

POLLEN NATION SNAPSHOT

DRIVING QUESTION: HOW DOES POLLEN WORK?

Recommended Grades: K – 6; Adaptations for 7 – 12.

<i>Classroom or Center Activities</i>	<i>Outside or Larger Space Activities</i>	<i>Technology-Based Activities</i>	<i>Stem-to-Go Take Home</i>	<i>Field Work and/or Natural Area Needed</i>
X	X	X	X	X

Materials: Fresh flowers, roses or Alstroemerea “Peruvian lilies”, scissors, tissue, dropping pipet, five small and three medium pompoms, 1 pipe cleaner cut into three sections, 1 square of medical gauze, four small beads, two googly eyes, a small piece of yarn, string, or piece of pipe cleaner, glue gun or tacky glue, buttons, cupcake liners, corn starch, corn meal, water, plastic condiment containers, water, paper towels. (Optional) glitter.

Participant activity: 30 minutes for each activity for approximately a total of 3.5 hours.

Objectives:

1. Identify parts of a simple flower.
2. Explain the symbiotic relationship between pollinators and plants.
3. Model the transfer of pollen by pollinators.
4. Analyze pollen count graphs to determine risk of allergy complications.
5. Explain the concepts of symbiosis/mutualism and parasitism.
6. Observe patterns of flower use based on color and type of pollinator.

STEM Skills

- S:** Dissect a simple flower.
- T:** Evaluate textures for transferring materials.
- E:** Create a model of bee anatomy and pollination processes.
- M:** Analyze a graph to determine risk of “hay fever” allergy complications.

Teacher Tips: Pollen Nation

Plan ahead: To obtain flowers for dissection, grocery store floral departments may offer wilting flowers at a discount, especially after holiday dissection. Parents/grandparents with gardens may donate blooms. Alstroemerea “Peruvian Lilies” tend to last a long time. Note: Dandelions and clover will not work for this.

Total prep: < 15 minutes to make copies and assemble materials

Safety: For participants who may have bee allergies or pollen allergies, check with your program’s policies on allergies and epi-pens. To reduce the possibility of gluten allergies, we have used corn starch and corn meal to simulate pollen instead of flour. If hot glue guns are too risky, tacky glue may be substituted.

Sensory Integration Issues: For participants with fine motorskills challenges, simplify the craft by using a pompom as the bee. Roll a plain pompom in a cupcake liner containing cornstarch. Then dab the pompom into a cupcake liner with yellow cornmeal to simulate pollen transfer. The blending of the pollen demonstrates cross-pollination, or transfer of pollen from one flower to another.

Cost: Minimal, <\$2 per person.

What else do I need? Paper towels/rags.

Clean Up: Hands, equipment, and surfaces can be washed with soap and water.

NC CAP's Unit Planner

Classroom or Center Activities	Outside or Larger Space Activities	Technology-Based Activities	Stem To-Go	Field Work and/or Natural Area Needed
Dissect a Flower	Is Anybod-Bee There? (Waggle Dance)	Bee Empire Game http://www.primarygames.com/science/insects/games/beeempire/	Is Anybod-BEE There?	Is Anybod-BEE There?
Build a Bee			Grocery Store Bee List	
Make a Flower				
Pollinate				

NC Essential Standards Correlations: Pollen Nation

K.P.1.1. Compare the relative position of various objects observed in the classroom and outside using position words such as: in front of, behind, between, on top of, under, above, below and beside.

K.P.1.2: Give examples of different ways objects and organism move (to include falling to the ground when dropped): straight, zigzag, round and round, back and forth, fast and slow.

K.P.2.1: Classify objects by observable physical properties (including size, color, shape, texture, weight, and flexibility).

K.L.1.2: Compare characteristics of living and nonliving things in terms of their structure, growth, changes, movement, basic needs.

1.L.1.1: Recognize that plants and animals need air, water, light (plants only), space, food, and shelter and that these may be found in their environment.

1.L.1.2: Give examples of how the needs of different plants and animals can be met by their environments in North Carolina or different places in the world.

1.L.1.3: Summarize ways that humans protect their environment and/or improve conditions for the growth of the plants and animals that live there (e.g., reuse or recycle products, avoid littering)

1.L.2.1: Summarize the basic needs of a variety of different plants (including air, water, nutrients, and light) for energy and growth.

1.L.2.2: Summarize the basic needs of a variety of different animals (including air, water, and food) for energy and growth.

2.L.1.2: Compare life cycles of different animals such as, but not limited to, mealworms, ladybugs, crickets, guppies, or frogs.

2.L.2.2: Recognize that there is variation among individuals that are related.

3.L.2.1: Remember the function of the following structures as it relates to the survival of plants in their environments: Roots – absorb nutrients, stems – provide support, leaves – synthesize food, flowers – attract pollinators and produce seeds for reproduction.

4.L.1.2: Explain how animals meet their needs by using behaviors in response to information received from the environment.

5.L.2.2: Classify the organisms within an ecosystem according to the function they serve: producers, consumers, or decomposers (biotic factors).

5.L.2.3: Infer the effects that may result from the interconnected relationship of plants and animals to the ecosystem.

6.L.1.1: Summarize the basic structures and functions of flowering plants for survival, reproduction, and defense.

6.L.2.1: Summarize how energy derived from the sun is used by plants to produce sugars (photosynthesis) and is transferred within food chains and webs (terrestrial and aquatic) from producers to consumers to decomposers.

7.E.1.6: Conclude that the good health of humans requires: monitoring the atmosphere, maintaining air quality, and stewardship.

8.L.3.2: Summarize the relationships among producers, consumers, and decomposers including the positive and negative consequences of such interactions, including: coexistence and cooperation, competition (predator/prey), parasitism, and mutualism.

8.L.4.2: Explain the relationship between genetic variation and an organism's ability to adapt to its environment.