



STEM @ HOME GUIDE: Rainbow Flowers

- **Aim:** To get white flowers to turn different colors

- **Materials required:**

- ✓ White flowers (carnations, daisies, roses, etc.)
- ✓ Food coloring
- ✓ Water
- ✓ Scissors/knife
- ✓ 2-3 Cups or vases or containers

- **Questions to think about before you start:**

- ✓ How do flowers get water?
- ✓ What are some ways we could change the color of the flowers?

- **Instructions:**

Make sure to perform the experiment as a team (parent and student).

- **Parent:** Cut the stems of the flowers to the length of whatever cup or vase you are using.
- **Student:** Fill each cup/vase halfway with water
- **Student:** Decide what colors to use and put at least 10 drops of food coloring in each cup.
- **Student:** Place at least 2 flowers in each cup
- **Parent:** Find a sunny location for the flowers to sit. Help your child remember to come back every few hours to observe the change in the flowers.

- **Extensions Activities:**

- ✓ Try splitting the flower stem in half and making and placing each half in a different color water
- ✓ What happens if you change the temperature of the water?
- ✓ Try mixing the food coloring to make even more colorful flowers (orange, purple, pink)
- ✓ What happens if you put the flowers in a space without light or sunlight?
- ✓ Try using a different kind of white flower and notice any differences.

- **The science behind the fun:**

Water moves through the roots or stem of a plant through tissue called xylem. The water moves up the petals through capillary action. Capillary action is how water can defy gravity and move from low to high. As water evaporate from the leaves and petals causes more water to be 'pulled up' to fill in the empty space. Water is cohesive meaning it sticks to itself, this is another important factor that helps plants 'drink' and grow.

HELPFUL TIPS

The flowers may start to change color after a 3-4 hours or it may take longer.

If you aren't getting good result, try adding more food coloring to the water

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- **Vocabulary:**
 - Capillary action: Movement of liquid through a narrow space, tube or hole as a result of surface tension, adhesion and cohesion.
 - Cohesion: The ability of a substance to stick to itself
 - Adhesion: The ability of a substance to stick to a different substance.
 - Transpiration: The process of losing water through the surface of a plant across tiny pores.
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- **Real world application:**

Understanding how plants grow and 'drink' water is very important for farmers and people who work in agriculture. Growing fruits, vegetables and grains to sell or turn into other food products requires a farmer to know how much water to provide to a plant and when the best time of day is to water them. The concepts of capillary action are how human bodies are able to move blood into tiny spaces, the small blood vessels in your fingers and toes and names capillaries.

Did you know?

- A fully-grown tree can lose more than 60 gallons of water on a hot summer day due to transpiration
- The baobab tree which grows in the African savanna can store between 1,000 and 120,000 liters of water in its trunk!

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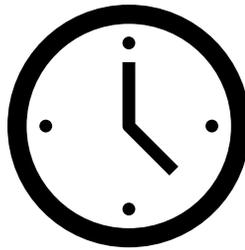


Rainbow Flowers Photo Guide



Supplies: White flowers, food coloring, cups, water.

Cut the stems off the flowers until they are 1-2 inches taller than the cups.



Fill each cup with water and 15-20 drops of food coloring.

Wait 2-3 hours and you should notice some color in the petals.

Leave the flowers overnight and observe the dramatic change the next day

