RED BUTTE GARDEN
THE UNIVERSITY OF UTAH

Let's Explore Roots

Roots attach plants to the ground and supply water and nourishment to the plants. Plants can have a **taproot** or **fibrous roots**. A taproot is a large central root that grows deep into the ground like a carrot, radish, or turnip. Fibrous roots are shallow, thin roots that spread out in branching patterns. These roots are often found in plants like lilies, corn, peas, or grass. Learn how these different roots work in this experiment.

Materials

- Paper towels
- Tape
- Scissors
- Rice
- Water
- Food coloring
- (4) Clear cups

Instructions

1. Roll 3 paper towels into tubes and tape the middle of each one.
2. Make one tube into a fibrous root by cutting the bottom into strips (see picture to the right).
3. Turn your second tube into a "no roots" tube by cutting the bottom off (see picture to the right).
4. Keep the last tube whole to be your taproot.
5. Place your taproot and fibrous root tubes into seperate cups. Gently pour rice around their bases so the tubes stand up (see picture above).
6. Fill the third cup with rice and gently press your "no root" tube slightly into the rice.
7. Fill the empty cup with water and add the food coloring. Stir with a spoon or fork.
8. Pour the colored water into the cups. Try to keep the water from touching the tubes.
9. Watch your paper towel roots for 5 minutes and record your observations on the next page.

Extra Credit Science for Advanced Botanists

Design and create your own paper towel root and add it to a fourth cup. Let your imagination run wild and create a root design you think would help a plant. What features will your root have?

Reference: Enjoy Teaching With Brenda Kovich, https://enjoy-teaching.com/enjoy-teaching-plants/

Observation Questions

What happened to each of your paper towel roots after 5 minutes?

Taproot:

Fibrous Root:

No Root:

What was the first thing you noticed about your paper towel roots?

Why do you think plants need roots?

What would happen if plants didn't have roots?

Are there any other observations you made?

What did you learn about roots from this experiment?

Extra Credit Science for Advanced Botanists: How did your root do compared to the other roots? Why do you think this happened?

Bonus Activity: Go outside and explore the plants in your yard. What do you think their roots look like? Can you draw them? For inspiration, visit https://tinyurl.com/RootDrawing