GROW
NEXT GEN

Plant Inhibition Simulation Worksheet
Student Instructions

Overview: This simulation will help you to understand the impact of cellular inhibitors and environmental factors on the growth of plants.

Questions to Think About:

1. What is the importance of inhibitors on the growth of plants?

2. What would happen if a seedling shoot inhibitor only affected half of the crops in a field?

3. Imagine you are a farmer growing soybeans in the field across from Jerome. What would you attempt to do to help the growth of your seedlings if you found an invasive species was inhibiting growth?

Directions: A four-side and a ten-side die will be used to simulate how inhibitors and the environment affect the growth of plants. The four-sided die will represent the possibility of environmental factors preventing growth. The ten-sided will subject the plant to possible inhibition.

Follow the instructions on the board to complete the activity and gain insight into how farmers select herbicides and the science behind them. Consider the following questions while you work through the activity.

Remember: If the plant is inhibited by something, or cannot grow due to environmental conditions, explain why in the effect section of your data sheet.

PART A: Possible Scenarios

Environmental Die: While a farm scenario is highly controlled, many factors can still play into the life or death of the individual seedlings. Along with inhibition, lack of nutrients, general environmental stresses, and human intervention can all negatively effect change upon a growing seedling.

- A Roll of 1 indicates ***Plant Death***
- A Roll of 2,3, or 4 is necessary for environmental conditions to be ***adequate for growth***

Inhibitor Die: Inhibitors and Disruptors play an important part in the reaction process within the cells of plants. Herbicides take advantage of natural inhibitor pathways. An even number indicates normal functioning and an odd number roll indicates inhibition based on this list:

1. Lipid Synthesis Inhibitor
3. Amino Acid Inhibitor
5. Cell Membrane Disruptor
7. Seedling Growth Root Inhibitor
9. Seedling Shoot Inhibitor

GROW
NEXT GEN

PART B: Effect on the Plant Growth

The reference sheet attached includes the function of these inhibitors. Take that information and extrapolate the effect on the target plant.

PART C: Applying Your Knowledge:

1. What keeps a plant from growing?
2. Is there anything we can do to make plants grow better?
3. Why is molecular structure so important in biology?
4. Through this course you have developed a greater understanding of cellular mechanisms and how organisms interact. Why would herbicides target only a specific species and not affect the whole plot?