

What Happens if Plants Don't Get Sunlight, Water, or Soil?

For this investigation, you will compare different plants to see how much they grow. You will give some of the plants light, water, and soil. These plants will be called the “Control” group. The other plants will be the “Experimental” groups.

For the Experimental groups, you will give some plants:

- Water and soil—but no light—to test what happens when plants don't get light.

- Sunlight and soil—but no water—to test what happens when plants don't get water.
- Sunlight and water—but no soil—to test what happens when plants don't get soil.

Remember that to make this a fair test, you need to treat all the plants exactly the same, except for the one thing you are testing in each group. A fair test lets you know that any differences you notice are due to the thing you are testing.

Asking Questions



What do you think will happen?

Which do you think will grow more: the control or the “no light” plants?

Which do you think will grow more: the control or the “no water” plants?

Which do you think will grow more: the control or the “no soil” plants?

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Planning and Carrying Out the Investigation



Set up the following groups:

Control

- Plant a number of seedlings, all the same type, in separate containers of potting soil.
- Label these containers "Control."
- Place them near a window.
- Decide:

How often will you water? _____

How much will you water each time? _____



No Light

- Plant a number of seedlings, all the same type as the control, in separate containers of potting soil.
- Label the containers "No Light."
- Place them in a dark cupboard or closet.
- Water them the same amount as the control.



No Water

- Plant a number of seedlings, all the same type as the control, in separate containers of potting soil.
- Do not water them. Label the containers "No Water."
- Place them near a window, the same as the control.



No Soil

- Plant a number of seedlings, all the same type as the control, in separate containers, each of which is lined with a wet paper towel.
- Label the containers "No Soil."
- Place them near a window, the same as the control.
- Add water periodically to keep the towel wet.

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Making Observations



As the plants begin to grow, measure and graph their heights twice each week. To help record your observations, use the Measuring Plant Growth student page. Try taking digital pictures of your plants at different stages to display with your measurements. Be sure to get the measuring stick in the photo so you can compare changes in growth over time.



Analyzing and Interpreting Data



Which plants grew the most?

Which grew the least?

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Why do you think that was? Support your claim with evidence and reasoning from your investigation.

What other differences did you observe among the plants?

