

Name: _____ Date: _____ Period: _____

Ailanthus: Conducting an Experiment to Determine Allelopathy

Wk # _____

Directions: In this experiment, we will follow a simple procedure to determine which part of the Ailanthus plant has the most allelopathic chemicals. Before we can start our experiment, we must develop a hypothesis, identify materials, and understand the steps of the procedure.

Hypothesis: IF the _____ of the Ailanthus have the most allelopathic chemicals, THEN
(roots, leaves, or stems)
the radish seeds exposed will have the _____ amount of growth BECAUSE _____
(most or least)

Materials:

- 2 petri dishes with filter paper
- 1 marker
- 12 radish seeds
- 2 droppers
- water
- Ailanthus tea from roots
- Ailanthus tea from stems
- Ailanthus tea from leaves

Procedure:

Prior to class, a “tea” was made from the roots, stems, and leaves of the Ailanthus. This solution was made by dissolving the plant material into warm water for 30 minutes.

1. Collect 2 petri dishes each with filter paper and 3 radish seeds.
2. Use a marker to label each petri dish with the assigned terms. (_____ and _____)
3. Obtain two droppers full of _____.
4. Squeeze both droppers of _____ into petri dish ensuring you have saturated the seeds.
5. Close the petri dish.
6. Repeat 3-5 for the second assigned liquid. (_____)
7. Allow the petri dishes to sit undisturbed for 4 days.

Procedure Questions

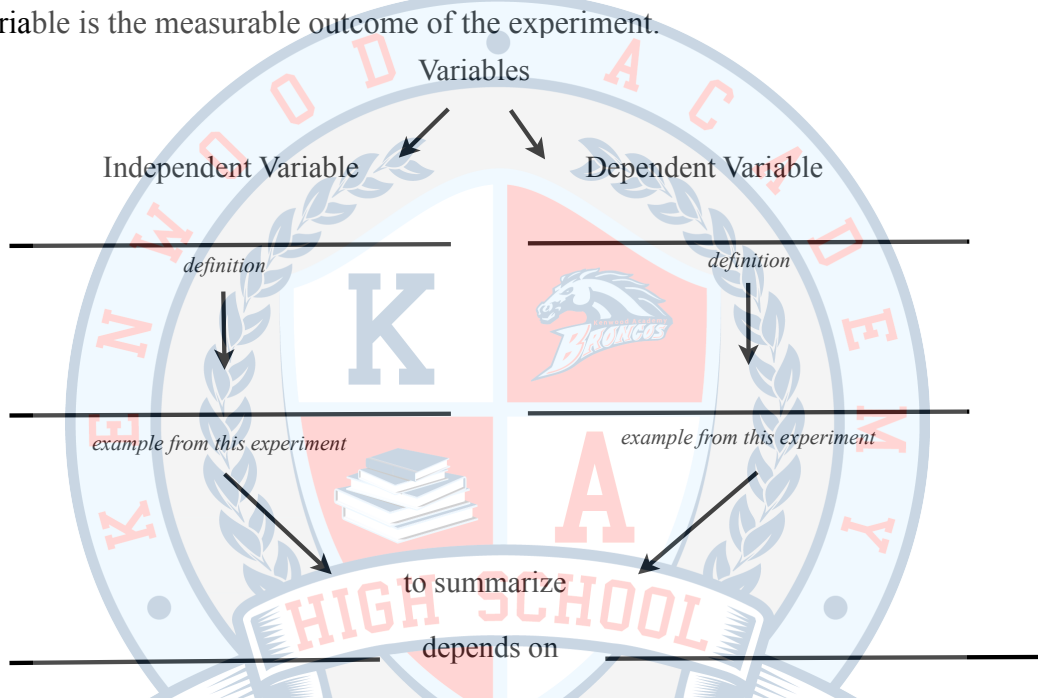
Directions: Match the step in the procedure with its purpose in the experiment.

- | | |
|--|--|
| 1. _____ Provides a solvent in which chemicals with allelopathic properties can dissolve. | A. tearing the plant material |
| 2. _____ Determine whether or not the plant material will have an effect on seed germination and growth. | B. adding warm water to plant material |
| 3. _____ Allow allelopathic chemicals to exit the plant. | C. adding mixture to radish seeds |

Identifying Variables

Directions: Complete the concept map are reading the passage below.

When conducting an experiment, there are two variables: the independent variable and the dependent variable. The independent variable is what the scientist chooses to change in an experiment. The dependent variable is the measurable outcome of the experiment.



Directions: Read each experiment below and determine the independent and dependent variables.

1. An experiment was conducted to determine which color of light allows for the greatest amount of plant growth.

Independent: _____ Dependent: _____

2. A scientists tested which type of fertilizer would cause a plant to grow the largest leaves.

Independent: _____ Dependent: _____

3. A group of students measured how many seeds germinated at 5 different temperatures.

Independent: _____ Dependent: _____

4. An experiment was conducted in which plants were placed into different types of material such as soil, sand, clay, and rocks. The scientists recorded data on the height of the plant.

Independent: _____ Dependent: _____

5. Analyze the table to determine the variables.

Independent: _____

Dependent: _____

Location	Plant Height			
	Initial	Day 1	Day 2	Day 3
Location A	5.0 cm	5.2 cm	5.4 cm	5.5 cm
Location B	5.0 cm	5.2 cm	5.3 cm	5.4 cm
Location C	5.0 cm	5.1 cm	5.1 cm	5.2 cm