

Monarch Migration

Grade level: Third Grade

School: Cassidy Elementary

Developed by: Reneé Kennedy, Pat Works, Dana Marston

Organizer

How do Monarch Butterflies grow and change?

Academic Expectations and Demonstrators

2.2 Students identify, analyze, and use patterns such as cycles and trends to understand past and present events and predict possible future events.

2.6 Students understand how living and nonliving things change over time and the factors that influence the changes.

SC-E-3.1.2 Organisms have basic needs. For example, animals need air, water, and food; plants need air, water, nutrients, and light. Organisms can survive only in environments in which their needs can be met.

SC-E-3.1.3 Each plant or animal has structures that serve different functions in growth, survival, and reproduction. For example, humans have distinct body structures for walking, holding, seeing, and talking.

SC-E-3.2.1 Plants and animals have life cycles that include the beginning of life, growth and development, reproduction, and death. The details of a life cycle are different for different organisms.

SC-E-3.3.2 The world has many different environments. Distinct environments support the lives of different types of organisms. When the environment changes, some plants and animals survive and reproduce, and others die or move to new locations.

SC-E-3.3.3 All organisms, including humans, cause changes in the environment where they live. Some of these changes are detrimental to the organism or to other organisms; other changes are beneficial (e.g., dams built by beavers benefit some aquatic organisms but are detrimental to others).

2.22 Students create works of art and make presentations to convey a point of view.

6.1 Students connect knowledge and experiences from different subject areas.

AH-E-3.1.33 Identify and discuss elements of production (scenery, costumes, props, sound and music, makeup, and roles) and elements of performance (character, movement, vocal expression, speaking style, listening, acting, storytelling) in a variety of works. (2.23, 2.24)

Essential Questions

- What is the life cycle of a Monarch Butterfly?
- How do environmental changes affect Monarch Butterflies?
- What structures of the Monarch Butterfly in all phases of its life cycle help it to adapt and survive in its environment?
- How can the elements of production (play or skit) help students convey the scientific principles learned about Monarch Butterflies?

Culminating Performance

The class will write and perform a play for the entire school based upon the life cycle and migration patterns of the Monarch Butterfly. The class will develop a storyboard of the play and groups will write individual "scenes."

Scoring Guide/Rubric

| Score | Writing Component (Script) | Performance | Science Component (Open Response) |
|--------------|---|--|---|
| 4 | <ul style="list-style-type: none"> Establishes a purpose and maintains clear focus; strong awareness of audience; evidence of distinctive voice and/or appropriate tone. Depth and complexity of ideas supported by rich, engaging, and/or pertinent details; evidence of analysis, reflection, insight. Careful and/or subtle organization Variety in sentence structure and length enhances effect. Precise and/or rich language Control of spelling, punctuation, and capitalization | <ul style="list-style-type: none"> Group demonstrates effective communication skills with creative vocal expression and speaking style. Movement patterns enhance the content. Group's characterization showed creativity. Group uses scenery, costumes and props in a creative manner. | <ul style="list-style-type: none"> Student correctly records all content specific to group's topic. Student explains with extensive details the components particular to their topic. Student communicates this information in an organized manner so that others can understand. |
| 3 | <ul style="list-style-type: none"> Focused on a purpose; communicates with an audience; evidence of voice and/or suitable tone. Depth of idea development supported by elaborated, relevant details. Logical, coherent organization Controlled and varied sentence structure Acceptable, effective language Few errors in spelling, punctuation, and capitalization relative to length and complexity | <ul style="list-style-type: none"> Group demonstrates effective communication skills with proper vocal expression and speaking style. Movement patterns enhance the content. Group's characterization is evident. Group uses scenery, costumes and props. | <ul style="list-style-type: none"> Student correctly records all content specific to group's topic. Student explains with details the components particular to their topic. Student communicates this information with some lapses in organization. |
| 2 | <ul style="list-style-type: none"> Some evidence of communicating with an audience for a specific purpose; some lapses in focus. Unelaborated idea development; unelaborated and/or repetitious details. Lapses in organization and/or coherence. Simplistic and/or awkward sentence structure. Simplistic and/or imprecise language Some errors in spelling, punctuation, and capitalization that do not interfere with communication | <ul style="list-style-type: none"> Group demonstrates communication skills with minimal variation in vocal expression and speaking style. Movement patterns are evident, but not related to content. Group's characterization is minimal or does not relate to content. Group scenery, costumes and props are incomplete or do not relate to content. | <ul style="list-style-type: none"> Student correctly records major content specific to group's topic. Student gives basic explanation of the components particular to their topic. Student communicates this information reasonably, but demonstrates poor organization and some inaccurate information. |
| 1 | <ul style="list-style-type: none"> Limited awareness of audience and/or purpose Minimal idea development; limited and/or unrelated details. Random and/or weak organization. Incorrect and/or ineffective sentence structure Incorrect and/or ineffective language. Errors in spelling, punctuation, and capitalization are disproportionate to length and complexity. | <ul style="list-style-type: none"> Group demonstrates poor communication skills with distracting vocal expression and speaking style. Movement patterns are non-existent or detract from the content. Group's characterization is non-existent or detracts from the content. Group scenery, costumes and props are missing or detract from presentation. | <ul style="list-style-type: none"> Student records minimal content specific to group's topic. Student gives minimal or no explanation for the components particular to their topic. Student demonstrates poor organization and inaccurate information. |
| 0 | | <ul style="list-style-type: none"> Presentation totally incorrect or irrelevant. | <ul style="list-style-type: none"> Response is totally incorrect or irrelevant. |
| Blank | | <ul style="list-style-type: none"> No Presentation | <ul style="list-style-type: none"> No Response |

Evaluation Component:

Open Response/Multiple Choice comparison with another class at the control group who has not studied the content extensively that year. Each group will use the quiz as a pre-test and post-test for comparison purposes. The results will be compared. (The post-test only will be used the first year.)

Knowledge (Core Content)

- SC-E-3.1.2** Organisms have basic needs. For example, animals need air, water, and food; plants need air, water, nutrients, and light. Organisms can survive only in environments in which their needs can be met.
- SC-E-3.1.3** Each plant or animal has structures that serve different functions in growth, survival, and reproduction. For example, humans have distinct body structures for walking, holding, seeing, and talking.
- SC-E-3.2.1** Plants and animals have life cycles that include the beginning of life, growth and development, reproduction, and death. The details of a life cycle are different for different organisms.
- SC-E-3.3.2** The world has many different environments. Distinct environments support the lives of different types of organisms. When the environment changes, some plants and animals survive and reproduce, and others die or move to new locations.
- SC-E-3.3.3** All organisms, including humans, cause changes in the environment where they live. Some of these changes are detrimental to the organism or to other organisms; other changes are beneficial (e.g., dams built by beavers benefit some aquatic organisms but are detrimental to others).
- AH-E-3.1.33** Identify and discuss elements of production (scenery, costumes, props, sound and music, makeup, and roles) and elements of performance (character, movement, vocal expression, speaking style, listening, acting, storytelling) in a variety of works. (2.23, 2.24)

Technology Standards

- T3.2** Communicate responsibly and respectfully
- T4.4** Locate information using the Internet
- T4.4.2** Access and navigate web sites
- T5.3** Evaluate information from the Internet
- T5.6** Enter and edit word processing information
- T5.7.2** Enter, manipulate and create visual representation of data.
- T6.5** Create a presentation or product using application software.
- T6.6** Use digital imaging and audio

Skills/Abilities

- Writing a play/skit (writing process)
 - Pre-writing, drafting, editing, revising, publishing
 - Graphic Organizers, Word Processing
- Elements of production and performance
 - Speaking style, movement, vocal expression, characterization
 - Scenery, costumes, props
- Research
- Observation Skills
- Vocabulary specific to content area
- Using digital camera
- Organizing and Sequencing
- Group working skills
- Critical Thinking Skills

Instructional/Assessment Activities

Timeline for Unit

| | Mon | Tues | Wed | Thurs | Fri |
|--------|--|----------------------------------|--|--|--|
| Week 1 | | | Pre-test & Intro | Life Cycles & Migration | Life Cycles & Migration |
| Week 2 | | | Bring on the Butterflies | Body Structures and Parts | Body Structures and Parts |
| Week 3 | Research/ Organization (Classroom and Library) | Research (Classroom and Library) | Research (Classroom and Library) | Research (Classroom and Library) | Research (Classroom and Library) |
| Week 4 | Writing the Play | Writing the Play | Writing the Play Elem. of Production & Performance | Writing the Play Elem. of Production & Performance | Writing the Play Elem. of Production & Performance |
| Week 5 | Practice | Practice | Practice | Practice Post-Test | Performance (Release Butterflies) |

Lesson Goals

Lesson 1: Life Cycles and Migration

Objective: Students will learn basic facts about butterfly life cycles and migration.

Description: Teacher will present various reading materials from books and other media to students. Students will learn various aspects of the Monarch Butterfly and its life cycle. The teacher and students will discuss how the environment affects the butterfly.

Students will play a teacher-created game simulating the life cycle and migration patterns of the Monarch Butterfly. The game will introduce hazards to the survival of the butterflies and students will learn about how the environment affects the butterflies.

Assessment: Students will complete basic paper assessments on the life cycle and migration patterns of the Monarch Butterfly.

Resources: Magnificent Monarchs by Linda Glasser

Lesson 2: Body Parts and Structures

Objective: Students will learn about the physical adaptations of the Monarch Butterfly.

Description: Students will experiment with different tools simulating the different mouth parts of insects and how these are suited to the types of foods the insect eats.

- Piercing/Sucking – Straw with cut end; bowl of covered with plastic wrap
- Sucking – Straw; liquid in shallow dish
- Chewing – Clothes pin; leaf or paper
- *Sponge* – Sponge; liquid on table

The teacher and students will discuss how the different mouth parts of the caterpillar and butterfly are suited to the types of food the insect eats at different life stages.

Assessment: Students would match mouth types of food eaten and record their results in a grid.

Resources: Monarch Butterflies: Mysterious Travelers by Bianca Lavies

Lesson 3: Research

Objective: Students will research their group's topic in preparation for writing the play.

Description: The class will gather and organize the information they already know about Monarch Butterflies using Inspiration software. The class will split into three groups (life cycle, environmental effects, and body structures) and begin to do more in-depth research on their topic.

Assessment: Open Response question for each group will be given.

Lesson 4: Bring on the Butterflies

Objective: Students will "hatch" their own butterflies and learn about the life cycles and behaviors of the Monarch.

Description: Using magnifying glasses and rulers, students will observe and measure (estimate) Monarch Caterpillars. They will record this data in their observation journals. Students will record these observations daily. At the end of the unit, students will graph the measurement data using Microsoft Excel.

Assessment: The graph will be assessed for completeness.

Resources: Order butterflies from the Monarch Watch program from Gulliver's Giftshop (<http://shop.monarchwatch.org>) or similar program.

Lesson 5: Writing the Play

Objective: In their groups, students will write a play/skit that describes and explains the topic they researched.

Description: The students will use the writing process and the elements of a play in order to write a basic script about their topic. They will learn about characters and dialogue in order to help complete this task. Each group will use a peer editing process in order to improve their scripts.

Assessment: The script will be assessed according to the KY Holistic Scoring Guide.

Lesson 6: Elements of Production and Performance

Objective: Students will learn about the elements of production and performance in order to produce a play.

Description: Using the scripts they had previously produced, the students will identify the costumes and props they need. They will also identify movement patterns and vocal expression/speaking style that enhance the production. Students will create the necessary items they need and practice performing their skit.

Assessment: This will be assessed at the school-wide performance (or at a final practice before the performance).

Critical Resources

- Monarch Butterflies: Mysterious Travelers by Bianca Lavies
- Magnificent Monarchs by Linda Glasser
- Where Butterflies Grow by JoAnne Ryder
- Butterflies and Moths by Jim Arnosky
- From Caterpillar to Butterfly by Deborah Heiligman
- My Monarch's Journal by Connie Muther (Teacher-Parent and Student Editions)
- Monarchs in the Classroom: An Inquiry Based Curriculum for grades 3-6 by Karen Oberhauser and Liz Goehring
- Inspiration
- Microsoft Excel
- Internet
- Microsoft Word
- www.monarchwatch.org
- <http://www.learner.org/jnorth/>
- Student Props and Costumes
- Monarch Larvae and containers
- Magnifying Glasses and Rulers
- Sources of Milkweed Plants
- "Butterfly Tower"

Monarch Migration

Name: _____

Pre-Test – Page 1

Date: _____

Multiple Choice Questions

What does a monarch caterpillar need to survive?

- _____ A. Cold environment
- _____ B. Any kind of leaves
- _____ C. A cell phone
- _____ D. Milkweed leaves

How do monarch butterflies respond to seasons or cold weather?

- _____ A. They die when it gets cold.
- _____ B. They hibernate when it gets cold.
- _____ C. They migrate when it gets cold.
- _____ D. They lay their eggs when it gets cold.

What feature of a Monarch Butterfly makes it unappealing to predators?

- _____ A. They taste very bad.
- _____ B. They fly too fast to catch.
- _____ C. Predators don't like the color.
- _____ D. Their six legs are too crunchy.

How is monarch caterpillar different from a Monarch Butterfly?

- _____ A. The caterpillar has more legs.
- _____ B. The patterns and colors are different.
- _____ C. They eat different kinds of foods.
- _____ D. All of the above

What are the four stages in order of the monarch life cycle?

- _____ A. Pupa, egg, adult, larva
- _____ B. Egg, larva, pupa, adult
- _____ C. Adult, pupa, larva, egg
- _____ D. Egg, pupa, larva, adult

Monarch Migration

Name: _____

Pre-Test – Page 2

Date: _____

Open Response Question

List two environmental factors that might affect the growth and development of the Monarch Butterfly. What effect do these have on the butterfly?

Pre-Test Open Response Rubric

| | |
|----------|--|
| 4 | <ul style="list-style-type: none">• Student correctly records two environmental factors that affect butterfly growth and development.• Student explains with extensive details the effects these factors have on the butterfly.• Student communicates information in an organized manner so that others can understand. |
| 3 | <ul style="list-style-type: none">• Student correctly records two environmental factors that affect butterfly growth and development.• Student explains with appropriate details the effects these factors have on the butterfly.• Student communicates information with some lapses in organization. |
| 2 | <ul style="list-style-type: none">• Student correctly records one environmental factor that affects butterfly growth and development.• Student gives basic explanation of the effects these factors have on the butterfly.• Student communicates reasonably, but demonstrates poor organization and some inaccurate information. |
| 1 | <ul style="list-style-type: none">• Student demonstrates minimal understanding of the factors that affect butterfly growth and development.• Student gives minimal or no explanation of the effects these factors have on the butterfly.• Student demonstrates poor organization and inaccurate information. |

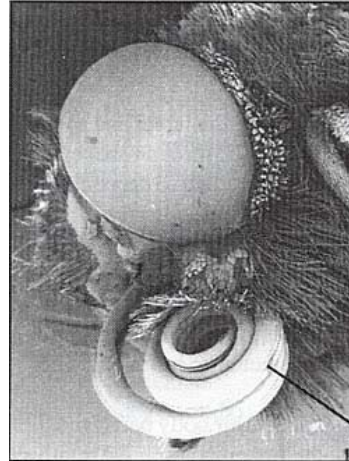
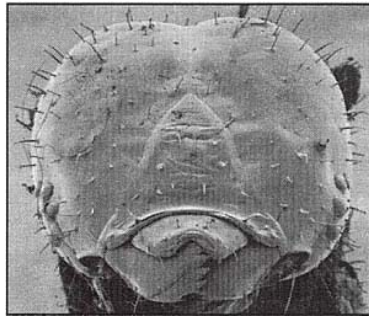
Monarch Migration

Name: _____

Open Response – Structures

Date: _____

Insect body parts are suited to specific purposes. Below are pictures of the Monarch Caterpillar mouth (on the left) and Monarch Butterfly mouth (on the right).



List two ways these mouth parts are different. Explain how these parts help the animal eat the different foods it needs during its life cycle.

Monarch Migration

Name: _____

Open Response – Environment

Date: _____

Changes in the environment affect the Monarch Butterfly. People make some of these changes, and weather and climate cause other changes. Give an example of a change people have made and describe how it has affected the Monarch Butterfly. Give an example of a change caused by the weather and how it has affected the Monarch Butterfly.

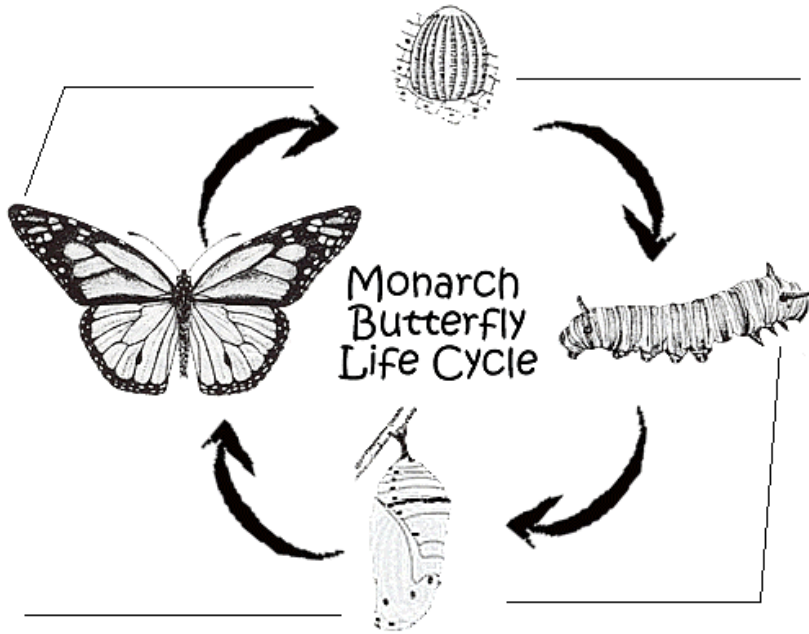
Monarch Migration

Name: _____

Open Response – Life Cycle

Date: _____

Below is a picture of the four stages of a butterfly's life cycle.



Label all of the stages of the butterfly's life cycle in the blanks provided. You may use words from the word bank below.

- | | | | |
|-------|-------|-------|------|
| Leg | Adult | Wing | Egg |
| Larva | Guppy | Mouth | Pupa |
| | | h | a |

Describe the changes that happen to the butterfly at each stage. You may write your answer below.