

Chippy Breath

After football
my dad buys me fish and chips
and my hot chippy breath
makes clouds in the air
and rain on the windows
of the bus
all the way home

I write the score
on the wet glass
- but only when we win.

Related poems:

Hot Pants
Thirsty Land

"Chippy Breath"

Discussion

Points

- ◆ Why does his or her breath make clouds in the air?
- ◆ What do we breathe out?
- ◆ Why does our breath sometimes make clouds in the air?
- ◆ What does that tell you about the air in the bus?
- ◆ What is the "rain" on the bus window?
- ◆ Why has his breath turned to water on the window?
- ◆ Where else have you seen this happen?
- ◆ There is a "water cycle" happening in the bus. How would you describe it to someone else?

Key

Ideas

- ◆ That water changes from a liquid to a gas called water vapour, which is in the air (evaporation).
- ◆ Evaporation is affected by the area of the surface from which the liquid is evaporating, and also by temperature.
- ◆ Evaporation can be reversed when the water vapour cools. This is called condensation.
- ◆ Evaporation and condensation are part of the water-cycle.

Science

Background

- ◆ Evaporation occurs when a liquid appears to "dry up".
- ◆ It does not need to be heated to a high degree for the liquid state to change to the gaseous state. Those molecules on the surface of the liquid, which have more energy, change to a colourless gas called water vapour, and move from the liquid into the air.
- ◆ The more liquid that is exposed to the air, the faster it will evaporate.
- ◆ When water is boiled, the gas phase is very hot (100°C).
- ◆ The gas is called steam and it is invisible.
- ◆ When water vapour or steam hits the colder air, the gaseous state turns back to the liquid state (condenses) and forms tiny droplets in the air.
- ◆ These droplets remain suspended as a fog, mist or cloud. If these tiny droplets hit a cold surface they coalesce further to form water.
- ◆ Evaporation occurs at low temperatures but increases as the temperature rises because the surface molecules have more energy and move away faster. As evaporation occurs it has a cooling effect on the remaining liquid.
- ◆ A cloud is the name for a volume of air well above ground where water vapour has condensed to form tiny water droplets or ice crystals. The rising air prevents them from falling, but as they grow bigger a point is reached where they are too heavy to be held in the air and they fall as rain, sleet or snow. This is called precipitation.

Science

Skills

Children should be able to :

- ◆ plan a fair test;
- ◆ following instructions correctly;
- ◆ use apparatus carefully;
- ◆ use a thermometer properly;
- ◆ work co-operatively in pairs or groups.

Key

Activities

Leave containers of water around the classroom to evaporate and observe what happens. Investigate whether temperature affects evaporation.

Ask the children to find out whether different liquids evaporate at the same rate, for example, vinegar or lemon juice.

Leave identical containers in places of different temperatures and measure the rate of evaporation. Older children can plot a line graph relating to temperature and amount evaporated over time.

Investigate whether the size of the surface area affects rate of evaporation. Children can use containers with openings of a different surface area which they can measure by drawing round on squared paper. They must keep the amount of water and temperature constant. Again, older children can plot a line graph.

Get the children to breathe on cold mirrors and discuss where the water droplets come from.

Demonstrate condensation with a boiling kettle and mirror. If you insert a thermometer just above the spout into the invisible steam, the temperature shoots to 100°C or above and drops as you move it into the visible water vapour.

Children are sometimes confused as to what steam is. As steam is an invisible gas, they need to be aware that the water droplets (condensation) they see when steam hits cooler air is water vapour and not the steam itself.

A water-cycle can be set up in a variety of ways. A beaker of water in a sealed polythene bag left in a warm place is the simplest. This can also be demonstrated by standing a dish of ice over a beaker of warm water. As the evaporated water vapour hits the bottom of the saucer, it collects and eventually falls in drops.

The part played by plant life can be demonstrated by putting a pot plant in a polythene bag. Eventually the polythene bag will cloud over due to condensation. This illustrates that plants give out water even though we cannot see it.

Safety : Be aware of the hazards when using thermometers and mirrors. The glass edges of mirrors must be covered. Take care when handling liquids. See ASE publication *Be Safe!* for information on all aspects of safety in school science.

Numeracy

Skills

Children should be able to :

- ◆ collect data;
- ◆ measure area accurately;
- ◆ produce a table;
- ◆ create a line graph;
- ◆ interpret a line graph.

Literacy

Skills

Children should be able to :

- ◆ write from their own experience;
- ◆ recognise how poets use words;
- ◆ read and interpret moods and feelings in poems.