SAILING AWAY

FOR THOUSANDS OF YEARS, sailors have been using the wind to push their boats along. Although engines and propellers are more widely used today, some boats, from small yachts to larger cruise liners, are still fitted with wind-catching sails. Make your own yacht and see how a sail catches the wind.

Float your boat in a bathtub full of water. Turn the sail so that it has its back to you while the boat points in another direction. Blow hard on the sail and watch the boat travel in the direction which the boat is pointing.

WHAT YOU NEED
Plastic bottle
Thin card
Drinking straw
Modelling clay
Fruit-juice carton

SAIL POWER
1. Cut a rectangular piece out of the side of a plastic bottle to make your boat’s body.
2. Fix a lump of modelling clay in the bottom of your boat and use it to hold a straw mast.
3. Cut a triangular piece of paper to make a sail and pierce two holes in it to thread your mast through.
4. Cut out a wedge-shaped piece from a fruit-juice carton – this will be your keel. Fix a lump of modelling clay to each end and stick the keel to the boat’s bottom.

WHY IT WORKS
As the wind catches the sail it tries to push the boat sideways. However, the resistance of the water on the keel stops the boat from going sideways. Instead the boat is pushed forwards.

MOVING YOUR SAILS
Try moving the position of your sail. You will find that the boat moves with less control when the sail is moved away from above the keel.