

Inquiry Approaches

Initial Inquiry

What does a flower need in order to survive?

A flower needs water, nutrients and sunlight to survive.

Why do flowers have bright colours?

Flowers need to attract insects and bees, called pollinators, so that the pollen from the flower can be carried to different plants to make new flowers.

Experimental Procedure Inquiry

Why aren't the flowers dyed by dipping the petals directly into the food colouring and water?

A flower cannot take up water directly through its petals; it must be obtained through its roots or stem. Therefore, the food colouring has to travel up the stem in order to dye the petals.

What happens to the flower with the split stem dipped into two different colours of food colouring?

Half of the flower petals are dyed the first colour and the other half of the flower petals are dyed the second colour. Different vascular bundles of xylem tissue go to different parts of the plant; one side of the plant receives water from one half of the stem and the other side receives water from the second half.

Why does it look like the flowers have veins that have been dyed by the food colouring?

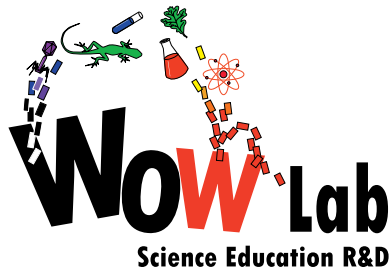
Flower stems have vessels in them – sort of like blood vessels (veins and arteries). This part of the stem is dyed because as the coloured water moves up the vessels, the dye colours them.

What happens to the water and food colouring once it reaches the petals?

When food colouring is added to the water supply, the food colouring dissolves in the water and travels up the xylem with the water. The water evaporates from the petals, but the food colouring is left behind.

What happens to the water and food colouring once it reaches the coffee filter?

When food colouring is added to the water, the food colouring dissolves and travels up the string (which is analogous to the xylem) along with the water. The water then evaporates from the coffee filter, but the food colouring remains, just as it would from flower petals.



a WOW Lab

BLUEPRINT

Rainbow Flowers - Inquiry Approaches

In-Depth Inquiry

How does a flower obtain water?

Normally, when flowers are planted in the ground, water is absorbed from the soil into the roots of the flowers. However, when the plants have been cut and placed in a container of water, they no longer have roots; the water is taken up through the stem of the flower. A type of transport tissue called xylem transports water and dissolved minerals up the flower stalk and to the leaves and flower petals.

Why is the flower with one string dyed less than the flower with four strings?

The flower with four strings is able to take up more water, allowing the food colouring to travel further. This arrangement is similar to xylem tissue in a real plant, as xylem tissue is found in numerous vascular bundles (instead of just one) in order to increase the amount of water that reaches the flower.