

Investigation 13 Spiralling snakes

Radiators in our homes and schools work on the principle that hot air rises.

It is difficult to see hot air but this experiment will prove to you that it does rise.

YOU WILL NEED 30 sheets of A4 paper • A scissors • Pencils • Sewing thread •

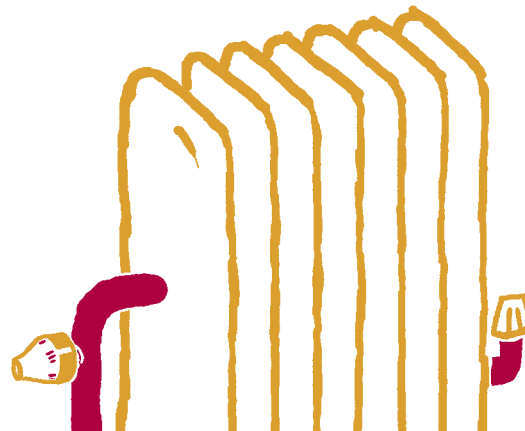
- 1 Give each student or group a piece of paper.
- 2 Ask them to draw a spiral shape, as illustrated.
- 3 Cut out the shape and attach enough sewing thread to hang the spiral 35cm above a radiator in the class/school.

Consider this

What happens to the spiral once it is placed over the radiator?

What is causing the spiral to move?

Can you think of a way to make sure that there is no other air movement causing the spiral to move, such as drafts from windows?



Tell Me More!

The energy from burning fossil fuel heats up the radiators.

This heat then travels from warm to colder areas in the room until the temperature is the same throughout. This movement of heat from warm areas to colder areas is called convection.

How does this happen? The heat from the radiators warms up the air molecules surrounding the radiator and transfers it throughout the room by convection currents, which are like channels of rising warm air.

The sun radiates heat onto the earth's surface, which in turn heats up the air surrounding the earth. This hot air, rising from the earth, causes convection currents. A number of large birds of prey are known to soar on these warm air currents.

As radiators heat our homes, schools and workplaces through the principle of rising air, some heat can be lost through open windows or cracks in doors and window panes. In the winter, closing your curtains helps to keep the heat in. A lot of homes have double glazed windows, two panes of glass instead of one. These windows are especially good at preventing heat loss from your home. You can also insulate windows by using draught proofing – thin strips of insulating material that stick to window and door frames.