

Plants in Space

Activity Mission 2

Objectives

Understand how plants respond to gravity on Earth

Predict plant responses in environments different from Earth

Initial Questions

How do people know which way is up or down? Is there a part of our bodies that helps us to know?

If you take a potted plant and lay it on its side, what will happen to the part of the plant above ground? Why do you think this happens?

What will happen to the roots of the potted plant when turned on its side?

Materials

35mm film canister (use the gray canisters, not the translucent ones), radish seedlings (~ 7-8 days old), tape, 2.5cm square paper towels, water

Procedure

1. Take a canister and tape a penny to the side of the canister. This will help balance the canister on its side.
2. Place the canister lid on the table. Double up a piece of tape so that it is sticky on all sides. Press the tape on the inside of the lid.
3. Pinch off a radish seedling about 1" in length. Make sure you only have shoot material, no roots.
4. Press the two leaves of the seedling onto the tape. The end of the shoot should be sticking straight out.
5. Place a paper towel square in the bottom of the canister and wet it.
6. Snap the lid onto the canister. Turn the canister on its side so that it balances on the penny.
7. After 3 days, open the chamber and observe the orientation of your shoot.

Questions

What did you observe after three days?

Plants respond to gravity, and different parts respond in different ways. How do you think the different parts of plants behave in a microgravity environment?