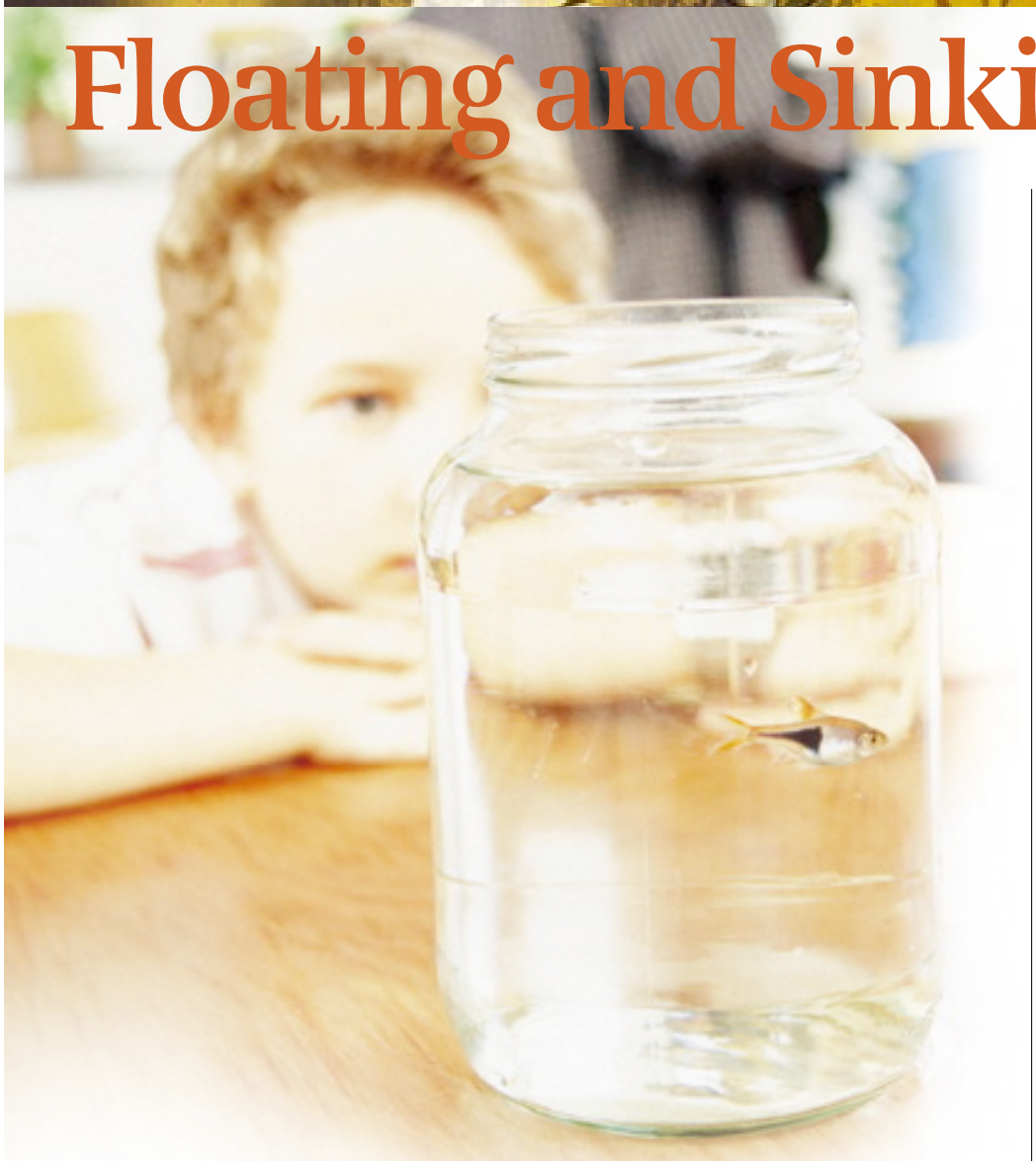
Floating and Sinking



This is the first of a series of articles on science activities, suitable for the primary classroom, written by the PCSP science team. We hope you enjoy trying them out. For further ideas visit our website www.pcsp.ie

Curriculum Strand:
Energy and forces
Strand unit: Forces

Why do some objects sink and some float? This is a great investigation for all age groups from infant to senior classes. Children enjoy working scientifically!

Equipment for floating and sinking

- Large container (preferably transparent), newspapers, old towel, kitchen roll.
- Two hula-hoops labelled 'Floater' and 'Sinker'.
- Variety of common objects of different sizes, shapes, weights and materials for example oranges, apples, wooden blocks, wooden and plastic clothes pegs, toys, metal and plastic spoons, edible nuts, balls of plasticine, plastic and wooden spools.

Boat activity: Balls of plasticine, marrowfat peas or marbles.

Classroom organisation

Children can work in groups discussing, predicting and sorting objects into the 'Floater' and 'Sinker' hoops. They can record their predictions on paper, individually or in groups. Each child can take a turn by placing objects into the appropriate hula-hoop and then into the container of water.

Starting with children's ideas

It is important to establish the children's ideas at the start of any science activity. This can be done through:

- teacher questioning and discussion;
- children drawing or writing down their ideas.

Background

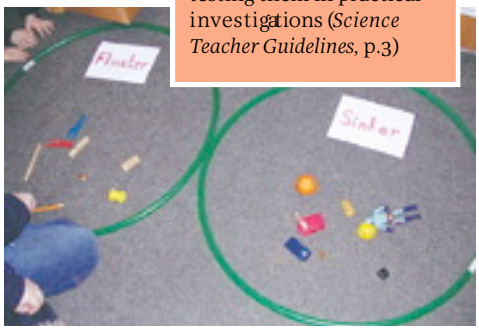
Some children may assume that objects float or sink because they are light, heavy, big or small. Encourage them to test their own ideas!

Key Message

Children begin from their ideas about how things are and they change and develop these ideas by testing them in practical investigations (*Science Teacher Guidelines*, p.3)

Science Skills

- Questioning
- Observing
- Predicting
- Investigating and experimenting
- Estimating and measuring
- Analysing
- Recording and communicating



DEVELOPMENT OF LESSON

Observing

Encourage the children to handle the various objects and to describe the attributes of each object for example, shape, texture, weight, size and type of material.

Predicting

Children can predict which objects will float or sink orally or by drawing them. Older children can be challenged to record how they think the objects will float or sink.

Questioning

Children enjoy the challenge of open questions. This approach tends to produce a rich variety of responses. Some of these open questions can form the basis for investigative work.

Suggested questions

- Which objects will float?
- Which objects will sink?
- Do all plastic objects sink?
- Do all wooden objects float?
- Do metal objects sink?
- Do all big/heavy objects sink?

Key Message

Asking questions is an essential part of understanding and developing an understanding of the environment. (*Science Teacher Guidelines, p.18*)

- Do all small/light objects float?
- Will all the sinkers be made from the same material?
- Does the shape of an object make a difference to whether it sinks of floats?

Sorting and Grouping

Children can sort and group the objects into 'Floaters' and 'Sinkers' by placing them in the appropriately labelled hula-hoop.

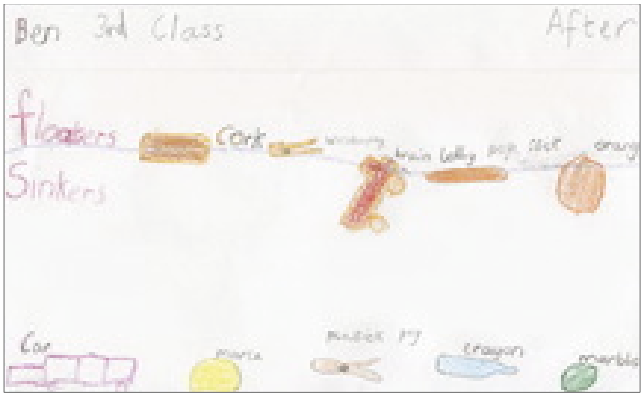
Investigating and observing

Children can investigate what happens when different objects are put into the large container of water. They can observe how the objects float, some float high and some float low in the water.

- Do all the floaters float in the same way?
- What are the floaters made of?
- Are floaters light, heavy, big or small?
- Can you make floaters sink? Children can experience the pushing force of water by pushing a ball into a sink full of water.
- Can you make sinkers float?

Recording

Children can draw which objects floated and sank. Older children can be encouraged to draw how the objects floated – high or low in the water. These can be compared with their earlier drawings and predictions. (see examples above).



Recording results in drawings

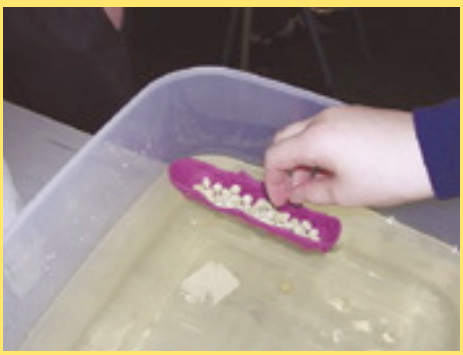
Analysing

In the infant and junior classes, children will develop their ideas about why some objects float and others sink in water.

Children in junior and middle classes should discover through their practical investigations that buoyancy depends on a combination of factors, such as the material the object is made of, its shape and the liquid in which it is placed. Children will discover that a material which normally sinks can be made to float by forming it into a hollow shape.

(See *Science Teacher Guidelines* p.13 for background information on floating and sinking)

See Exemplar 2 and Exemplar 30 *Science Teacher Guidelines* for more details on Forces.



EXTENSION ACTIVITIES

Children can explore whether shape is an important feature in floating objects. They can try to make materials such as plasticine or modelling clay float by hollowing it out. The 'best designed boat' can be judged by the number of marrowfat peas or marbles it can carry before sinking. This is a very enjoyable yet challenging activity.

Compiled by the Science Team of the Primary Curriculum Support Pro gramme. Visit their website at www.pcsp.ie for further ideas.