

Pollination Eco-Service *Understanding by Design Curricula Plan*

Overview: In the Pollination module, learners work as naturalists, displaying curiosity as they investigate pollinators as well as host and nectar plants on their Club site. Activities include a flower dissection, pollinator count, a cross pollination game, butterfly investigation stations and more. A GEN take-home pamphlet allows learners to extend their knowledge by looking for pollinators near their home and share their knowledge about pollination with other family members. An optional stewardship/service learning project involves learners growing and planting host and nectar plants on their school site to feed and attract more pollinators to their site.

Grades: 3rd – 5th

Stage 1 – Desired Results

<p>Established Goals:</p> <p>Related GPS Science Content</p> <p>Third Grade <u>Living Environment</u> S3L1. Learners will investigate the habitats of different organisms and the dependence of organisms on their habitat. b. Identify features of green plants that allow them to live and thrive in different regions of Georgia.</p> <p>Fourth Grade <u>Living Environment</u> S4L1: Learners will describe the roles of organisms and the flow of energy within an ecosystem. d. Predict effects on a population if some of the plants or animals in the community are scarce or if there are too many.</p> <p>Fifth Grade <u>Living Environment</u> S5L2. Learners will recognize that offspring can resemble parents in inherited traits and learned behaviors. b. Discuss what a gene is and the role genes play in the transfer of traits.</p>	<p>G</p>	<p>Habits of the Mind:</p> <p>3rd grade skills</p> <ul style="list-style-type: none"> • Records investigations • Makes sketches • Compares and describes numerically • Researches • Uses tools • Answers their own questions • Communicates findings <p>4th grade skills</p> <ul style="list-style-type: none"> • Ask questions that lead to investigations • Conduct simple investigations • Uses tools for collecting data • Uses data to answer questions • Writes and uses instructions • Justifies reasonable answers • Identifies patterns of change • Researches for information <p>5th grade skills</p> <ul style="list-style-type: none"> • Records observations • Offers and considers reasoning • Quantifies data • Uses scientific tools • Identifies parts and makes models • Describes changes • Compares physical attributes • Draws and sketches • Questions and seeks to find answers • Researches for scientific information • Replicates investigations
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<p>Enduring Understandings: U</p> <p><i>Learners will understand that...</i></p> <p>Pollinators, including bees, butterflies, flies, wasps, beetles are necessary for traits to be transferred from one plant to another.</p> <p>Pollination is a vital life support function that sustains life in all ecosystems.</p>	<p>Essential Questions: Q</p> <p>Why is pollination important to my daily existence on earth?</p> <p>Who pollinates flowers in my local environment?</p> <p>How can I help pollinators that live on my school site or in my local environment?</p>
<p><i>Learners will know...</i> K</p> <p>How pollination takes place.</p> <p>Names of 5 school site pollinators.</p> <p>The importance of the process of pollination in supporting life on earth.</p> <p>Pollen grains are the microspores of seed plants which are produced in vast numbers usually in a pollen sac.</p>	<p><i>Learners will be able to...</i> S</p> <p>Identify the parts of a flower.</p> <p>Explain the process of cross pollination.</p> <p>Recognize different types of pollinators (i.e bees, wasps, flies, beetles, and butterflies).</p> <p>Compare numbers and types of pollinators on different flowers.</p> <p>Locate sources of pollen on their school site.</p> <p>Collect pollen and view it through a hand lens and under a microscope.</p> <p>Formulate investigation questions such as how external factors, including flower color, shape, time of day, weather, and time of year affect pollinators.</p> <p>Diagram the life cycle of a specific insect pollinator (a butterfly).</p> <p>Describe insect pollinator feeding and social behaviors.</p> <p>Express feelings about the natural world.</p> <p>Identify specific host plants of important insect pollinators.</p> <p>Determine threats to pollinators both on their school site and in the larger environment.</p> <p>Develop a plan to help local pollinators.</p>
<p>Stage 2 – Assessment Evidence</p>	
<p>Performance Task: T</p> <ol style="list-style-type: none"> 1. AT HOME: Complete ‘A Visit to the Pollination Department’, six page take home packet with insert letter to parents; visit designated websites and complete associated questions. Teach parents and other siblings about the Pollination Department. 2. Examine individual GEN club calendars for recorded sightings of pollinators at their homes and in the local environment. 	
<p>Key Criteria</p>	
<p>Other Evidence OE</p> <ol style="list-style-type: none"> 1. Develop and perform a puppet show for other learners that interprets the importance of school site pollinators; puppet show can also be performed at GEN Science Night. 2. Grow plants from seed for pollinators. Plants can be used as food for pollinators at the school site, at homes of Garden Earth Naturalists or at another location in the local community. 3. Plant appropriate plants that serve as host plants or nectar plants for local pollinators either on the school site or at another location. 	
<p>Stage 3 - LEARNING PLANS: See Pollination Quick Guides 1-5</p>	