

DISCOVER Science at Home!

Can plants grow without soil?

Materials:

- Kitchen scraps, such as:
 - Leek roots Lettuce bottoms
 - Carrot tops Onion roots
- 1 cup for each scrap (try recycling old plastic containers!)
- Water

Procedure:

- 1.) Place each scrap into its own container, root side down.
- 2.) Add enough water to cover the bottom of each scrap, but not so much that the scrap is submerged.
- 3.) Place the containers in a sunny windowsill, and change the water every 2-3 days.
- 4.) Within a week, new roots should sprout! Given a few more weeks, the plants will sprout new vegetables for you to use at home.

The Science Behind It:

A plant needs water, air, and sunlight to survive. Air provides carbon dioxide, which plants turn into carbon and oxygen. Water is used to transport materials through the plant. Sunlight is used to power photosynthesis. While some plants need trace minerals, like nitrogen, from soil, many do just fine without it!

Questions to Investigate:

- What do plants need to grow?
- Which plants do you think will grow the fastest? Why?
- How might the plants change if we took away the water?
- How might the plants change if we took away the sunlight?
- What other kitchen scraps can you grow?

Next Generation Science Standards

5-LS1-1 Support an argument that plants get the materials they need for growth chiefly from air and water.

K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive.