a WOW Lab BLUEPRINT

Rainbow Flowers

Activity Instructions

Real Flowers

The following items will be needed for this activity:

- water
- food colouring
- plastic cups
- white flower
- craft knife

Part I - Flower Dyed One Colour

Step 1

Using a pair of scissors or a craft knife, cut the stem of your flower at an angle. Leave approximately 4 in. of stem.

Step 2

Fill a plastic cup halfway with warm water and add the desired amount of food colouring.

Step 3

Place the flower into the cup of warm water, making sure that the cut part of the stem is completely immersed in the dyed water (**Figure 1**).

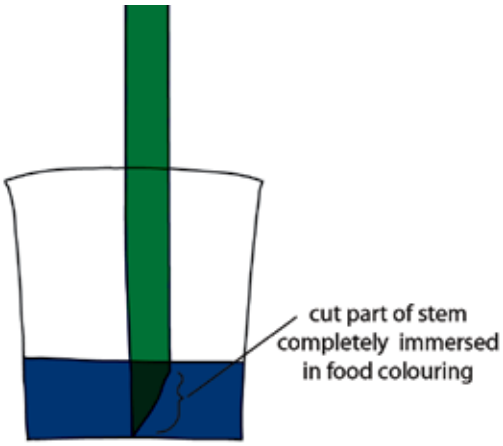

Figure 1

Figure 2

Step 4

Leave the flower overnight and return the next day to observe how the coloured water has travelled up the stem to dye the flower petals (**Figure 2**). The flower can be left in the coloured water for several days in order to obtain a darker colour, but trim the stem and refresh the water if the flower starts to wilt. The activity can be repeated with other colours of food colouring. For a more vibrant colour, use undiluted food colouring (**Figure 3**). The rose in **figure 3** was left in undiluted food colouring for several days. Roses work well for this activity because after dyeing, they can be dried and preserved for several years.

Figure 3

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Rainbow Flowers - Activity Instructions

Part II - Flowers Dyed Two Colours

Figure 4

Step 1

Cut 1-2 in. off the bottom of the flower stem. Using scissors or a craft knife and starting at the bottom, split the stem in half to create a 4 in. slit.

Step 2

Place half of the flower stem into a cup of warm water containing the food colouring of choice, making sure that the cut end of the stem is completely immersed. Place the other half of the stem into a different coloured solution (**Figure 4**).

Figure 5

Step 3

Secure the cups by taping them together to ensure that they are stable and will not tip over from the weight of the flower.

Step 4

Leave the flower overnight and return the next day to observe how the coloured water has travelled up the stem and dyed the flower petals two different colours (**Figure 5**). The flower can be left in the coloured water for several days in order to obtain a darker colour, but trim the stem and refresh the water if the flower starts to wilt.

The activity can be repeated with other colours or different food colourings can be combined to create unique colours. For a more intense colour, use undiluted food colouring (**Figure 6**). Roses work well for this activity because after dyeing they can be dried and preserved for several years.

Figure 6

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Rainbow Flowers - Activity Instructions

Filter Flowers

The following items will be needed for this activity:

- coffee filters
- string
- ruler
- 10 plastic containers
- food colouring
- water
- 2 baskets with slits in the bottom
- pencil

Step 1

Fold the coffee filters in half three times so that they look like cones (**Figure 7**).

Figure 7

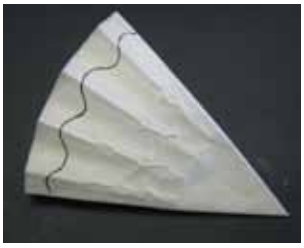

Figure 8

Step 2

Draw a wave pattern approximately 1 cm from the base of the cone using a pencil (a pen will bleed into the coffee filter) and cut along the line (**Figure 8**).

Step 3

Repeat for the second, third, and fourth coffee filters, but draw the wave pattern 2 cm, 3 cm, and 4 cm from the base of the cone respectively. Unfold.

Step 4

Lay the coffee filters flat on a table, one on top of the other, from largest to smallest, ensuring that the centers of the filters are all aligned. Gently poke a pencil through the center of all of the coffee filters, making a small hole that a string can be passed through. The hole should not be too big, otherwise the knot used to secure the string will slip through the opening. Alternatively, a large sewing needle can be used to poke a hole through the coffee filters and feed the string through.

Step 5

Tie four pieces of string together. Feed the loose ends through the holes in the coffee filters, securing the knot at the centre of the flower and allowing the loose strings to hang down (**Figure 9**).

For comparison, another filter flower can be made using only one piece of string. The flower with only one piece of string will be dyed to a lesser extent because less water is able to travel to the coffee filters (**Figure 10**). The same principle applies to plants, where the existence of multiple xylem help deliver more water to the flower petals.

Figure 9

Figure 10

Step 6

Dip the four pieces of string and the very tip of the coffee filter cone into a glass of water for approximately 3 seconds, making sure not to submerge any more of the filter flower (**Figure 11**).

Figure 11

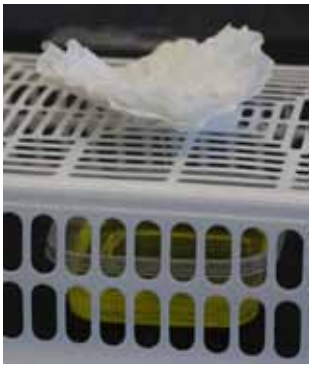

Figure 12

Step 7

Place the coffee filter flower on top of one of the baskets. Feed the four pieces of string into the food colouring solution through one of the slits in the basket, ensuring that the ends of the strings are fully submerged in the coloured water (**Figure 12**).

Step 8

Leave the flowers overnight and return the next day to observe how the coloured water has travelled up the string and dyed the flower (**Figure 13**).

Figure 13

The coffee filter flowers will not be dyed entirely by the food colouring because the water evaporates before it can reach the edges of the filters. To completely dye the flower, the base of the flower must be directly submerged into the food colouring solution (**Figure 14**).

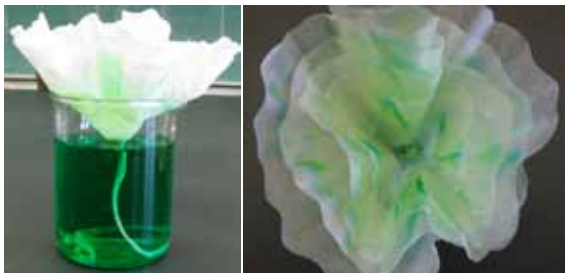

Figure 14

Step 9

If desired, each of the strings can be submerged into a different coloured solution or the flower can be re-dyed using different solutions in order to create a brighter and more colourful flower (**Figure 15**). The higher the food colouring to water ratio, the brighter the resulting filter flower colour.

Figure 15

Step 10

Remove the plastic dye containers from underneath the baskets and leave the flowers to dry overnight (**Figure 16**).


Figure 16

The next morning, remove the string from the flower and replace it with a green pipe cleaner to make a flower with a stem. The finished flower can be placed in a vase or glued to a card (**Figures 17** and **18**).


Figure 17


Figure 18