



Nature-Watch Activity Kit

Brilliant Butterflies

(Nature Watch Kit #175)

Each child makes 3 butterflies

	<u>Quantity</u>
Butterfly Bodies (4 types)	75
Butterfly Wings (4 types)	75
Antennae	75

This page includes the Next Generation Science Standards (NGSS) mapping for this kit and Science, Technology, Engineering, and Math (STEM) extensions (on back) to use in adapting and extending this activity to other subject areas.

Next Generation Science Standards Alignment

- **2-LS2-2.** Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.
- **2-LS4-1.** Make observations of plants and animals to compare the diversity of life in different habitats.
- **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.
- **4-LS1-1.** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
- **MS-LS2-2.** Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
- **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.

**See Back for
STEM Extensions**

This Nature Watch Activity Kit contains an Instructor Manual and materials to implement the curriculum. The kit was designed to be used with adult supervision only. Unsupervised use is not recommended.



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STEM Extensions

Science

1. Butterfly Life Cycle Observation
 - Activity: Set up a butterfly habitat in the classroom with caterpillars. Let students observe the entire metamorphosis process—from caterpillar to chrysalis to butterfly. Keep a journal where students note changes and make observations.
2. Butterfly Migration Exploration
 - Activity: Use maps and track the migration routes of butterflies, particularly monarch butterflies. Discuss why butterflies migrate and how they navigate over long distances.
3. Pollination Simulation
 - Activity: Conduct a pollination activity using colored powder and artificial flowers. Assign some students to play the role of butterflies, moving from "flower" to "flower," collecting and spreading the "pollen."
4. Camouflage Experiment
 - Activity: Discuss how butterflies use their wing patterns for camouflage. Have students create their own butterfly wings using colors and patterns that blend into the classroom environment. Then, try to find the "hidden" butterflies.

Technology

1. Find a website that tracks the migration of butterflies.
2. Use phone/camera to take photos of butterflies in your area or in books or magazines.
3. Use AI online to ask questions about butterflies.

Engineering

1. Build a Butterfly Habitat
 - Activity: Have students design and construct a small butterfly habitat. They need to think about what butterflies require for survival—plants, space, airflow, etc. Using materials like mesh, wood, or recycled items, students can build a structure that could house butterflies while also protecting them from predators and the elements.
2. Butterfly Wing Strength Simulation
 - Activity: Introduce the idea of wing strength and flexibility in butterfly flight. Have students create models of butterfly wings using different materials (e.g., tissue paper, plastic, cloth) and attach them to a simple body. Test which materials are both strong and flexible enough to allow the model butterfly to "fly" (e.g., using a fan or simply by moving it through the air). They can evaluate the materials' durability and flexibility.
3. Design a Butterfly-Inspired Glider
 - Activity: Challenge students to design and build a glider that mimics the flight of a butterfly. Provide materials like lightweight paper, cardboard, and straws. Students can experiment with different wing shapes, sizes, and angles to see which design flies the best. After testing, they can modify their gliders to improve their performance based on the principles of aerodynamics.

Math

1. Pattern and Counting
 - Activity: Give students images of butterfly wings with various patterns (e.g., spots, lines). Ask students to count the number of spots or shapes on each wing and compare the patterns. They can also classify different patterns by shape or color and create graphs to represent the data.
2. Fraction Butterfly Wings
 - Activity: Use butterfly wings to explore fractions by dividing the wings into sections (e.g., using lines or patterns on the wings). Students can color a certain fraction of the sections and then compare fractions across different butterflies. For example, they might color $\frac{1}{4}$ of one wing and $\frac{1}{2}$ of another, discussing which fractions are larger or smaller.
3. Butterfly Migration Distance Calculations
 - Activity: Use the real-world example of monarch butterfly migration to teach about distance. Provide students with a map of migration routes and scale distances between different points. Students can calculate how far the butterflies travel and convert units if needed (e.g., kilometers to miles). You can extend this activity by having students estimate how long the migration would take based on different speeds.