

## **DPS Activity Sheet 2**

### Surface Tension Experiment

This activity is a simple, effective way of demonstrating surface tension. At Brigit's Garden it is an addition to our pond mini-beasts activities, showing how surface tension enables mini-beasts such as skaters and whirligig beetles to move around on the water surface. It is also suitable for the classroom.

#### Suitable age-groups

4<sup>th</sup> – 6<sup>th</sup> classes

#### Equipment

For each group of 4-5 children:

Two or three small bowls (about the size of dessert bowls)

Cold water

Cotton buds

Ground white pepper in a shaker

Small bars of soap

#### Method

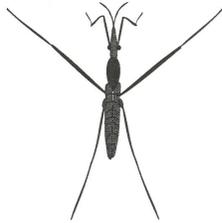
- The children half-fill the bowls with water and keep them on a flat surface.
- They then shake a thin layer of pepper on the surface of the water. They can imagine that each grain of pepper is a mini-beetle on the water.
- The children can place a dry cotton bud on the water surface and see what happens (The water wets the cotton and some pepper sticks to the bud – the surface tension is not broken).
- They can then take the wet cotton bud, rub it on the bar of soap and replace it in the water. (The effect is dramatic: as soon as the soap starts to mix with the water the surface tension is broken and the pepper appears to be pushed to the side of the bowl. The 'mini-beetles' can no longer walk on the water).
- This can only be done effectively once in each bowl.

#### Discussion points

1. Surface tension is like an invisible skin on the water surface. Another way of seeing it is to hold a glass of water up to the light. The slight curvature in the water surface where it meets the glass is caused by surface tension.
2. If mini-beasts like pond skaters need surface tension to move around on the water surface, what might happen if the water was polluted by substances such as domestic detergents?

Additional activity

If you have access to a pond or small lake you will probably be able to observe surface-moving mini-beasts that rely on surface tension, even without pond-dipping equipment.



Pond Skater



Whirligig Beetle

Pond skaters have distinctive long legs and can dart around on the water surface.

Whirligig beetles usually occur in groups. They are much smaller than skaters and look like small silvery-black dots making rapid circular movements on the water surface.