



# Butterfly Adaptations

## Next Generation Science Standards

**4-LS1-1** Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

**4-LS2-1** Use a model to describe that animals receive different types of information through their senses, process information in their brain, and respond in different ways.

## Materials

- Access to flowering plants, especially native flowers
- Garden notebooks or worksheets and clipboards
- Air thermometer
- Pencil
- *Optional* - Butterfly nets, monarch migration map, butterfly identification book, and magnifying glasses

## Overview

*In the St. Louis region, this activity is most successful in August-September.*

Students will investigate the number and location of butterflies in the garden. From their data, they will determine how animal and plant adaptations affect survival.

## Objectives

- Students will identify plant and animals adaptations in the garden.
- Students will collect and analyze butterfly migration numbers.
- Students will describe and compare the traits of plants butterflies most frequent.

## Background

The school garden is full of plants and animals with varied traits. Plants and animals in the school garden have unique adaptations, traits (body or plant parts) or behaviors that help an organism (living thing) survive. Butterflies, like monarchs, have an adaptation to migrate south. Monarchs migrate when the temperature starts to cool, the amount of daylight shortens, and milkweed plants die back.

## Activity

### Day 1 - Adaptation Exploration

- Have students explore the garden and pick a leaf. Compare and contrast leaves. Why might it be beneficial to have a soft leaf? A spiky leaf?
- Define adaptation and have students brainstorm other garden animal and plant adaptations.
- Today the students will be entomologists (insect scientists) and investigate butterfly adaptations. To find butterflies, they will need to be calm, quiet, and sneaky so the butterflies do not fly away.



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## Resources for Pollinators

- Schedule butterfly lessons or guided tours of the Sophia M. Sachs Butterfly House with [Project Pollinator](#)
- Online resource for identifying butterflies, <http://www.discoverlife.org/20/q?guide=Butterflies>
- St. Louis Wild Ones Native [Landscaping Grants](#) help nonprofits create pollinator gardens
- Operation Brightside [Neighbors Naturescaping Grants](#) help St. Louis City groups create pollinator gardens

## Activity

### Day 1 continued

- Divide the class into groups of three. If you have butterfly nets or magnifying glasses, distribute them.
- Have each student create a chart in their science journal or use the attached worksheet and predict where they will find the most butterflies.
- Record the temperature and date as a class.
- In their small groups, allow students ten minutes to look for butterflies and record where they were discovered. Emphasize they do not need to know plant names, just describe the flowers and leaves.

### Day 2 - Digging Deeper

- Repeat the investigation. Try to visit the garden at about the same time of day.
- Record the temperature as a class and allow ten minutes for data collection again.
- If accessible, allow students to use either butterfly identification books or internet resources (see sidebar) to find the species of butterflies in the garden.

### Day 3 - Making Connections and Conclusions

- Repeat the investigation for the third time.
- Have each small group create a bar graph of the number of observed butterflies per day. Create a classroom data table and chart. Was their prediction correct?
- Compare and contrast locations butterflies were discovered each week.



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## Suggested Reading List

- *A Butterfly Is Patient*, Diane Hutts Aston and Sylvia Long
- *The Life Cycles of Butterflies*, Judy Burris and Wayne Richards
- *A Place for Butterflies*, Melissa Stewart
- *Butterflies and Moths*, Nic Bishop

## Discussion

### Day 1

- Are all plants in the garden the same? How could it help plants to survive if they are different heights, sizes, colors, and smells?

### Day 2

- What kinds of butterflies did you find in the garden?
- How is the garden changing between visits?

### Day 3

- What patterns do you notice about the number and location of butterflies?
- Why do you think butterflies were attracted to flowering plants? Was there a certain type or color of flower butterflies like the most?
- What day did you find the most butterflies?
- Where do the butterflies go in the winter? Why do butterflies have the behavioral adaptation of migration?
- How do butterflies know it is time to migrate? Why don't all animals migrate?

## Assessment

- Students complete graph and chart of butterfly migration numbers. Students analyze bar graph to determine how migration helps butterflies survive.
- Use the "Chrysalis" probe as a pre and post-test assessment. Keeley, P. and Tucker, L. (2011) *Uncovering Student Ideas in Life Science*. NSTA Press, Arlington, VA.



# Butterfly Adaptations

## Gateway Greening

### Resources

Connect with us on Facebook to discover upcoming Educator Workshops or join the Gateway Greening Educators Group to connect with other teachers:



@GatewayGreening

Discover season-specific gardening how-to's and examples of current lessons:

Looking for Field Trip opportunities or need to ask a question about our education services? Please contact  
education@gatewaygreening.org  
or 314-588-9600 ext 106

### Further Investigations

- Use the "Chrysalis" probe as a pre and post-test assessment. Keeley, P. and Tucker, L. (2011) Uncovering Student Ideas in Life Science. NSTA Press, Arlington, VA.
- Add your data to Citizen Science website iNaturalist (<https://www.inaturalist.org/>) Compare your findings with students around the world.
- Keep the classroom butterfly migration data table and compare data with different years. How did the weather and date affect butterfly numbers?
- Have each student identify a garden plant's interesting trait or behavior (thorns, a strong scent, giant leaves) and research how it helps the plant survive.

### Cross-Curricular Connections

- Connect with students in Mexico who live near monarch winter habitat. The Symbolic Migration unites students through art and journaling. Entry is due mid-October each year. <http://www.learner.org/jnorth/symbolic-migration>
- Create a service-learning project. Research, design, and plant a pollinator garden with species that will attract butterflies.

Name \_\_\_\_\_

# Butterfly Migration

Date	Weather	Number of Butterflies	Plants Near Observed Butterflies