

## Chemistry

# Diffusion using plant life

(Czech Republic)

### Background

This is part of an early years project ('Life of Plants') in which the pupils learn how plants work!

### You will need:

- ✓ a test tube or glass graduated cylinder.
- ✓ UV torch
- ✓ water to fill graduated cylinder
- ✓ grated Horse Chestnut bark

### Follow these steps:

1. Grate the outside of chestnut bark.
2. Fill the test tube with water.
3. Sprinkle a small handful of bark over the top of the water.
4. Turn the lights off in the room.
5. Using the UV torch shine the torch through the water in the test tube.
6. You should see the bark as fluorescence blue speckles diffusing through the water.
7. Sprinkle some more bark over the top to watch again and see the movement of the bark through the cylinder.

### So what happened?

Patterns of diffusion through the water will be seen from the bark and when the UV torch is shone on the water these patterns can be seen.

The horse chestnut bark has a chemical called **aesculin** which is found in its leaves, seeds and bark. It is soluble in water and fluoresces blue.

### What next?

- Use bark from other trees and compare.
- Investigate whether different water temperatures will affect the blue fluorescence.
- Research why aesculin dissolves in water and fluoresces blue in UV light.

