

POLLINATORS

Unit Overview: Students will be introduced to the process of pollination, pollinator preferences and the parts of a flower through dissection, exploration, and observation. Students will answer essential questions and be introduced to scientific explanation.

Grade Levels: K-6

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Desired Results

Standard: K-LS1 From Molecules to Organisms: Structures and Processes

- K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive.

Standard: K-ESS3 Earth and Human Activity

- K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.

Standard: 1-LS1 From Molecules to Organisms: Structures and Processes

- 1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.

Standard: 2-LS2 Ecosystems: Interactions, Energy, and Dynamics

- 2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.

Standard: 2-LS4 Biological Evolution: Unity and Diversity

- 2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.

Standard: 3-LS4 Biological Evolution: Unity and Diversity

- 3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.
- 3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.

Standard: 4-LS1 From Molecules to Organisms: Structures and Processes

- 4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
- 4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

Standard: 5-LS2 Ecosystems: Interactions, Energy, and Dynamics

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- 5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

Standard: MS-LS1 From Molecules to Organisms: Structures and Processes

- MS-LS1-4. Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively.

Standard: MS-LS2 Ecosystems: Interactions, Energy, and Dynamics

- MS-LS2-1. Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
- MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
- MS-LS2-4. Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.

<p>Understanding(s):</p> <p>Students will understand that...</p> <ul style="list-style-type: none"> • Pollination is essential to life in an ecosystem. • The way flowers are designed helps the process of pollination. • Without pollinators, we would not be able to enjoy many of the foods we eat and drink every day. 	<p>Essential Question(s):</p> <ul style="list-style-type: none"> • What is pollination and why is it important to an ecosystem? • How does the design of a flower attract an animal to pollinate it?
<p>Students will know...</p> <ul style="list-style-type: none"> • The names of the parts of a flower. • How a flower's shape, color, smell attract different pollinators. • The claim, evidence, reasoning method of scientific explanations. 	<p>Students will be able to...</p> <ul style="list-style-type: none"> • Identify flower parts through dissection and understand how those parts help with pollination. • Observe/record/collect evidence in the field in order to make a claim.

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Assessment Evidence	
<p>Performance Tasks:</p> <ul style="list-style-type: none"> • Dissect a flower and examine its parts in order to better understand the process of pollination. • Go on an exploratory walk in the Gardens and record pollination interactions on a data sheet. Make a claim and show evidence based on reasoning as to which flowers different pollinators prefer. 	<p>Other Evidence:</p> <ul style="list-style-type: none"> • Vocabulary activities • Oral and/or written responses to the Essential Questions • Flower dissection worksheet • Data sheet with observations of pollination interactions. • Claim, evidence, reasoning worksheet • Drawing of a plant and its parts • Drawing of a pollinator in action

Learning Plan
<p>Learning Activities:</p> <ul style="list-style-type: none"> • Examine pictures of pollinators and discuss the process of pollination, why it is important and how the design of a flower attracts different pollinators. • Do vocabulary activities to learn the key vocabulary. • Dissect a flower and answer investigative questions. • Divide into groups and go on an exploratory walk. Pairs of students will record observations of pollinators in action in the garden. • Have students make a claim based on evidence as to what flowers different pollinators prefer. • Review the essential questions with the group. • Draw a flower and label its parts. • Illustrate a sentence about a pollinator in action.