

Change the Color of Celery

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Overview

Students will change the color of celery by diluting food coloring in water while also learning to make observations. They will learn about the importance of Capillary Action in plants and understand the importance of nutrients consumed by plants that may affect their growth.



Learning Objectives	Logistics
By the end of this experiment, students will be able to: 1. Change the color of celery. 2. Students will be able to understand and explain the process of capillary action in plants. 3. Students will also be able to observe how important water is to a plant's development.	STEAM Subjects: Science (Chemistry) & Capillary Action Demonstration Science Vocabulary: Capillary Action and Osmosis. Time: 1-3 days to see results

Materials & Equipment
• Celery • Food coloring/ dye • Cups or jars • Water • Sunlight Demonstration Materials:   

Experimental Methods

1. We will begin by proposing a question
2. Begin to hypothesise: If we put celery in cups containing different color water, the celery will change color to match the color of the water they are in.
3. Cut the ends of the celery sticks.



4. Fill three cups or jars with the following:
 - Cup 1: Water
 - Cup 2: Water with a few drops of red food coloring.
 - Cup 3: Water with a few drops of blue food coloring.



5. Let sit for a few hours and check regularly

Part 2, Day 2

1. Check the celery. There should be some color changing at the base of the celery and some of the color is slightly visible at the leaves.

Part 3, Day 3

1. The celery should have changed to the corresponding color of the water, in the leaves, the color is more visible (Waters 10-11)

Variations:

- Have fun with the experiment:
 - Try using roses instead of celery, maybe cauliflower or an onion

- Use other colors or even mix to make new ones
- Try splitting the celery down the middle and place it between two colors (Waters 10-11)

Deep Thinking Questions

1. How can we change the color of celery?
2. How does capillary action play a part in it?
3. Analyze the data and draw conclusions: what do you see?
*write down observations everyday.
4. Was the hypothesis correct? Yes or No? Why or why not?
5. How did the color travel to the leaves?
6. Why did the celery change color?
7. Why is capillary action important?
8. Why did we see three different outcomes?
9. Why did the celery in pure water not change color?
10. How does this apply to our real everyday lives?

Chemistry & Society

Science Explanation

The explanation behind this color changing celery experiment is something we see everyday. Every plant, in this case celery, has roots and veins inside that expand to the leaves. The veins collect and absorb water and other nutrients from the soil that are needed for the plant to survive and grow. Plants use something called capillary action which is the way they collect, retain and is what allows for them to move the water, along with other nutrients, up to its leaves. The celery in colored water made it easier to see capillary action in action!

Society

It is important to understand and beware of the things we put in our bodies, especially fruits and veggies. As we see, plants absorb mostly water and some nutrients from the soil but also bad bacteria called pesticides and toxins can be absorbed into foods from the ground and the water used to water them. Farm workers need to become aware of the dangers of using dangerous toxins to grow food for their own safety while handling them and for our

consumption. Remember to always wash your fruit and veggies before you eat them! (Citro 47)

References

- Citro, A. (2015). *The curious kid's science book: 100+ creative hands-on activities for ages 4-8*. Woodinville, WA: Innovative Press.
- Waters, G. (1986). *Science tricks and magic*. London: Usbprme Pub.