

## Tropisms: Experimental Design

### Experimental Design

Tropisms occur when plants respond to external stimuli such as light, touch, gravity and water. Tropisms are movements caused by a change in a plant's growth pattern and can be classified as negative or positive. If the plant moves towards the stimulus the tropism is defined as positive. If the plant moves away from the stimulus, the tropism is defined as negative.

Read the "*Knowing Up From Down*" article to understand how a claim can be investigated through an experiment. Use the article as a guide to help create a procedure to test your claim/hypothesis.

You and your partner should collaborate to design an experiment you could do to study how plants respond to their environment. You could investigate any of the tropisms you have researched! Your experiment should include the following items:

1. A well-defined question about how plants respond to a specific stimulus
2. A hypothesis that predicts how the plants will respond to the stimulus
3. A procedure you could use to implement your experiment.
4. Include the tools you will use to perform the investigation.
5. Include the types of observations you will make.
6. Draw a diagram to show how you will set up the experiment

### Academic Conversation & Academic Writing:

Allow a different set of partners to read your experimental design. Discuss any possible changes that you might make to improve your design. Make those changes to your writing.

With your group, decide which type of tropism you want to design an experiment for and place a check by it.

**My Experiment Design:**     Geotropism     Hydrotropism     Thigmotropism     Phototropism

1. What is the question you would like to investigate to learn about how plants respond to a specific stimulus?

2. Create a hypothesis that predicts how the plants will respond to the stimulus. Use the "If \_\_\_\_\_, then \_\_\_\_\_ because \_\_\_\_\_" format for your hypothesis.

If \_\_\_\_\_

then \_\_\_\_\_

because \_\_\_\_\_

## **Tropisms: Experimental Design**

3. Write a step-by-step procedure you could use to implement your experiment.

4. Which tools will you use to perform the investigation? List them.

5. What types of observations will you make? List them and include any units of measure you will need to include (e.g. height of plant will be measured in centimeters).

6. Draw a diagram to show how you will set up the experiment.