Welcome, Teachers!

Complement Science Units

Welcome to Schoolyards in Bloom: Exploring Pollinators Through Landscape Architecture, an interdisciplinary, hands-on learning resource that brings the world of nature and landscape architecture directly into your classroom.

This flexible poster with lesson plans and more was created to spark inquiry, creativity, and real-world problem-solving for students in grades PreK–5.

Whether you teach in a classroom, a school garden, or a virtual setting, these materials are designed to meet you where you are and grow with your students.

Enrich Project-based Learning

What Is Landscape Architecture?

Landscape architecture is the design of outdoor environments that support the health, safety, and enjoyment of people, wildlife, and ecosystems.

From neighborhood parks and green schoolyards to sustainable cities and coastal restoration projects, landscape architects work at the intersection of DESIGN, NATURE, and COMMUNITY.

Integrate with Art

Schoolyards in Bloom Includes:

- A full-color poster to inspire dialogue and design thinking
- Grade-specific lesson plans aligned with STEM learning goals and Next Generation Science Standards (NGSS)
- Interactive activities adaptable to both indoor and outdoor learning
- Key vocabulary for building foundational understanding in environmental design
- Extensions for families and informal learning environments

ASLA DREAM BIG with Design

A Showcase of Landscape Architecture and PreK-12 Design Learning

TBG landscape architecture, planning & urban design

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Find more resources at **asla.org/careerdiscovery**

Informal Educators

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Unit Introduction

Schoolyards in Bloom is offered in two parallel units, Pollinator Garden and Superhero Pollinators and Trees in Schoolyards. Both focus on pollinators, pollinator plants, and their larger connections to the environment, community, and landscape architecture.

Through hands-on exploration, storytelling, art, and design, students engage with the natural world while developing environmental literacy. Each lesson is designed to encourage observation, research, creativity, and collaboration.

The Pollinator Garden unit engages elementary students (K–5) in discovering pollinator-plant relationships, environmental stewardship, artistic expression, and play.

The Superhero Pollinators and Trees in Schoolyards unit is designed for middle school students (grades 6–8) and emphasizes tree ecology, pollination, and play. Activities build on the momentum of introductory lessons that culminate in the unit's final project (a mural) that visually represents students' learning.

Both units explore how natural spaces can serve as areas for both learning and play while fostering a deeper understanding of environmental literacy, biodiversity, and design thinking.

Pollinator Garden Lesson Plan

ASLA Career Discovery

For teachers and informal educators, grades K-5.

Overview & Narrative

In this unit, elementary students (K–5) become environmental explorers, naturalists, game-makers, artists, and landscape architects as they engage with the natural environment through books, expert knowledge, and hands-on research. Students will investigate pollinators and pollinator plants, exploring their vital role in ecosystems and their impact on the world.

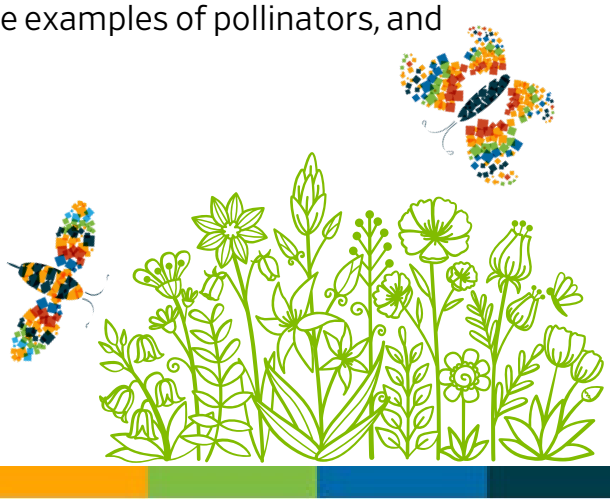
The unit will culminate in a public showcase of student learning, featuring artistic and scientific deliverables such as collages, charts, illustrations, models, and interactive games. A key component of this project is a pollinator garden mural, designed collaboratively and displayed near the schoolyard or library, illustrating the relationships between plants, pollinators, and their surrounding ecosystems. This multi-week project follows the core processes of observation, research, design, and construction.

Big Goals

- Understand the role of pollinators in the environment.
- Learn about pollinator plants and their significance.
- Design a pollinator garden as a space for play.
- Inspire a love of nature and plants.
- Encourage creativity through art, design, and hands-on creation.

Objective

Students will understand what pollinators are, recognize examples of pollinators, and learn their role in helping plants and flowers grow.



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Essential Questions

Kindergarten:

- What are pollinators, and how do they help plants grow?
- What colors, shapes, and patterns do pollinators like best?

1st Grade:

- What do pollinators need to survive, and how do they find food?
- How can we tell the story of a pollinator through pictures and art?

2nd Grade:

- What kinds of plants do pollinators love, and why?
- How are pollinators and plants connected to other living things around them?

3rd Grade:

- What happens if there aren't enough pollinators in an environment?
- How can we design a space that makes pollinators feel safe and welcome?

4th Grade:

- How do different pollinators, like bees, butterflies, and birds, help the environment in unique ways?
- What can we learn from nature to create art and designs that help pollinators?

5th Grade:

- What can we do to protect pollinators in our community and beyond?
- How can we use design and creative projects to teach others about pollinators?

Materials

- White printer paper (for drawing)
- Colored paper (various sizes)
- Scissors
- Glue and/or tape
- Markers and crayons

Optional

- Small plastic or paper cups
- Glitter
- Cotton balls or small pom-poms (to represent pollen)
- Pipe cleaners or wood stir sticks (to represent antennae or legs)
- Printable plant and pollinator coloring sheets (identification guides)

Today, your challenge is to create pollinators and flowers!
We will use your creations to play a game.

Step 1: Pollinator and Flower Art

Divide students into two groups.

- Butterflies and bees are pollinators (the helpers)
- Flowers hold nectar and pollen (which serve as food and help the flowers grow)

Encourage each group to think about their role as you explain the activity.
"In nature, butterflies and bees serve as pollinators. Flowers hold the food—nectar and pollen. The butterflies and bees collect food from the flowers and distribute it to other flowers, helping them to grow."

Let's get started!

- **Group 1: Butterflies**
  - Create butterflies by decorating pre-cut butterfly shapes or cutting their own from construction paper. Add antennae with pipe cleaners.

- **Group 2: Bumblebees**
  - Make bumblebees by coloring bee outlines or wrapping yellow and black paper around a small tube.

- **Group 3: Flowers**
  - Craft flowers by drawing and cutting flower shapes, gluing them onto popsicle sticks, or using pre-made templates.

Step 2: Pollination Game

Pollination Song (https://www.youtube.com/watch?v=ndIncz9Wa6I)

- Position the students who created flowers around the room. Give each student a collection of small pieces of colorful paper, cotton balls, or pom-poms, (representing pollen).

- When the music starts, the children playing the pollinators (who created the butterflies and bees) "visit" a flower, touch their butterfly or bee to the "pollen," and then move to another flower to transfer the pollen.

    - To simulate nectar collection, give the pollinators a small cup to collect pretend "nectar" (colored paper bits or small pom-poms) as they visit flowers.

    - Encourage students to make exchanges of pollen at each visit.

Instructors can create constraints or ask the students to develop constraints to keep them engaged. For example:

- Encourage a polite salutation-like verbal exchange: "Hello, my name is Buzzy the Bee! Would you please share some pollen?" (social skills)
- Encourage learners to reinforce verbally that the plants are helping the pollinators and the pollinators are helping the plants!
- When the music stops, students can count how much pollen each flower and pollinator has (counting and math applications).
- Flowers give two pollen at each visit and pollinators give one, etc.
- Pollen colors can match flower colors (patterns, colors, etc.).

The simulation game can end at any time, per student interest level or timing.

Today, your challenge is to explore and understand the role of pollinators in the ecosystem and create a diagram of the pollination process. The first step is to explore various resources and find out information!

Step 1: Explore

(in groups of 2 or 3)

Provide students with books or internet access to research common pollinators (bees, butterflies, bats, hummingbirds, etc.) and pollinator plants.

Challenge them to seek out images and information that label key parts of plants and pollinators:

- pollinator
- pollinator plant
- stems
- petals
- pollen
- nectar
- seeds
- and more!

Challenge students to write down at least three examples of pollinators and why they are important for plants.

Challenge them to explain the pollination process, using terms like pollen, nectar, seeds, pollinators, and flowers.

How do pollinators benefit from pollinator plants?

How do pollinator plants benefit from pollinators?

Extension Challenge

What are all the ways that humans benefit from pollinators (e.g., food crops)?

Step 2: Pollinator and Plants Diagram

Using construction paper, markers, crayons, etc., have students create or draw a labeled diagram showing a pollinator transferring pollen from one flower to another.

Step 3: "Carousel" Review

Have students place their final diagrams on their desktops and allow them to view each other's work and develop questions to bring to the closing discussion.

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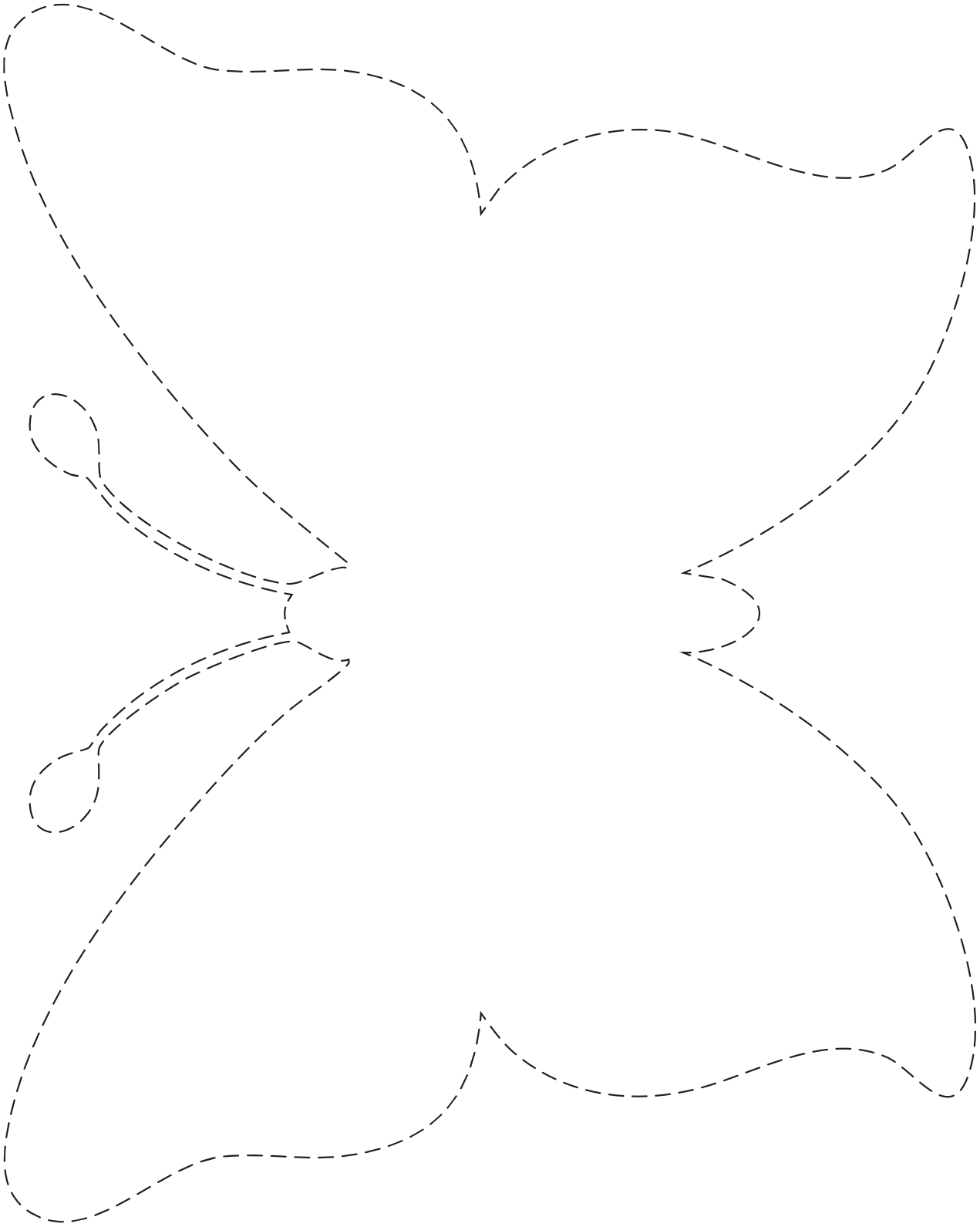
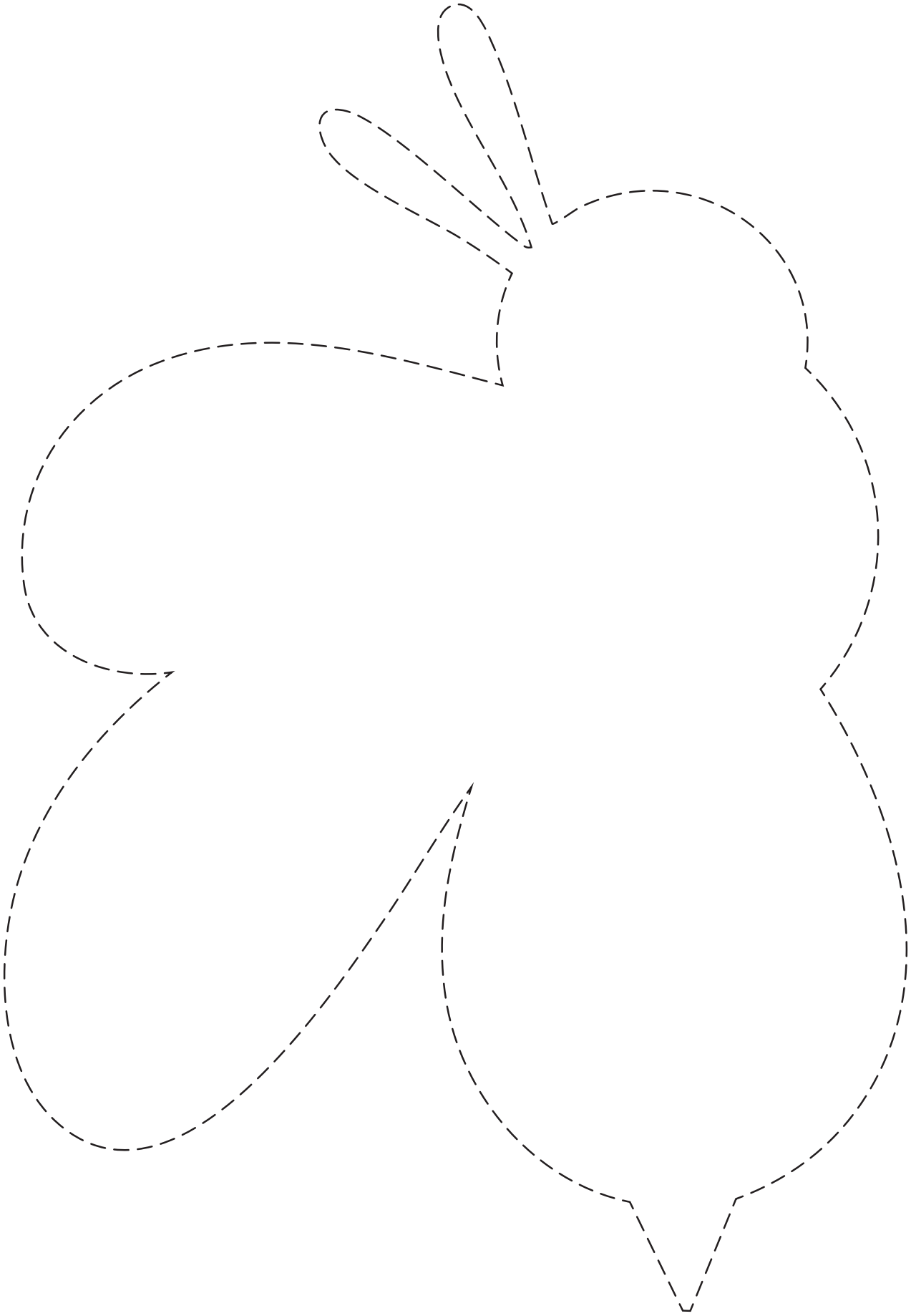
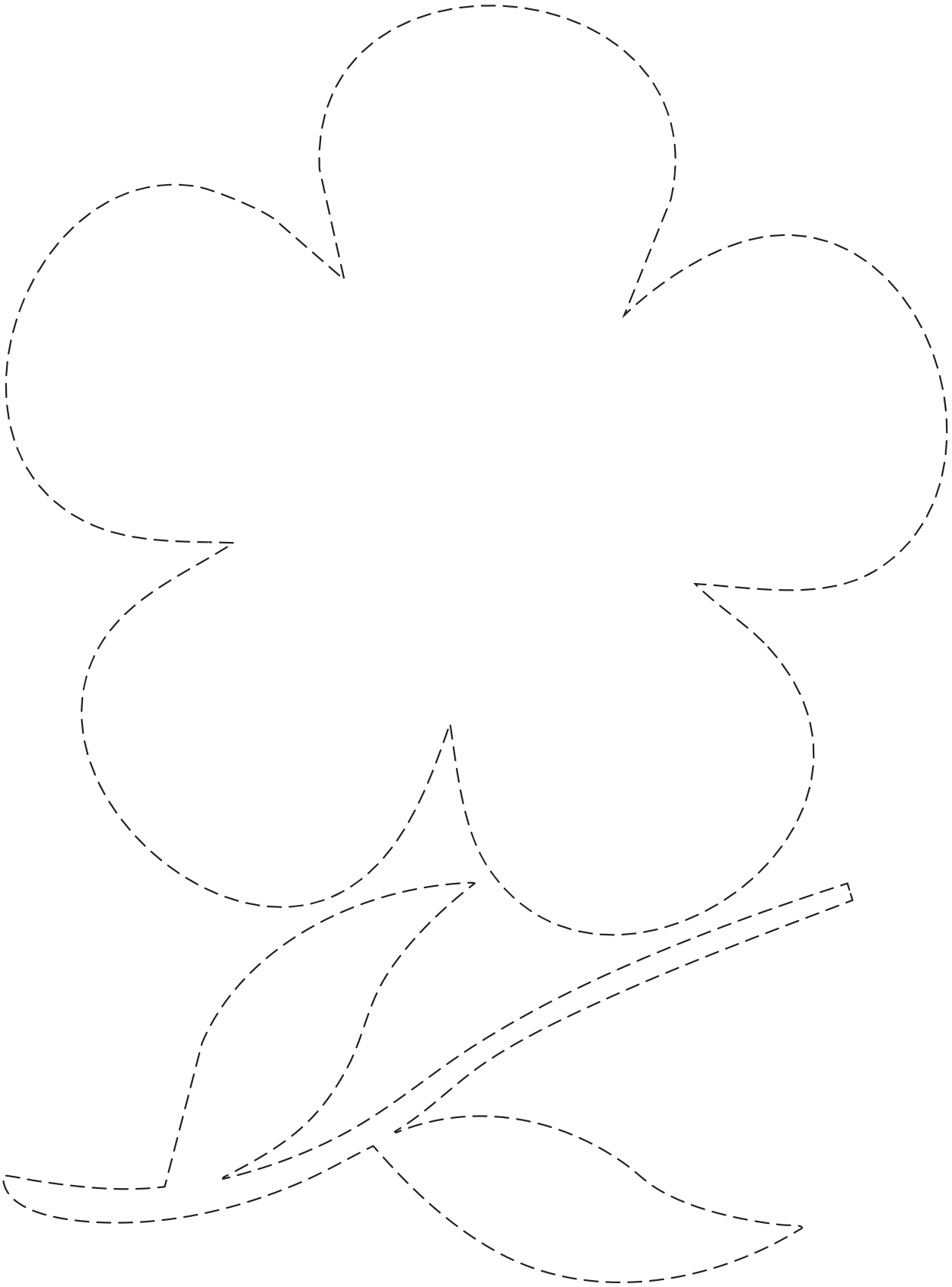
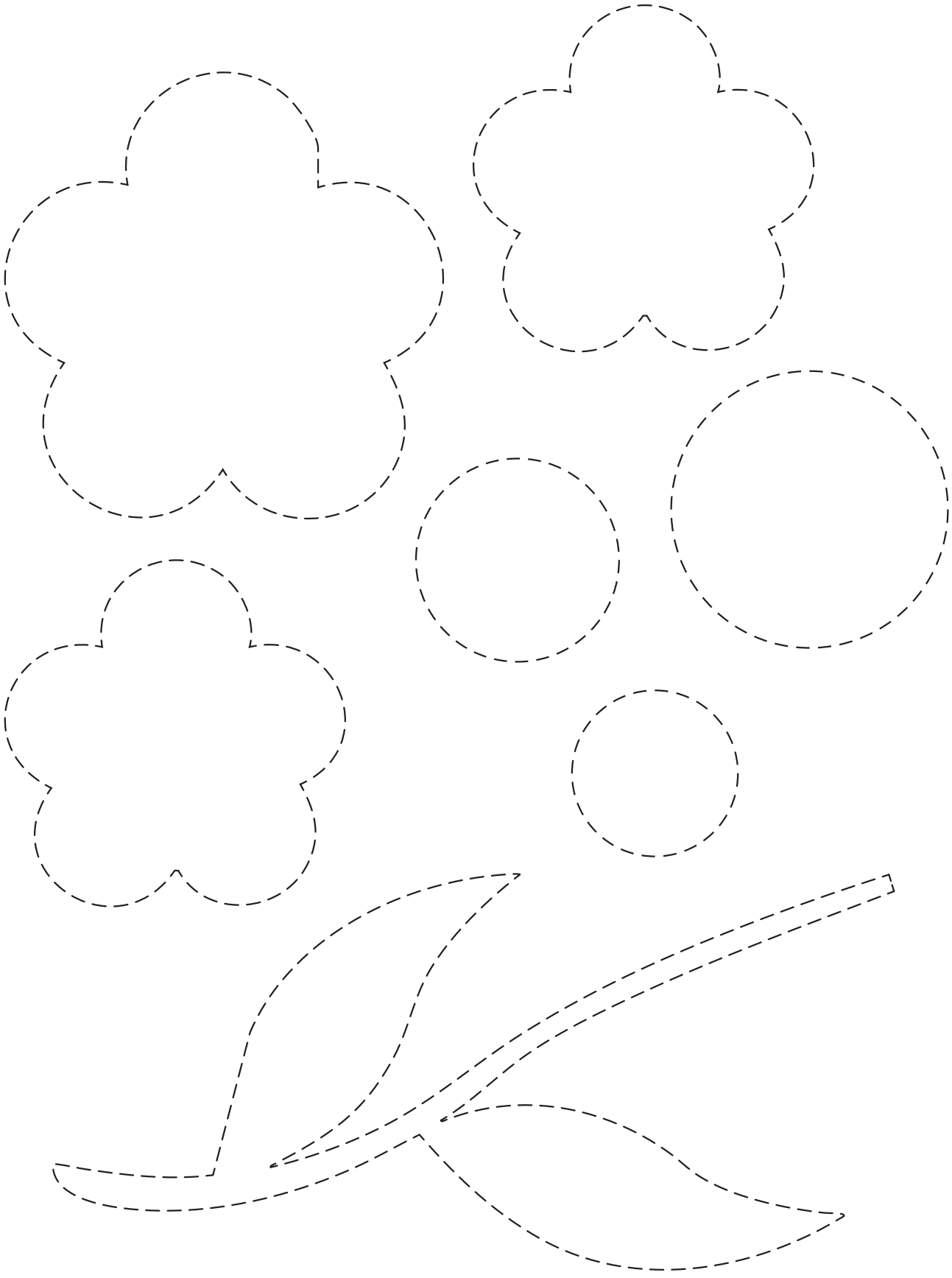






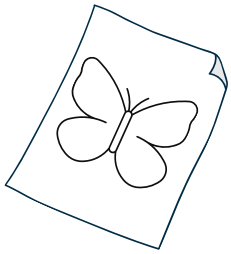


Let's Make & Learn!

Grades K-2

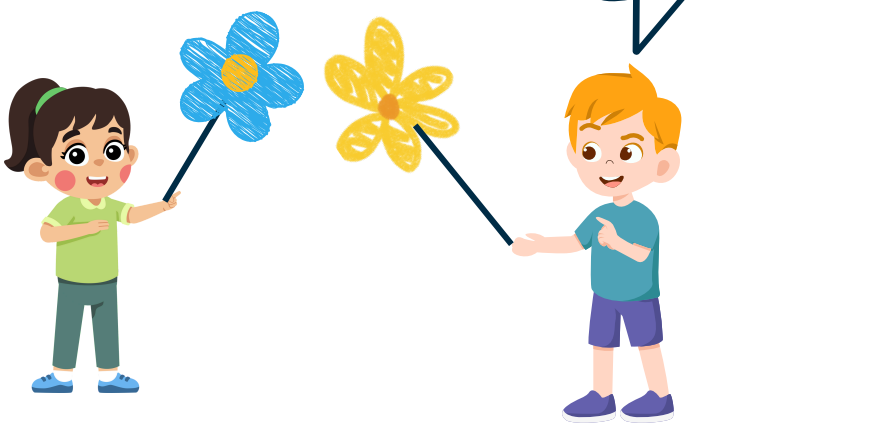
Step 1: Pollinator and Flower Art!

Suggested Materials



- Provided Templates
- Crayons or Markers
- Construction Paper
- Pom-poms or Cotton Balls

Step 2: The Pollination Dance!



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Pollinators

Pollinator Plants

What's a pollinator?

I'm a pollinator!

Me too! I'm a pollinator!

Me three! I'm a pollinator!

Me four! I'm a pollinator!

I LOVE pollinator plants! What's your favorite pollinator plant?

Goldenrod

Coneflower

Lavender

What would happen if there were no pollinators?

Black-eyed Susan

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Pollination Process

Grades 3-5

Step 1: Explore

Step 2: Explain

Save Our Pollinators

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Vocabulary

Bats: Nocturnal animals that help pollinate flowers at night.

Bees: Small flying insects that collect nectar and help pollinate plants.

Biodiversity: The variety of plants and animals living in one area.

Butterflies: Colorful insects with wings that drink nectar and help pollinate flowers.

Cross-pollination: When pollen moves from one flower to a different flower, helping plants grow better.

Ecosystem: A community of plants, animals, and their environment working together.

Flower: The part of a plant that makes pollen and nectar and attracts pollinators.

Garden: A place where people grow flowers, fruits, and vegetables, often visited by pollinators.

Habitat: The natural home of a plant or animal.

Hummingbirds: Tiny birds with fast wings that drink nectar and help spread pollen.

Nectar: A sweet liquid made by flowers that pollinators like to drink.

Pollen: A fine, yellow powder found inside flowers that helps plants make seeds.

Pollination: The process of moving pollen from one flower to another so the plant can make seeds.

Pollinator: An animal that helps move pollen from one flower to another, helping plants grow (for example, bees, butterflies, birds, bats).

Seed: A small part of a plant that can grow into a new plant.

Credits

Lesson plan content was created by Taylor Metz and Miranda Mote.

Taylor Metz, ASLA, PLA (Lesson K–5)

Taylor Metz, ASLA, PLA, is a landscape architect and Assistant Professor of Landscape Architecture at Ball State University. Holding a Master of Landscape Architecture from Ball State and a degree in Communication Studies and Art from Gustavus Adolphus College, Metz specializes in educational landscapes, schoolyard design, and design thinking. His teaching and research emphasize design pedagogy, advocacy, and innovative, learner-centered educational environments. Committed to advancing the field of landscape architecture, Metz focuses on creating impactful, inspiring spaces that foster learning, play, and engagement.

Miranda Mote, ASLA, Ph.D. (Lessons 6–8)

Miranda Mote, ASLA, Ph.D., is an architect, historian, artist, and educator based in Philadelphia. She was the 2023–24 Garden Club of America/Prince Charitable Trusts Rome Prize, Landscape Architecture Fellow. While residing in Rome she exhibited her botanical printmaking at the Academy and at the Non-Catholic Cemetery in Rome, taught at three Italian elementary schools, developed DIGS, a K–12 environmental literacy curriculum that uses art to teach language and STEM subjects, and designed a teaching game system, HIVE. In 2022, she established Botanography as a 501(c)3 non profit to directly serve students and families in Philadelphia County and believes that environmental justice begins with environmental literacy and children.

BONUS ACTIVITY: Pollinator Garden Art

Time: 15–20 minutes

Materials Needed:

- Crushed colored sidewalk chalk (to represent pollen)
- Plastic eggs (to hold the "pollen" in flower centers)
- Foam flower cutouts
- Pipe cleaners (to create insect pollinators)
- Sidewalk chalk (to draw flowers on pavement)
- Floral foam blocks or Styrofoam (to hold foam flowers upright)

Step-by-Step Instructions:

1. Build Your Flower Garden:

- Attach foam flower cutouts to plastic eggs (these will be the flower centers).
- Fill each plastic egg with a small amount of crushed sidewalk chalk (pollen).
- Insert the base of each flower into a floral foam block or Styrofoam so they stand upright like a real garden.

2. Create Your Pollinator:

- Use pipe cleaners to craft a bee, butterfly, or other insect.
- Twist pipe cleaners into legs, wings, and antennae to bring your pollinator to life.
- Click video tutorial.

3. Draw a Chalk Garden:

- Use sidewalk chalk to draw large flowers on the pavement nearby. These will be the flowers your pollinator will visit and "pollinate."

4. Pollinate the Garden!

- Children dip their crafted insects into the crushed chalk “pollen” inside the plastic egg flower centers.
- Then, they “fly” their insect to the chalk-drawn flowers on the ground, gently pressing to leave behind some pollen.
- Repeat with different flowers to simulate how pollinators spread pollen.

Wrap-Up Discussion:

Ask the children what they noticed about how the pollen moved.
Talk about how real pollinators help plants grow and why they’re important to our environment.

Optional: Let each child name their pollinator and share one thing they learned.

Learning Takeaway:

Pollinators like bees and butterflies are essential to plant life. This hands-on activity helps children understand how pollen is transferred and why protecting pollinators matters.



The Pollinator Garden Art Bonus Activity was provided by The Land Group.
Photo Credit: The Land Group

Evaluation & Discussion

Step 1: Discussion and Wrap-Up

Let's talk about what we've learned today.

What is a pollinator?

Definition: A pollinator is an animal that helps move pollen from one flower to another, allowing plants to make seeds and fruit.

Ask students to name a pollinator and describe what it does.

Use a thumbs-up/thumbs-down game to check understanding.

Extensions

Have students explain why pollinators are important in one sentence or paragraph.

Describe what pollinators need to survive.

Add complexity by introducing the idea of ecosystems and interdependence.

Discuss threats to pollinators and brainstorm simple solutions (e.g., planting flowers, seasonality, year-round care, etc.).

Bloom's Taxonomy Connections

- Remembering:
  - What is a pollinator?
- Understanding:
  - Why do pollinators visit flowers?
- Applying:
  - What would happen if there were no pollinators?

Webb's Depth of Knowledge (DOK) Levels:

Developed by Normal Webb, DOK is a framework that categorizes learning tasks according to the cognitive complexity they require. Rather than focusing solely on what students are doing, DOK examines how deeply students must think to complete a task. (Source: Structural Learning)

Level 1 (Recall): Identify pollinators and their purpose.

Level 2 (Skill/Concept): Compare different types of pollinators.

Level 3 (Strategic Thinking): Predict how plants, animals, and humans depend on each other..