

Grade 4 Science - Earth Systems

Activity #3 - LAB

Planting Seeds

Grade 4 Science - Earth Systems

Activity #3 - LAB

Planting Seeds

Investigation Question: What do plants need to grow?

Today we will be experimenting to see the effect of water and sunlight on plant growth.

Materials:

- Small plants (seedlings)
- Water
- Measuring cups
- Vinegar
- Planting soil
- Plant containers
- Small shovels (trowels)

Hypothesis (Educated guess):

Part 1: Do you think plants with more or less sunlight will grow more? Why do you think that?

Part 2: Does the amount of water that plants get affect how much they grow? Why do you think that?

Steps

Part 1: Changing the light

- Grab 3 small plants, 3 plant containers, enough soil for each container and a trowel.
- Dig a small hole in the soil that gives you enough space to plant the small plant (seedling).
- Once the small plant has been planted, fill in the empty space with the soil from the hole you dug.



- Repeat the steps above for all 3 plants.
- Water each of the plants with the same amount of water so that the soil is moist. (20 ml is suggested but the amount can be modified)
- Once all 3 plants are ready, place them in 3 different locations: 1 plant close to a window or outside to get a lot of sunlight, 1 plant in a location that gets indirect sunlight (Medium sunlight) and one plant in a dark location that doesn't get any sunlight.
- Be sure to continue watering each plant with the same amount of water each day.
- Write down what you see about the plant sizes and health for each plant every day for the next two weeks (or longer if needed).

Part 2: Changing the water

- Grab 4 small plants, 4 plant containers, enough soil for each container and a trowel.
- Dig a small hole in the soil that gives you enough space to plant the small plant (seedling).
- Once the small plant has been planted, fill in the empty space with the soil from the hole you dug.
- Repeat the steps above for all 4 plants. Label each plant with a number so that you don't mistake them during the experiment.
- Place each of the 4 plants in a location with a lot of sunlight (either near a window or outside)
- For plant number 1, add lots of water so that the soil is moist (20 ml is suggested but the amount can be modified). Continue to add the exact same amount of water to this plant each day.
- For plant number 2, add a medium/low amount of water (10ml/5ml is suggested but the amount can be modified). Continue to add the exact same amount of water to this plant each day.
- For plant number 3, add no water to this plant for the duration of the experiment.
- For plant number 4, add vinegar (20 ml is suggested but the amount can be modified). Continue to add the exact same amount of vinegar to this plant each day.
- Write down what you see about the plant sizes and health for each plant every day for the next two weeks (or longer if needed).



Observations:

Part 1: Write your observations for the plants with different amounts of sunlight for week 1

Amount of Sunlight	Day 1 - Height (cm)	Day 2 - Height (cm)	Day 3 - Height (cm)	Day 4 - Height (cm)	Day 5 - Height (cm)
High					
Medium					
Low					

How would you describe the health of each of the 3 plants after 1 week of study?

High Sunlight: _____

Medium Sunlight: _____

Low Sunlight: _____

Write your observations for the plants with different amounts of sunlight for week 2

Amount of Sunlight	Day 6 - Height (cm)	Day 7 - Height (cm)	Day 8 - Height (cm)	Day 9 - Height (cm)	Day 10 - Height (cm)
High					
Medium					
Low					

How would you describe the health of each of the 3 plants after 1 week of study?

High Sunlight: _____

Medium Sunlight: _____

Low Sunlight: _____



Part 2: Write your observations for the plants with different amounts of water for week 1

Amount of Water	Day 1 - Height (cm)	Day 2 - Height (cm)	Day 3 - Height (cm)	Day 4 - Height (cm)	Day 5 - Height (cm)
High					
Medium					
No water					
Vinegar					

How would you describe the health of each of the 3 plants after 1 week of study?

High Amount of Water: _____

Medium Amount of Water: _____

No water: _____

Vinegar: _____

Write your observations for the plants with different amounts of water for week 2

Amount of Water	Day 6 - Height (cm)	Day 7 - Height (cm)	Day 8 - Height (cm)	Day 9 - Height (cm)	Day 10 - Height (cm)
High					
Medium					
No water					
Vinegar					

How would you describe the health of each of the 3 plants after 1 week of study?

High Amount of Water: _____



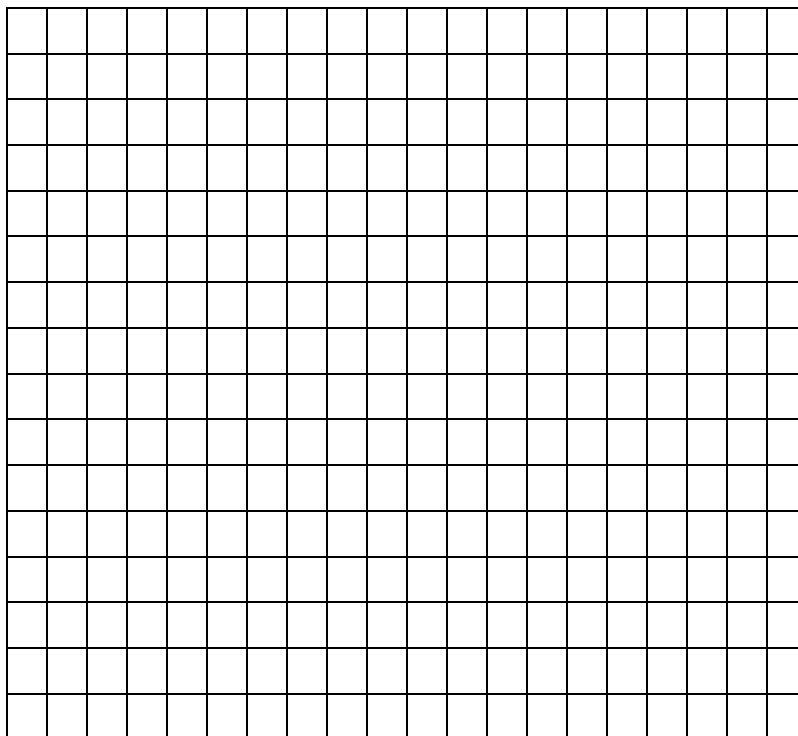
Medium Amount of Water: _____

No water: _____

Vinegar: _____

Results:

Create a graph to demonstrate your results of **part 1** of the experiment:



Analysis:

Part 1:

1. What did you notice about the height of the plants when there was more or less sunlight?
2. What are some of the items in the experiment that stayed the same the whole experiment?
3. Was your original hypothesis correct? Why or why not?
4. How could you improve this experiment for next time?

Part 2:

1. What did you notice about the height of the plants when there was more or less water?
2. What are some of the items in the experiment that stayed the same the whole experiment?
3. Was your original hypothesis correct? Why or why not?
4. How could you improve this experiment for next time?

