Seed sense

What would happen if you planted a seed upside down? Would the roots grow up in the air? Would the stem grow down into the ground? Find out by making a see-through garden.

You will need:

- 5 dried beans (any kind — from the supermarket or a seed packet)
- a piece of construction paper
- a big glass jar with a wide mouth
- paper towels

What to do:

1. Soak the beans in water overnight.

2. Line the inside of the jar with a piece of construction paper.

3. Stuff the middle of the jar with wet paper towels.

4. Push the beans between the construction paper and the glass of the jar. Space them out evenly. Put the beans in every which way — some lying on their side, some upright and some at an angle.

5. Put your see-through garden in a light place, but not in direct sunlight. Leave it for several days. Keep watering the paper towels to keep the construction paper moist.

6. After a few days, you will see roots growing out of one end of each bean and stems growing out of the other end. Are they growing in all different directions? Or are all the roots growing down, and all the stems growing up?

7. In about a week, the stems will sprout little green leaves. Now they are called seedlings. Lay the jar on its side. Watch the seedlings for a few more days. Do the stems bend up again and the roots down?

What's happening?

Plant roots grow down because they have chemicals in them that respond to the earth's gravity — an invisible force that pulls things toward the earth. Stems have other chemicals in them that make them grow up, away from the earth and toward the light. So it doesn't matter how you plant a seed — it will always send its roots down and its stem up.

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