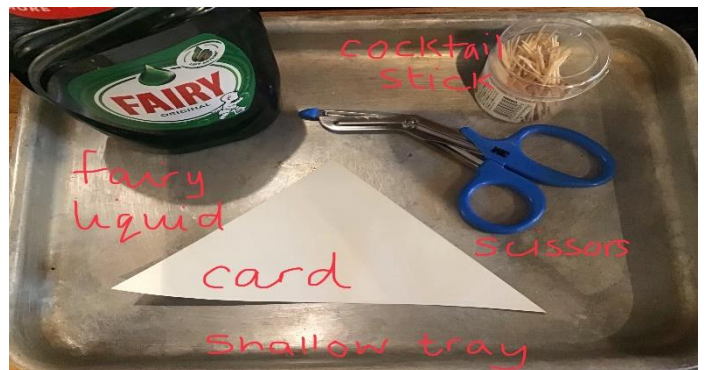


# Magic Boats

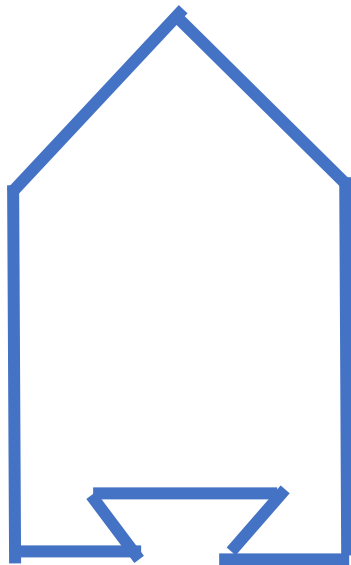
## Equipment (Get this ready before you start)

Cocktail Stick/toothpick  
Piece of cardboard or crafting foam  
Scissors  
Oven tray with water in  
Fairy liquid (and washing up liquid)



## Method

- 1) Cut your cardboard in to the shape shown on the template below.
- 2) Fill your tray with water
- 3) Use the cocktail stick to add fairy liquid to the inside of the small triangle at the back of the boat.
- 4) Place the boat gently on the water and watch it speed off!
- 5) If you want to repeat, just change the water in your tray and put on more fairy liquid.



## Spectacular Science!

**SURFACE TENSION** is due to water molecules being attracted together and forming a strong, flexible skin at the surface layer of the water. This is what lets your boat float and insects walk on water! The fairy liquid is a **SURFACTANT** which means it breaks down the surface tension by disrupting the arrangement of the water molecules. As the surface tension breaks behind the boat, the water molecules move from places of low surface tension to high surface tension. This creates enough force to move the boat across the water towards the areas of high tension in front of it. This effect is called the Marangoni Effect. Want to go further? What happens to the speed of the boat with more/less fairy liquid? If the boat is smaller/larger? What about if you use a different type of soap. Have fun!