FLUTTER FINDS HER WINGS!

In this investigation, students explore evidence of the monarch butterfly in different stages of its life cycle.

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GA standard:
S2L1 (Grade 2)

Driving investigation questions:
What is the life cycle of a monarch butterfly? How does the monarch butterfly benefit the ecosystem?

Learning goal:
- *I can use evidence to identify the stages of a monarch butterfly's life cycle.*
- *I can describe how a monarch butterfly benefits the ecosystem*

Focal scientific practices:
- Making predictions
- Collecting evidence and analyzing data

Materials:
- Monarch butterfly life cycle poster or image (pg. 4)
- Monarch butterfly life cycle models (if available)
- Student Data Log
- Black construction paper
- Cotton balls
- Yellow chalk
- Sticky notes (for predictions)

Key science terms:

Life cycle	Imago (adult stage)
Eggs	Metamorphosis
Larva (caterpillar)	Pollinator
Pupa (chrysalis)	Ecosystem

Time: 40 minutes

Background information

Pollinators are important members of the ecosystem. They pollinate flowers and plants, which helps them reproduce seeds and continue growing. Some of the major pollinators in a coastal ecosystem include bees and butterflies.

The monarch butterfly is a pollinator you may spot near the coast, in a garden or a freshwater wetland. The monarch butterfly is a large, beautifully colored butterfly that is easy to recognize by their striking orange, black and white markings. These colors warn predators that they are poisonous. The wingspan of a mature monarch butterfly can reach five inches.

The life cycle of the monarch butterfly has four distinct stages. The cycle begins when female monarchs lay eggs on the underside of leaves. These eggs hatch into larvae (caterpillar). When the caterpillar is fully grown, it transforms into a pupa (chrysalis) and lastly, the adult stage or butterfly. Monarch butterflies go through this change in form through a process known as metamorphosis.

Procedure

Before starting the investigation, observe pictures of the monarch butterfly and its life cycle. If available, provide models of the monarch butterfly's life cycle to each table or group so that students can visualize each stage

1. Show the class a picture of the monarch butterfly and ask students to share their observations. Students may have several responses about what they see or how the picture makes them feel. Write these responses on the board and explain to the class that this is a special type of butterfly called the monarch butterfly.

2. Next, introduce the life cycle of the monarch butterfly using a poster or images as a visual for students to clearly see each stage. Define what a life cycle is and explain each of the different stages. While describing each stage, have the students interact with the monarch butterfly life cycle models (if available) as another representation of each stage. This will help students become aware of what to look for outside as evidence of each stage.

3. Perform a read aloud to the class of "Buzz the Bee and Flutter the Caterpillar."

Beginning of the story: *Buzz the bee and Flutter the caterpillar were the best of friends. You never saw one of them without the other. They would often go down to the pond, where Flutter would eat the leaves and Buzz would drink the yummy pollen. Just last week they were on a tree branch in the garden when something bad happened. The wind blew and Flutter was LOST! Buzz could not find her anywhere. He has searched everywhere! He needs our help to track her down. Can we help?*

4. Prompt students to make a prediction on a sticky note as to what life cycle stage they will find Flutter in while investigating the pollinator garden or chosen location.

5. Pass out the "Data Log" and have students draw each stage of a monarch butterfly's life cycle in the boxes provided. Explain to students that their job is to investigate the pollinator garden and find evidence of and circle each life stage of a butterfly they find!

6. As students leave the classroom on their way to the pollinator garden, have them post their sticky note predictions to the door and pick up a clipboard and pencil to be ready to record their observations on the "Data Log."

7. In the pollinator garden, encourage students to work individually to look for evidence of Flutter (or a butterfly in any life stage) and record their observations on their student log. Outside time should take about 10–15 minutes.

8. Ask students, "Did you find Flutter?" Some students will say yes, some will say no. Ask students to talk about the evidence for their findings. Then say, "Some of you think you found Flutter… but let's read the rest of our story to find out where she is!"

GOOD NEWS! Buzz found his best friend, Flutter! She isn't a caterpillar anymore though… she's much prettier. She now has wings and can fly. Do you know what she is? She's a butterfly! He found her flying around the big flowers in the wetland. She was giving back to her ecosystem by pollinating the flowers.

9. After reading the story, ask, "Where was Flutter?" Students should respond that Flutter was in the nearby freshwater wetland. Ask learners, "What is pollination? Who can help me describe what this means?"

- **Pollination:** the transfer of pollen to a stigma, ovule, flower or plant for reproduction

10. Demonstrate pollination by drawing two flowers on a piece of black construction paper using chalk. Color in the middle of one of the flowers (or stigma) using yellow chalk to represent pollen. Have students imagine that a cotton ball is a butterfly. Have students "stop by the flower" and swirl the butterfly (cotton ball) onto the flower with chalk in the center. To show the process of pollination, have them touch the center of the other flower (with no pollen) with the "butterfly" to mimic how butterflies transfer pollen between flowers and help them reproduce.

11. To conclude, pass out the "Flutter Finds Her Wings Reflection" questions and have students respond and discuss three questions: **1.** Was your prediction correct? **2.** How did Flutter help the ecosystem? **3.** What was your favorite part of this investigation?

Extensions:

- Investigate the life cycle of Buzz the bee. Challenge students to examine a bee's life cycle and draw and label the different stages. What is similar to Flutter's life cycle? What is different? How do think bees help the environment as well?

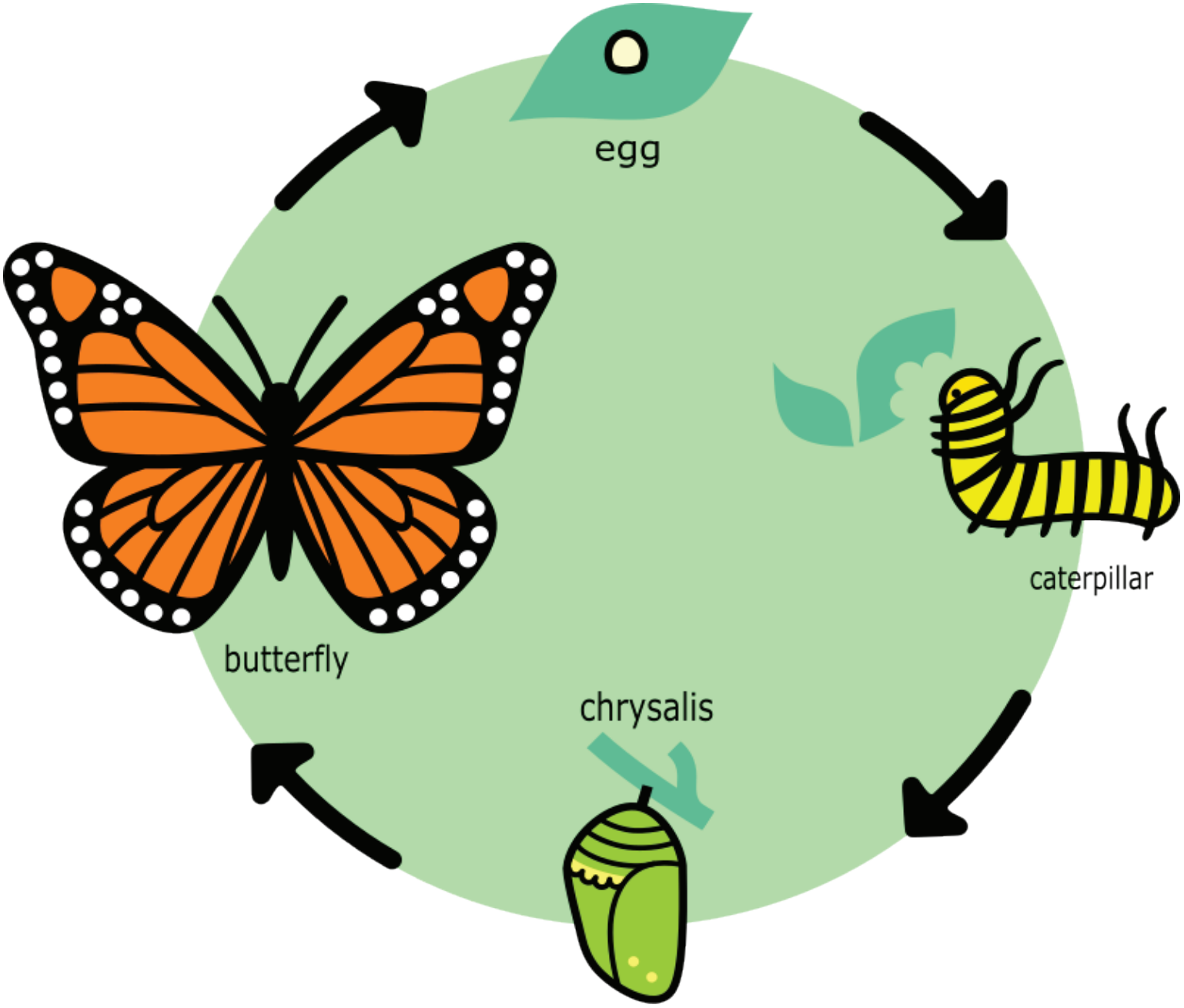
- Have students compare the viceroy butterfly to the monarch butterfly and discuss mimicry in nature. map for visitors that displays the amphibians and their habitats at each location.

Teaching Resources

Monarch butterfly life cycle models set:
https://www.acornnaturalists.com/monarch-life-cycle-models.html

Monarch eggs and caterpillars:
http://www.monarchs-and-milkweed.com/Monarch%20Larvae.htm

MONARCH LIFE CYCLE



FLUTTER FINDS HER WINGS!

STORY AND DATA LOG

NAME: _____ **DATE:** _____

Buzz the bee and Flutter the caterpillar were the best of friends. You never saw one of them without the other. They often would go down to the pond, where Flutter would eat the leaves and Buzz would drink up all the yummy pollen. Just last week they were on a tree branch in the garden when something bad happened. The wind blew and Flutter was LOST! Buzz could not find her anywhere. He has searched everywhere... He needs our help to track her down. **Can we help?**

Directions: Draw each stage of the butterfly's life cycle in the boxes and then circle the stages that you observe in the pollinator garden.

EGGS	CATERPILLAR
CHRYSALIS	**BUTTERFLY**

FLUTTER FINDS HER WINGS!

REFLECTION

NAME: _____ **DATE:** _____

GOOD NEWS! Buzz found his best friend, Flutter! She isn't a caterpillar anymore though... she's much prettier. She now has wings and can fly. Do you know what she is? She's a butterfly! He found her flying around the big flowers in the wetland. She was giving back to her ecosystem by pollinating all the flowers.

Consider the following and please explain your ideas.

1. Was your prediction correct? Why or why not?

_____

_____

_____

2. How did Flutter help the ecosystem?

_____

_____

_____

3. What was your favorite part of this investigation?

_____

_____

_____

Extension

Comparison of **Monarch Butterfly** (left) and **Viceroy Butterfly** (right)

Photos: Piccolo Namek and Derek Ramsey