
Student Instruction Sheet - Structured

Student Name _____

Date _____

Title of Investigation: Pollinators and Plants: Perfect Partners

Background Information: There are around three-thousand plant species in Massachusetts. Each one of them has evolved over time to survive. In order to survive, plants need to be pollinated. Although there are various pollination methods such as wind, birds and self-pollination, most plants rely on insects to pollinate them.

How have the plants in Massachusetts evolved to attract the insects here? Do all plants use the same structural evolutions to attract insects? Do certain plants prefer some insects over others?

This year we will design a pollinator garden. Our goal will be to attract as many insect pollinator species as possible to support biodiversity and a healthier ecosystem. In order to design an inclusive garden, we have to note which pollinators we have and which ones are missing. We will only observe on sunny, warm (above 60 degrees) days because that's when insect pollinators are out and about. We need to figure out which plant structures will attract the missing pollinators, so that we can design a garden that will showcase as many insect pollinator species as possible.

Guiding Questions: Do plant structures affect the type of pollinator that visit a specific plant? What are the different kinds of structures that plants use to attract pollinators? Which pollinators are attracted to which plant structures and why?

Procedure/Methodology:

- You will be working in a group of three students.
- Choose three different plants to observe in our existing butterfly garden.
- Each student will have a different role at each plant: spotter, videographer, or recorder.
- The spotter chooses the plant and calls out the name of the insect and the location of the insect on the plant to the recorder.
- If the spotter doesn't know the name of insect, the spotter will call out a physical description of the insect for the recorder to note.
- The recorder draws the plant, tallies the insects and records the notes.
- The videographer videos the flower.
- Draw each plant and label its parts in the boxes below. Be sure to note the color and fragrance of the flower. Also, label the location of your plant so that you can find it again. It may look different in a few weeks.
- Observe each plant for five minutes.

Observations:

<p style="text-align: center;">Plant One</p>	<p style="text-align: center;">Plant Two</p>	<p style="text-align: center;">Plant Three</p>
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Data:

Plant #	Ants	Bees	Beetles	Butterflies	Flies	Wasps	Observation Notes
Plant #1							
Plant #2							
Plant #3							

Analyzing and Interpreting Data:

How many insects were on plant 1? _____ plant 2? _____ plant 3? _____

What was the most common insect found on plant 1? _____ plant 2? _____

plant 3? _____

What were the similarities of plant one and plant two's structures?

What were the differences of plant one and plant two's structures?

What were the similarities of plant two and plant three's structures?

What were the differences of plant two and plant three's structures?

Did certain pollinators prefer specific plant structures?

What pollinators are missing from our garden?

What flower structure would attract the missing pollinator?

Constructing Explanations: Were there different pollinators on each of your plants? If so, what do you think caused this result?

Argumentation from evidence: Do you think plant structure affected the type of pollinator that visited your plant? Use evidence from your observations to support your answer.

Communication to other students:

- Create a bar graph of the pollinators on the plant that you chose to observe.
- Share your graphs and your arguments and evidence within your group of three students. You may use feedback from your partners within your group to improve your argument.
- Share your graphs and your arguments and evidence with another group of three students. You may use feedback from your partner group to improve your argument.
- Present your findings to the class.

