

Activity 31

Fast Plants® and Castings

Rationale: The castings and leachate may have some nutrient value for plants. The fast growing plants patented by the University of Wisconsin can be used to quickly determine if these vermiculture products have an effect on the growth of Fast Plants®.

Objectives

- 1) Learn about Fast Plants®.
- 2) Design an experiment for determination of the effects of vermiculture products on plant growth.
- 3) Design an experimental setup.
- 4) Determine the plant characteristics that indicate better growth.

PDE Standards

Science and Technology

3.1.7. A,B,C

3.2.7. A,B,C,D,E,F

3.6.7. A,B

3.7.7. A,B,C,D

Environment and Ecology

4.1.7. A,B,C

4.2.7. A,C

4.6.7. A,B,C

Math

2.1.8. A,B,D,G

2.2.8. A,B,F

2.3.8. A,B,D

2.4.8. A,B,D,F

2.5.8. A,B,C,D

2.6.8. A,B,C,E,F

2.7.8. B,C,D

2.8.8. F,G,H,I,J

2.11.8. A,B

Materials

Castings

2-L soda bottles (12)

Balance

Peat moss and vermiculite

Rulers

Fast Plants® seeds

Introduction

Fast Plants® have a very fast growing cycle; they will usually bloom in 14 days. The literature on the Web or included with the plants when purchased will have students using one of several fertilizers such as Osmocote or Peter's Liquid. Students should follow the planting instructions and also use castings. The characteristics of the plants grown in the suggested fertilizer compared to plants fertilized with castings will be the

basis of this experiment. Characteristics such as the height of the plant, number of leaves, the area of the leaves, and number of seeds can be used to quantitatively judge the two fertilizers. The plants produce seeds very quickly and these seeds can be used for future experiments, making the purchase of the plants a one-time expenditure.

Strategies

The students need to learn about the methodology for growing Fast Plants® according to the instructions included with the fast plants. The plants that need to be ordered are the normal plants designed for beginning growers. Students will need to make the bottles for growing the plants, as well as the plant mix according to the included instructions. The plant system will need light from fluorescent lights. To help the students complete this Activity, a lot of coaching will be needed. If students are comfortable with growing Fast Plants®, less coaching will be needed to help in the discovery that the castings can be used in one sample and the recommended fertilizer in the other. Osmocote tablets are best for use, since it is a one time process.

Procedure

- 1) Set up 2 bottles per group as per the directions, using the two soda bottles with a wick. Use 1 part peat moss and 1 part vermiculite for both soil mixtures.
- 2) Place the appropriate number of Osmocote tablets into one amount of the soil mixture.
- 3) Place the same mass of dried castings in the other.
- 4) The seeds need to be started in the film cans according to the directions.
- 5) Transfer to the bottles according to the directions.
- 6) Keep an accurate and complete daily record of the growth of the plants in the journal.
- 7) Record the appropriate measurements in the journal and Data Table 1.
- 8) Draw conclusions from the results.

Expectations

The students should be able to:

- 1) correctly set up the plant bottle system.
- 2) make the soil mixture.
- 3) add an appropriate amount of castings and Osmocotes tablets.
- 4) record appropriate measurements.

42								
43								
44								
45								
46								
47								
48								
49								
50								