

## **TITLE**

A Scientific Investigation of the Life Cycle of a Monarch Butterfly

## **AUTHOR**

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## **GRADE LEVEL/SUBJECT**

Grade 2

Language Arts

Science

*60-minute periods*

## **CURRICULUM STANDARD: ILLINOIS LEARNING STANDARDS**

Language Arts

As a result of their schooling students will be able to:

- **1.B.1a:** Establish purposes for reading, make predictions, connect important ideas, and link text to previous experiences and knowledge.
- **1.B.1b:** Identify genres (forms and purposes) of fiction, nonfiction, poetry and electronic literary forms.
- **1.C.1a:** Use information to form questions and verify predictions.
- **1.C.1c:** Make comparisons across reading selections.
- **4A.1a:** Listen attentively by facing the speaker, making eye contact and paraphrasing what is said.
- **4.A.1b:** Ask questions and responds to questions from the teacher and from group members to improve comprehension.
- **4.B.1a:** Present brief oral reports, using language and vocabulary appropriate to the message and audience (e.g., show and tell).

Science

As a result of their schooling students will be able to:

- **12.A.1a:** Identify and describe the component parts of living things (e.g., birds have feathers, people have bones, butterflies have wings) and their major functions.
- **12.A.2a:** Describe simple life cycles of plants and animals and the similarities and differences in their offspring.
- **12.B.1a:** Describe and compare characteristics of living things in relationship to their environments.
- **12.B.1b:** Describe how living things depend on one another for survival.

## **OVERVIEW**

This two-week lesson will allow students to observe the life cycle of a Monarch butterfly. This activity will enable students to make connections between literature, science and their everyday lives. Students will classify children's literature as fiction or nonfiction as they investigate the life and habitat of butterflies. Students will use the Internet in conjunction with their own observations to consolidate their understanding of life cycles. Students are expected to keep daily journals of their observations as well as make predictions related to literature and the life cycle of butterflies. Students will produce a class-authored work of nonfiction and a poster outlining what they've learned.

## **PURPOSE**

The purpose of this lesson is:

- To introduce students to different genres (fiction/nonfiction) and their purpose.
- To enhance their ability to make careful, thoughtful and accurate observations.
- To enhance their ability to compare and contrast.
- To introduce students to the concept of a life cycles.
- To help students make connections between new knowledge and their everyday lives.

## **LEARNING OBJECTIVES**

- Students will make predictions, connect important ideas, form questions and establish purposes for reading.
- Students will identify fiction and nonfiction.
- Students will identify and describe component parts of butterflies and their functions.
- Students will describe and compare the life cycles of butterflies and humans.

## **VOCABULARY**

Life cycle  
Caterpillar  
Egg  
Chrysalis  
Butterfly  
Conflict  
Character  
Fiction  
Entomologist  
Metamorphosis

Data  
Observe  
Predict  
Compare  
Contrast  
Solution  
Stage  
Nonfiction  
Migration

## MATERIALS

Chart paper	Markers	Paper
Crayons	Pencils	Chalk
Chalkboard	CPU w/Internet	Monarch caterpillar
Terrarium w/caterpillar host plant	Magnifying glass (5 or 6)	
Post-It notes		

### Literature:

Pond"

"The Very Hungry Caterpillar"

"Changes and Surprises"

"Waiting for Wings"

"Herman and Marguerite: An Earth Story"

"A New Butterfly: My First Look at Metamorphosis"

"I've Never Seen a Worm Like You"

"Wings of Change"

"I Am a Little Caterpillar"

"Open House for Butterflies"

"Clara Caterpillar"

"Caterpillarology"

"Where Butterflies Grow"

"Butterfly Story"

"From Caterpillar to Butterfly"

"How Caterpillars Turn into Butterflies"

Videocassette: "Life and Death in a

### Internet Websites:

Monarch Butterfly Emergence from a Chrysalis

<http://adver-net.com/Monemerg.html>

Monica the Monarch Website

<http://www2.cybernex.net/~dbenz/monarch.html>

Monarch Butterfly Lifecycle

<http://www.thewildones.org/Animals/monarch.html>

## PREPARATORY ACTIVITIES

### DAY ONE

#### *Language Arts*

15 minutes

- Students will complete a K-W-L chart for caterpillars on chart paper
- Introduce "The Very Hungry Caterpillar" by Eric Carle.
- Students identify title and author of book, observe cover illustrations.

20 minutes

- Teacher reads story aloud.

10 minutes

- Teacher poses comprehension questions to students.

15 minutes

- Students retell the story in sequence.
- Students draw their favorite scene of story along with a caption explaining their drawing.

#### *Science*

20 minutes

- Teacher poses question: "Where do caterpillars come from?"
- Students form small groups to discuss question, teacher circulates, asks questions and clarifies ideas.

20 minutes

- Class convenes to discuss question,
- Class gathers around computer to view Website called Monica the Monarch (<http://www2.cybernex.net/~dbenz/monarch.html>).
- Teacher clarifies student ideas to inform them that caterpillars hatch from an egg.

20 minutes

- Introduce activity: Students will observe a classroom caterpillar as it goes through its life cycle.
- Students form circle around terrarium with caterpillar to observe.
- Students draw and write their observations in a journal.
- Class discusses observations and makes predictions.

## DAY TWO

### *Language Arts*

20 minutes

- Review day one by discussing what was learned about caterpillars.
- Complete "L" section of K-W-L chart.

25 minutes

- Class defines *changes* and gives examples of changes.
- Teacher-read aloud "Changes and Surprises" (Basal Book).
- Students answer comprehension questions.

15 minutes

- Students use 10-15 pieces of loose-leaf paper as a journal, students decorate journals.

### *Science*

10 minutes

- Review of day one: Where do caterpillars come from? Will the caterpillar stay the same or will it change? How do you know?

30 minutes

- Teacher explains the importance of making careful observations by using real-life scenario to illustrate good observations versus bad observations.
- Students enhance drawing of classroom caterpillar in journal.
- Teacher asks questions to help students make closer observations. (What color? What size? Where is the head? The feet? Is it eating? Has it moved? Is it sleeping?)
- Students encouraged to take notes on what they see also \*students share their "revised" pictures with classmates.

20 minutes

- Teacher discusses care and raising of caterpillars (feeding, handling, rules, etc.).

## DAY THREE

### *Language Arts*

25 minutes

- Teacher defines characters and gives examples from popular cartoons and children's books.
- Students asked to listen for the characters in the story that will be read to them.
- Teacher reads "Waiting for Wings" by Lois Ehlert aloud.
- Students answer comprehension-based questions.

35 minutes

- Students assigned to groups of four, where each member is a different character of the story.
- Students create skits to retell the story.

### *Science*

15 minutes

- Students discuss predictions for what will happen to caterpillar next.
- Revisit Monica the Monarch Website to verify predictions.

30 minutes

- Students copy a "T chart" from chalkboard. (One side is labeled US and the other Caterpillars.)
- Students dictate what caterpillars and humans need to grow.
- Discuss whether our caterpillar has everything it needs to grow.

15 minutes

- Students respond to following questions in journals.
- What happens if we don't have what we need to grow?" "What will happen to a caterpillar if he doesn't have what he needs to grow?"
- Time permitting, students will share their responses.

## DAY FOUR

### *Language Arts*

15 minutes

- Teacher introduces and defines conflict and solution.
- Class discusses the conflict and solution in "The Very Hungry Caterpillar."

15 minutes

- Introduce "Herman and Marguerite: An Earth Story" by Jay O'Callahan; students view illustrations and predict the conflict before and during reading.

15 minutes

- A Venn diagram on chart paper is used to compare the conflict and solution for "The Very Hungry Caterpillar" and "Herman and Marguerite: An Earth Story."

15 minutes

- In journals, students will write about a time that they faced a conflict and how they solved the problem.
- Students are allowed to choose a book from an assortment of trade books on caterpillars and butterflies.
- Students are asked to read the book at home and come prepared to discuss it with classmates.

*Science*

15 minutes

- Students observe caterpillar as it forms its chrysalis, observations are recorded in journals.

20 minutes

- Science Talk-what is happening to our caterpillar and why.

10 Minutes

- Students predict the next stage in journals.

15 minutes

- Class visits Monarch Butterfly Emergence from a Chrysalis (<http://advernet.com/Monemerg.html>).
- Verify predictions.

DAY FIVE

*Language Arts*

10 minutes

- Review character, conflict and solution; give examples from previously read books.

20 minutes

- On paper, students list the characters, conflict and solution of the book they read with a family member
- On same paper, students draw their favorite scene from the book.
- Teacher circulates.

15 minutes

- Students share drawing and tell about the characters, conflict and solution of the story they read.

15 minutes

- Students choose another book for Silent Sustained Reading (SSR).

*Science*

15 minutes

- Students observe chrysalis and note changes in size, color, shape, smell, etc. in journal.

15 minutes

- Teacher introduces concept of life cycles.
- Students brainstorm other living things that have life cycles.

15 minutes

- Watch videocassette, "Life and Death in a Pond," to illustrate the idea that many living things have life cycles.

15 minutes

- Students respond to following question in journal: What is a life cycle?
- Students can respond by drawing a familiar life cycle, writing about a life cycle or explaining the concept.

## DAY SIX

### *Language Arts*

20 minutes

- Teacher introduces the concept of fiction and nonfiction along with an explanation of the purpose of both.
- Students classify books they've read as fiction or nonfiction.
- Students must support their statement by telling "how they know."

15 minutes

- Teacher reads aloud "A New Butterfly: My First Look at Metamorphosis" by Pamela Hickman.

15 minutes

- Students will find the book that they read for SSR on day five.
- Students will classify book as fiction or nonfiction and write a brief explanation in their journals.

10 minutes

- Students will work in pairs to search the room for five examples of nonfiction.

### *Science*

10 minutes

- Students will make observations of chrysalis in journal.

10 minutes

- Class discusses the concept of life cycles, what we know so far about life cycles (human and butterfly).
- Class discusses which life cycle lasts longer and how the life cycles of humans and butterflies are alike and different.

25 minutes

- Class compares human and butterfly life cycles using a Venn diagram.



15 minutes

- In pairs, students will use chart paper to draw a diagram of what they know thus far about the life cycle of a butterfly.

DAY SEVEN  
*Language Arts*

20 minutes

- Read aloud "I've Never Seen a Worm Like You" by Ray Butrum.

40 minutes

- Students identify title, author, characters, conflict, solution and whether the book is fiction or nonfiction.
- Student responses are copied on chart paper in a book report format.
- On Post-It notes, students will complete one or both of the following statements:

"I love this story because \_\_\_\_\_."

Or

"I hate this story because \_\_\_\_\_."

- Post-It notes are attached to the bottom of the class book report.

*Science*

20 minutes

- Students observe the butterfly as it emerges from the chrysalis, take notes in journals.

10 minutes

- Class discusses the sequence of a butterfly's life cycle by dictating the correct stages to the teacher (sketches) on chalkboard.

10 minutes

- Students use journals to predict the next stage of the life cycle.

20 minutes

- Guest speaker (entomologist) will give an interactive talk on the migration of Monarch butterflies.

## DAY EIGHT

### *Language Arts*

25 minutes

- Review day seven science lesson - concept of migration.
- Read "Gotta Go, Gotta Go."

5 minutes

- Students brainstorm more questions to ask guest speaker.

30 minutes

- Informal mini-lesson on letter writing
- Students write individual letters to guest speaker; letters allow students to pose questions and thank the speaker for the visit.

### *Science*

15 minutes

- Students make observations in journal.

15 minutes

- Students observe a wall-sized diagram of the parts of a butterfly.
- Teacher points out each part and explains its function.

30 minutes

- Students will use a similar diagram to label the parts of a butterfly and their functions.