3. Changing runniness

60 mins

A teacher demonstration to show the effect of warming liquids on viscosity.

OBJECTIVES

- To show that the runniness of a liquid can be changed by warming.
- Observe that some materials change state when they are heated or cooled.

RESOURCES

(Per group of 4 children unless otherwise stated)

- Activity sheet 6
- 50 ml sample of a thick liquid e.g. foam bath, shampoo, shower gel
- Plastic coffee cup with holder
- Baby Belling/kettle

INTRODUCING THE ACTIVITY (5 MINUTES)

Remind the children of the letter and the request for assistance. Can they suggest ways liquids be made more runny? Questions to encourage discussion include:

- How could gravy/custard be made runnier?
- How could ice cream be made easier to scoop out of its container from the freezer?
- How can butter be made to spread more easily?
- How can acrylic paints be made thinner?

Gather the children's ideas and introduce the idea of warming the liquid if it has not been suggested. Discuss the validity of all the ideas presented. Hopefully, children will refer to their previous test; dropping a marble into a measuring cylinder of liquid, or pouring liquid through a funnel. Ask them to think of ways to find out whether warming a liquid makes it runnier.

MAIN ACTIVITY (45 MINUTES)

For safety reasons, this activity may be best carried out as a teacher demonstration. If the children are to carry out the test, the liquids must be warmed by the teacher. Activity sheet 6 gives an opportunity for the children to predict what might happen to the runniness of the liquids after warming.

The cup of liquid is warmed in a pan of heated water, and its temperature checked with a thermometer (should be kept below 50° C). Once warmed, the sample of the liquid is tested for runniness by pouring through a funnel or by dropping a marble into it. The other samples are tested in the same way.

Safety note

It is recommended that the liquid temperature not exceed 50° C.

PLENARY (15 MINUTES)

This activity should establish that the warmer the liquid, the runnier it is. The results of the experiments can be displayed on a block graph in a similar way to the previous experiments.