

Name: _____ Date: _____ Bell: _____



Lab: Plastics and Plant Growth

Question: Which type of plastic most affects plant growth?

Materials:

- Bean seeds
- 4 containers (to grow plants in)
- Masking tape (to label containers)
- Potting Soil
- Water
- Plastic shopping bags
- Plastic straws
- Plastic utensils (spoon)
- Soil thermometer
- Soil moisture probe (alternative gravimetric method)
- pH strips
- Ruler
- Logbook
- Camera (optional)

Directions:

1. Fill each container $\frac{3}{4}$ full with potting soil
2. Label the containers with the following labels: Control (just soil), Plastic Bag (soil with cut up pieces of plastic bags - recycling code 4 - low density polyethylene), Plastic Straw (soil with cut up pieces of plastic straws - recycling code 5 - polypropylene), and Plastic Spoon (soil with pieces of plastic spoons - recycling code 6 - polystyrene).
3. Plant two to three bean seeds in each container
4. In one container put pieces of plastic bags in the soil. In a second container put pieces of plastic straws in the soil. In the third container put pieces of plastic spoons in the soil. The fourth container should just contain soil
5. Place containers in a sunny area in the classroom or under grow lights.
6. Water each container up to $\frac{1}{4}$ of water daily unless there is too much standing water
7. Record the following information in the logbook every week over the course of 10 weeks.
 - a. Height of the plant
 - b. Number of new leaves (between weeks)
 - c. Observations of the different plastics in the soil (are the plastics degrading in the soil)

Optional: take photos to include with the logbook

Experimental Setup

Hypothesis: _____

Independent variable: _____

Dependent variable: _____

Constants:

- _____
- _____
- _____
- _____

Control

	Plant height (cm)	# of new leaves	Plastic observations
Week 1			
Week 2			
Week 3			
Week 4			
Week 5			
Week 6			
Week 7			
Week 8			
Week 9			
Week 10			

Plastic Bag - recycling code 4 - low density polyethylene

	Planet height (cm)	# of new leaves	Plastic observations
Week 1			
Week 2			
Week 3			
Week 4			
Week 5			
Week 6			
Week 7			
Week 8			
Week 9			
Week 10			

Plastic straw- recycling code 5 - polypropylene

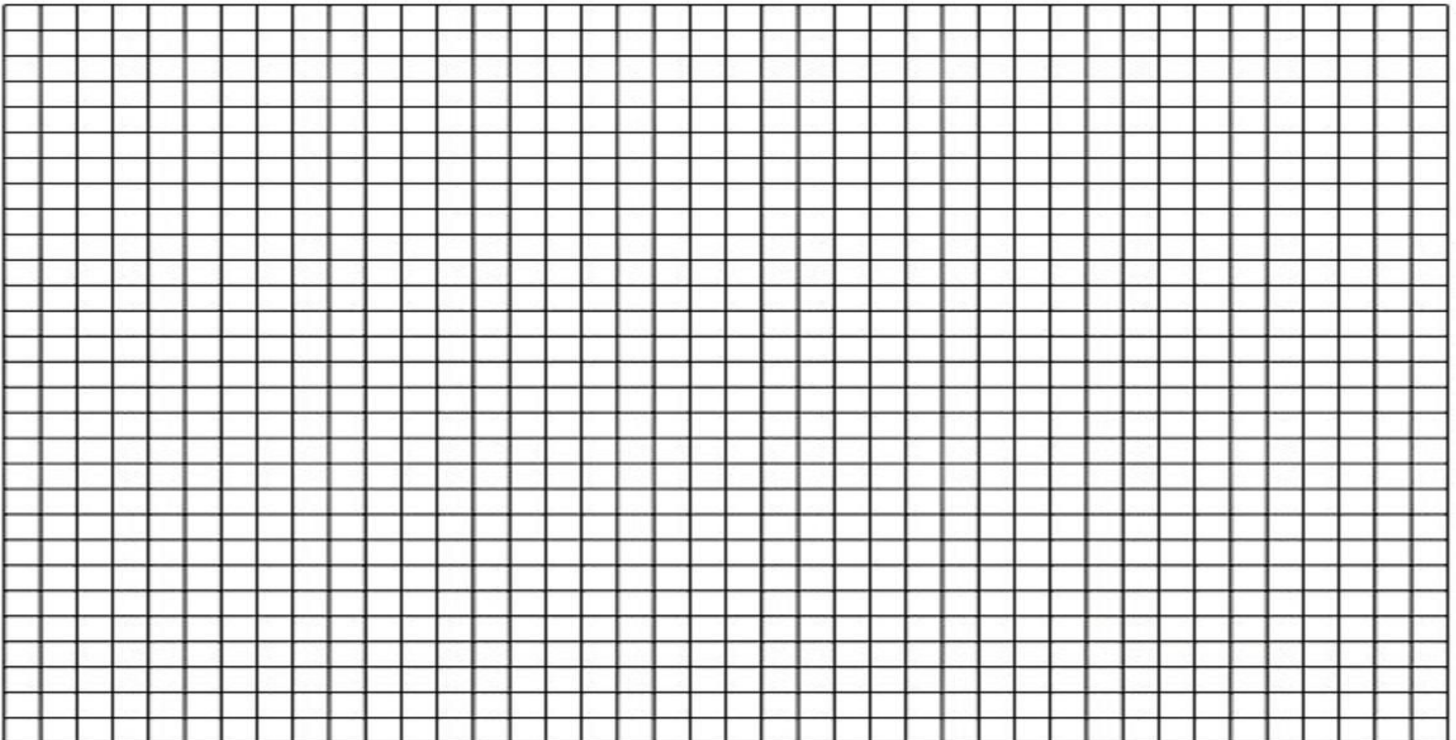
	Planet height (cm)	# of new leaves	Plastic observations
Week 1			
Week 2			
Week 3			
Week 4			
Week 5			
Week 6			
Week 7			
Week 8			
Week 9			
Week 10			

Plastic spoon -recycling code 6 - polystyrene

	Planet height (cm)	# of new leaves	Plastic observations
Week 1			
Week 2			
Week 3			
Week 4			
Week 5			
Week 6			
Week 7			
Week 8			
Week 9			
Week 10			

Analysis:

Using your experimental results, graph how plant height changed over the 10 weeks. Use a different color line for each type of plastic number of disks floating after 15 minutes versus the distance of the light source.



Conclusions:

Based off your data, what type of plastic most affects plant growth? Cite your data as evidence and explain your reasoning.

Claim:

Evidence:

Reasoning:

Extension:

Propose and explain a solution for reducing the impacts of human's plastic use on the environment.
