weaving are developed at this stage. For this reason careful supervision is required.

Evaluating

At this stage, the children examine how the finished model matches up with the original design proposal. They suggest improvements

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required will often be similar.

The skills that pupils might apply as they engage in designing and making are:

- Exploring
- Planning
- Making
- Evaluating

Exploring

Initially children engage in structured and unstructured play with materials, objects and models as they examine how familiar things work.

Planning

This skill involves the children in imagining, planning and designing the object that they have decided to make. At all class levels children should be encouraged to discuss and share their ideas in small groups.

Making

Once children have engaged in exploring and planning, the children may then produce what they have designed. They select the appropriate materials and

tools to complete the task. Several craft handling skills such as cutting, joining, fastening and weaving are developed at this stage. For this reason careful supervision is required.

ments to their designs consider ways of modifying their way of working and planning. The children also review the designs compared with other groups in the class. This article brings teachers through the process of designing and making using a practical example to illustrate how this area of skills application can be developed. It also outlines the materials required and the relevant curriculum objectives addressed.

Designing and making a fridge magnet

Strand: Energy and forces

Strand Unit: Magnetism

Objectives

The child should be enabled to:

- use magnets of different shapes and sizes in purposeful play to explore their effects on different material;
- investigate that magnets attract certain materials through other materials;

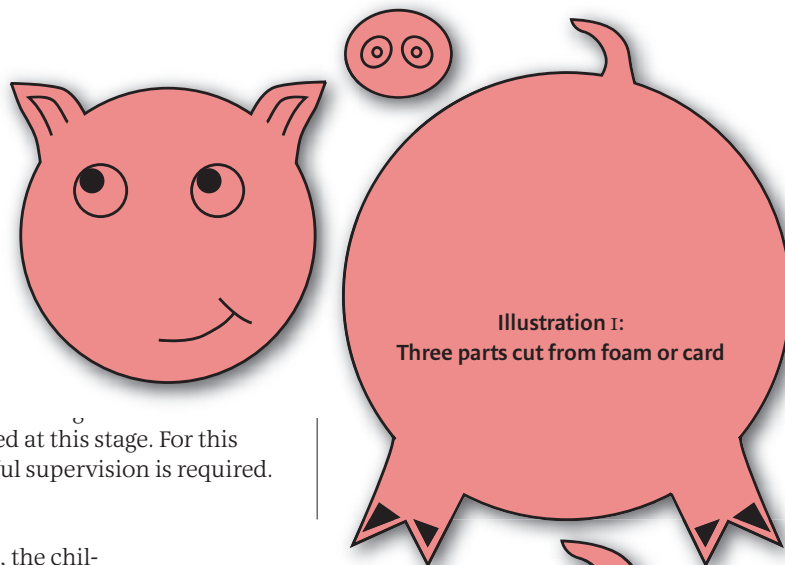


Illustration 1:
Three parts cut from foam or card

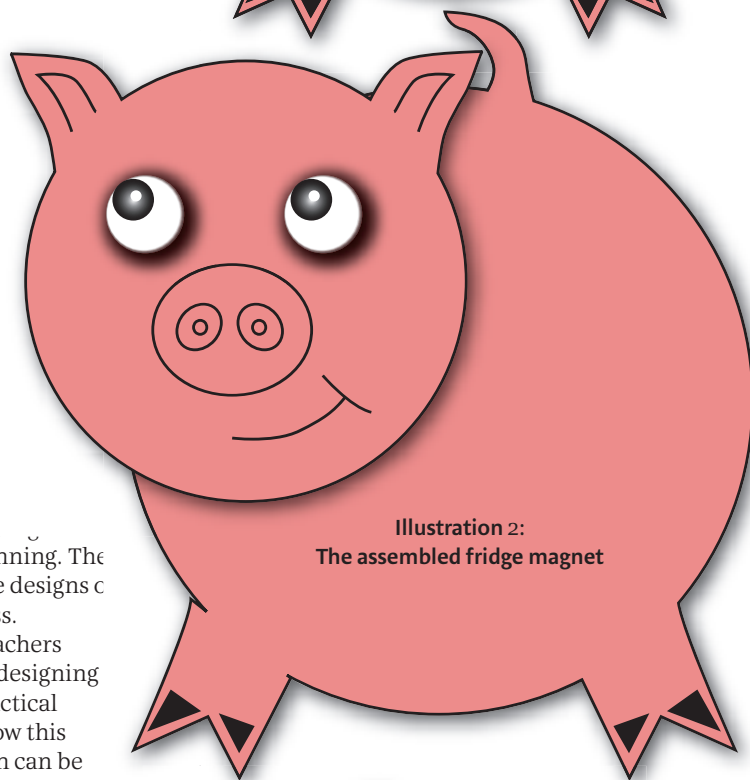


Illustration 2:
The assembled fridge magnet

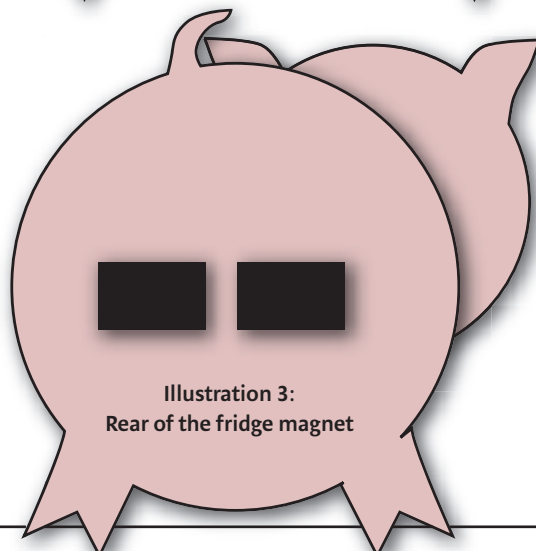


Illustration 3:
Rear of the fridge magnet

Setting the context

The teacher may begin by writing the word 'fridge magnets' on the blackboard. Next, the teacher should elicit children's ideas about fridge magnets using a concept map. In doing this, it is likely that the teacher will find that many children play with fridge magnets at home and use them to attach notes to the fridge. However, they may also discuss the challenges of fridge magnets ie some are heavy and cumbersome, fall to the ground and break. Now the children recognise that they have a problem to solve! They then can be encouraged to articulate the rationale behind the designing and making project. For example:

"I want to become better at my spellings so I will make a fridge magnet to hold up my weekly spelling list at home."

"We have fridge magnets at home but they are very heavy and they fall off the fridge."

"I need to make a lighter magnet – perhaps I can make a layered magnet." The challenge now is to design and make a fridge magnet to hold up a weekly spelling list.

Materials required

- Coloured pieces of foam or card.
- Pom- Poms.
- Plastic eyes.
- Plastic beads.
- Glue.
- Scissors suitable for cutting card and foam.
- Double-sided sticky pads.
- Magnetic strips cut into pieces of about 2cm long.

Step 1: Develop some criteria with the children through talk and discussion

- Decide on a theme for your fridge magnet eg animals.
- It must be made in layers to make it lighter.
- It must be strong enough to hold up a weekly spelling list.
- It must look colourful and attractive..

Step 2: Designing and making the fridge magnet

- The children **explore** the available materials (see list of materials below)
- They now identify a **design** for their work based on the agreed theme, for example a cat, a dog, a bear or a tiger.

- The children can now **plan** their fridge magnet by drawing what they expect the finished product will look like.
- The teacher can demonstrate the layered effect using double sided sticky pads to achieve depth. (see illustration 1)
- Children **make** the fridge magnet by layering the body, head and snout as in illustration 2.
- Children place magnets on the rear of the fridge magnet (illustration 3)

Step 3: Evaluating

Evaluating the finished product is crucial as it helps children to reflect on their efforts and is also a form of self-assessment. Children can revisit the criteria originally laid out for their magnet. The following list of questions may be generated to assess their work:

- Does it stick to the fridge?
- Can the fridge magnet hold up the spelling list?
- Is the theme clear?
- Does it look like the model in the drawing? Did the original design have to be altered?
- Is it well cut out and finished?

Use of magnets working through other materials

Fishing Game

This game can be made using laminated card cut into the shape of a fish. The fish are 'caught' by dangling a dowel rod with a magnet attached to the end. The fish could have mental maths problems or questions from other areas of the curriculum printed on them.

Car racing game

Small washers are placed on the underside of cardboard cars and a wand magnet is used to guide the cars along the tracks.

Mouse and maze game

A small metal washer is placed on the underside of the toy mouse and magnet strips under the box lead the mouse around the maze.

More ideas

For more information on designing and making, refer to the following pages

in the science curriculum:

- Infants – pages 22-23
- First/Second – pages 39-40
- Third/Fourth – pages 59-60
- Fifth/Sixth – pages 81-82
- Approaches to teaching designing and making – page 133 (*Teacher Guidelines*). Also, log on to the PCSP website at www.pcsp.ie.

Written by Primary Curriculum Support Programme team.