

RAINBOW PLANT VEINS

Learning Goal

Discover the veins that plants have and how they're used to absorb water and other nutrients. Then, experiment with various plants to see which one absorbs the best!

INSTRUCTIONS

Materials:

3 Different Colors Food Dye, 9 Containers, Cabbage/Lettuce, Light-Colored Flowers (White is recommended), Celery, Science Journal, Pen/Pencil

1. Prepare a spot for the experiment. Keep in mind that this experiment will need to sit undisturbed for 48 hours! We recommend keeping everything at room temperature.
2. Fill all 9 containers about half-way with water.
3. Add 5-10 drops food dye to each container. Put your first color in 3 containers, your second color in 3 more containers, and your third color in the last 3 containers.
4. Select at least 3 leaves cabbage/lettuce. The less colorful the cabbage/lettuce leaves are, the better!
5. Place at least 1 leaf of cabbage/lettuce in 3 different containers, each container holding a different color. This way we can see if different colors are absorbed differently by the same plant!



6. Repeat this process with your celery.
7. Finally, we'll repeat this process with our white/light-colored flowers. **Before adding your flowers to the dyed water, snip the end of each stem diagonally.** Since flowers are so different than celery and cabbage, this step ensures they are able to absorb as much water as they can.
8. Within a few hours, you'll begin to notice your plants taking on some color! If you look closely, you'll find that the color is concentrated in the **plant veins**.

Plant veins provide structure to delicate plant parts -- without veins, plants' leaves would be all floppy! The veins also transport water and other nutrients to the rest of the plant. Thanks to our colorful food dye, we can see the path through the veins that water takes.



9. These observations are perfect for your science journal! Check in on your lettuce, celery, and flowers every few hours. For each check-in, answer the following questions:
 - What is the date and time?
 - Which plant am I writing about? (cabbage, celery, or flowers)
 - How much water has been absorbed? (How colorful are the leaves/petals?)
 - Has there been more water absorbed since I last checked? (Are the plants more colorful?)
 - Which part of the plant has absorbed the most water? (Which part of the plant is the most colorful?)



10. After about 48 hours, your plants have probably absorbed as much as they can! It's time to end the experiment. Make sure to write down one last check-in in your journal.
11. You can't officially end an experiment without writing a conclusion in your science journal! For your conclusion, focus on the following:
 - Which plants had the most similar absorption rates? Which ones were the most different?
 - Where did each plant absorb the most water?
 - Were there differences in how the leaves absorbed the water, and how the flower petals absorbed the water? How so?

Post about your beautifully colored plants on social media and make sure to use #MOSHConnect when you do!