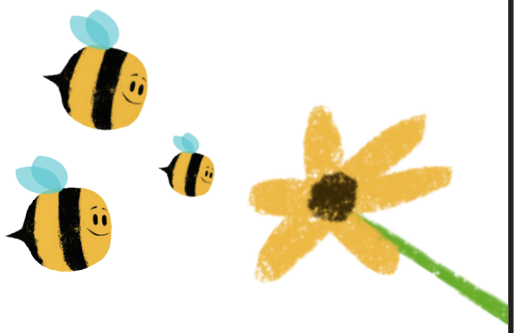
PROTECTING POLLINATORS

Help your students explore the vital role these helpful creatures play in ecosystems and design a green space where they'll thrive.



Objective

Students will develop and evaluate design solutions for attracting pollinators to increase biodiversity in a local ecosystem.

Standards, Grs. 6–8

NGSS

MS-LS2-5 Evaluate designs for biodiversity in ecosystems

CCSS ELA

WHST.6–8.1 Write discipline-specific arguments

Time

60 minutes

Materials

- Do Your Part for Pollinators activity sheet
- Colored pencils or crayons (optional)

Part 1: Pollination Foundation

1 Ask: *What do birds, bees, bats, and butterflies have to do with our food supply?* Determine students' prior knowledge. Then review the concept of **pollination**, the transfer of pollen grains from the male anther of a flower to the female stigma. Flowering plants produce seeds when pollen is transferred between flowers of the same species.

2 Explain that animals or insects that transfer pollen from plant to plant are called **pollinators**, which can include birds, butterflies, moths, and bats. (Wind and water also pollinate some plants.) In turn, pollinators rely on flowers for food—sticky pollen or sweet nectar.

3 Challenge students to estimate what percentage of the world's plants and food crops depend on animal pollination. Share some facts about pollinators, such as:

- **75 percent** of the world's flowering plants and about **35 percent** of the world's food crops depend on animal pollinators to reproduce.
- Scientists estimate that **one out of every three** bites of food we eat exists because of animal pollinators.
- More than **3,500 species** of native bees help increase crop yields.

4 Explain that pollinators are under threat from many sources, including habitat loss, non-native species, pesticides, climate change, and parasites and disease. Pollinators benefit from **diverse habitats** that support both native plants and pollinators. When land is changed so that it only features one plant or crop (**monoculture**), ecosystems suffer. **Biodiversity** not only helps pollinators, but it is also important to ecosystems.

- *To increase the challenge:* Ask students to predict what **ecosystem homeostasis** might mean. Guide them to understand that it means **equilibrium**, maintaining the balance of species' populations over time (i.e., the population of each species doesn't change too much, so the species are able to fulfill their roles in the ecosystem). Discuss: *What would happen if ecosystem homeostasis wasn't maintained?*

Part 2: Applying Knowledge

5 Tell students that they will step into the role of landscapers. They must design a green space to support pollinators in their local community. (In urban spaces, consider green roofs, pocket parks, planted medians, and other ideas.) First, have them conduct research to identify plants and other features that will attract these creatures. Prompt students to take notes as they research. *Modification option:* Have groups choose ecosystem topics based on what your class is currently studying or learned previously (e.g., soil erosion).

- *To decrease the challenge:* Have students focus on one of these pollinators only: birds, bees, or butterflies.

6 Hand out the Do Your Part for Pollinators activity sheet. Have students create their own green-space design and a persuasive proposal for it. *Optional:* Add real-world constraints, such as budget or social considerations.

7 Invite students to present their proposals to the class in a mock town hall, then vote to select the strongest green-space proposal.

ACTIVITY SHEET

Name _____

DO YOUR PART FOR POLLINATORS

Take a stand for birds, bees, and butterflies! Craft a proposal for a green space in your community that will support biodiversity and ecosystem health.

STEP 1 Design Time

Create two different green-space designs that benefit pollinators, considering the impact of each. Use extra paper as necessary.

	Design #1	Design #2
Where will you set up this green space? Select a location in your community.		
Which plants and other features will you include to attract birds, bees, butterflies, and other pollinators?		
How will attracting pollinators benefit the local ecosystem? Which types of plant or animal life will be affected?		

STEP 2 Sketch It Out

On the back of this sheet, draw a diagram of each green-space design. Label key features, such as plant species, feeding areas, and any other details.

STEP 3 Get Feedback

Share both diagrams with a classmate. Ask: *Which design is stronger? Are there ways to improve it?* Incorporate their suggestions.

STEP 4 Prep Your Pitch

On a separate sheet of paper, draft your persuasive proposal. Include info about how the green space would enhance your community.