

## **Creighton School District**

### **Unit of Practice**

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**Title: The Life Cycle of the Painted Lady Butterfly**

**Subjects: Life Science, Reading, Writing**

**Level: 2nd Grade**

#### **Snap Shot**

The goal of this unit is to introduce students to the concept of metamorphic life cycles using one organism as the primary example. Students learn by observing, recording, and reading. Their growth is recorded in a Learning Log.

#### **Invitation**

Students are asked to compare various baby animal's characteristics which they have in common with their parents. Students are asked if they know of any organism that looks different as it is born, than it will as an adult.

#### **Tasks (Ongoing during unit)**

- \* Science log. This is a compilation of observations and activities done during formal lessons in this unit.
- \* Using Hyperstudio to create a presentation of the life cycle of a butterfly, frog, or beetle.
- \* Science center with enrichment and extension activities, observation area, magnifying lens, models, and literary resources.
- \* Finger puppets, songs, and books to be used each morning during independent reading time.
- \* Word wall to develop vocabulary and spelling assistance.
- \* Butterfly shape book to be done as a sponge activity and to be done in odd moments.
- \* Class calendar to record observations.

#### **Standards**

##### **Lang. Arts**

##### **FOUNDATIONS (Grades 1-3)**

Students know and are able to do all of the above and the following:

- Recognize different types of visual media
- Plan and present a report, using two or more visual media
- Access, view and respond to visual forms such as computer programs, videos, artifacts, drawings, pictures and collages
- Interpret visual clues in cartoons, graphs, tables and charts that enhance the comprehension of text

##### **FOUNDATIONS (Grades 1-3)**

Students know and are able to do all of the above and the following:

- W-F1. Use the writing process, including generating topics, drafting, revising ideas and editing, to complete effectively a variety of writing tasks
- PO 1. Generate topics through prewriting activities (e.g., brainstorming, webbing,

- mapping, drawing, writer's notebook, K-W-L charts, scaffolds, group discussion)
- PO 2. Align purpose (e.g., to entertain, to inform, to communicate) with audience
- PO 3. Write a first draft with the necessary components for a specific genre
- PO 4. Revise draft content (e.g., organization, relevant details, clarity)
- PO 5. Edit revised draft using resources (e.g., dictionary, word lists and banks, thesaurus, spell checker, glossary, style manual, grammar and usage reference)
- PO 6. Proofread revised draft
- PO 7. Present final copy according to purpose (e.g., read aloud, display, publish, mail, send, perform)
- W-F2. Use correct spelling, punctuation, capitalization, grammar and word usage, and good penmanship to complete effectively a variety of writing tasks

In final copy of student's own writing tasks:

- PO 1. Spell high frequency words correctly
- PO 2. Punctuate endings of sentences
- PO 3. Capitalize sentence beginnings and proper nouns
- PO 4. Use standard, age-appropriate grammar and word usage (e.g., basic subject-verb agreement, complete simple sentences, appropriate verb tense, regular plurals)
- W-F4. Gather, organize and accurately, clearly and sequentially report information gained from personal observations and experiences such as science experiments, field trips and classroom visitors
- PO 1. Record observations (e.g., logs, lists, graphs, charts, tables, illustrations)
- PO 2. Write an introductory statement
- PO 3. Report events sequentially
- PO 4. Write a concluding statement

Science:

- 4SC-F2. Trace the life cycles of various organisms
- PO 1. Identify the stages in a life cycle
- PO 2. Record life cycle stages in sequence
- 4SC-F3. Identify the basic structures and functions of plants and animals
- PO 1. Identify basic animal structures
- PO 2. Describe the functions of basic animal structures
- 4SC-F4. Identify characteristics of plants and animals (including extinct organisms) that allow them to live in specific environments
- PO 2. Identify adaptations of animals that allow them to live in specific environments
- 4SC-F6. Recognize that offspring within families have both similarities and differences
- PO 1. Identify similarities that offspring can have within a family
- PO 2. Identify differences that offspring can have within a family
- 1SC-F3. Identify and record changes and patterns of changes in a familiar system
- PO 1. Describe changes and patterns of changes in a familiar system
- PO 2. Record changes and patterns of changes in a familiar system

## Tasks

1. Teacher introduction to Unit by leading a discussion of the physical similarities/differences between adults and their offspring.
2. Prepare for the arrival of the caterpillars. T. assesses prior knowledge of the caterpillars and their relationship to the butterfly.
3. Students brainstorm what they know, what they think that they know, and what they want to know, about caterpillars. Teacher records on a chart and displays it. Students draw what they

already know about caterpillars and butterflies. (Preassessment)

4. The caterpillars arrive. Students prepare the food cups and learn how to care for them. Then students meet the caterpillars and record their first observations.
5. Students learn how to use a magnifier
6. Students make and record their first observation of the caterpillars.
7. Teacher records class description of the caterpillars on the class calendar , and then draws a circle around this date.
8. Teacher sets up butterfly net and puts the extra caterpillars in for class display.
9. Students learn about the characteristics that living things share.
10. Students become aware of what living things need to survive.
11. Students recognize the specific needs of their caterpillars.
12. Students observe how caterpillars grow and change.
13. Students design a cover page and first page of their storyboard using the information that they have observed.
14. Shape books are passed out for students to complete on their own.
15. Students observe an overview of the Hyperstudio program.
16. Students practice entering Hyperstudio and set up their own folder during center time.
17. Students observe the structures and activities of caterpillars more closely. Emphasis is upon the caterpillars body parts.
18. The K.T.W. is revisited and an “L” portion is added. (Learned)
19. Students predict what changes may occur to the caterpillars by the next day.
20. Teacher makes presentation about how to make a button with sounds and transitions so that students can create their first page.
21. Marshmallows, toothpicks, string, and straws are put into the science center for students to construct their own caterpillar.
22. The worksheets on body structure are added to the center also.
23. Students observe growth and change in the caterpillars and relate this to changes in their own bodies.
24. Students notice evidence of changes, such as shed skin, the shed head capsule, or increases in frass and decreases in food.
25. Students begin to work on page 1 of Hyperstudio.
26. Students observe and draw the silk threads spun by a caterpillar.
27. Students understand how a caterpillar uses silk.
28. Students continue to work on page 1 of Hyperstudio.
29. Students observe the J- shape that proceeds the caterpillar’s transformation into a chrysalis.
30. If possible, students witness the final molt that results in the chrysalis.
31. Teacher assesses student progress in learning caterpillar anatomy and finds out how much students know about butterfly anatomy.
32. Students begin to work on page 2 of their storyboard.
33. Teacher adds tadpoles and meal worms to the observation portion of the science center. Teacher also posts a large calendar of each organism for students to record observations.
34. Students make predictions about what will emerge from the chrysalis.
35. Students transfer page 2 of their storyboard to Hyperstudio.
36. Students observe the butterflies emerging from the chrysalis (or they discover the butterfly and the empty chrysalis case).
37. Students observe some distinct butterfly body parts.
38. Students make a Life Cycle Wheel. (Used for assessment)
39. Students begin page 4 (chrysalis) on their story board.
40. Students compare the way a butterfly eats with the way a caterpillar eats.
41. Students observe how the butterfly uses the proboscis to eat.
42. Students continue page 4 (chrysalis) on their story board.
43. Students observe the physical characteristics and the behavior of their butterflies.
44. Students compare the butterflies to themselves.
45. The teacher further prepares students for the release of the butterflies by helping them see how

butterflies are equipped to survive in the natural world.

46. Students transfer page 4 (chrysalis) from their story board to their Hyperstudio presentation.

47. Students make a butterfly kite.

48. Students go to a location where there are many painted butterflies to release them.

49. Students finish transferring page 4 (chrysalis) from their story board to their Hyperstudio presentation.

50. Students view the filmstrip, "Painted Lady Butterfly," from Insect Lore Products.

51. Students begin page 5 (butterfly) on their story board.

52. Students continue with page 5 (butterfly) on their storyboard.

53. Students discover the characteristics that all insects share.

54. Students observe beetles and frogs to characterize them as insects or non-insects

55. Students transfer page 5 (butterfly) on their story board to their Hyperstudio presentation.

56. Students brainstorm to create two Venn diagrams. The first to compare the butterfly with the beetle, and the second to compare the butterfly with the frog.

57. Students finish transferring page 5 (butterfly) on their story board to their Hyperstudio presentation. Teacher will make prints as well as copy to a disk. Parents will be invited to view students presentations.

#### Interactions:

Students interact with each other in small groups, as a large class group, and with the teacher.

Upon completion of their project, interaction with family.

#### Tools:

\*Variety of books

\*Science Logs

\*Science Center with tadpoles, meal worms, and activities

\*K.T.W. chart

\*Caterpillars

\*Individual small cups

\*Caterpillar food

\*Magnifying glasses

\*Class calendar

\*Butterfly net or box

\*Hyperstudio software

\*Computer

\*Diagram of caterpillar body parts

\*Marshmallows

\*Toothpicks

\*String

\*Straws

\*Life cycle wheel papers

\*Braids

\*Crayons

\*Colored tissue paper

\*Craft sticks

\*Yarn

\*Filmstrip "Painted Lady Butterfly," From Insect Lore Products

#### Situations:

Roughly 20 days. The timing will be guided by the maturation of the organisms and the progress of the students.

#### Assessments:

- \*Teacher observation during discussions. (Informal)
- \*Comparison of the detail and knowledge of the first drawings and the knowledge contained in the Hyperstudio presentation. (Pre/Post)
- \*Science Log. Assessed on completeness, accuracy and amount of detail shown.

**Tasks for teacher:**

- \* Set up Science Center
- \* Read a variety of books and discuss (One book each day)
- \* Teach caterpillar song
- \* Pass out Science Log (Folder of blank paper) for this unit. This will be used each day as a summary of what was learned, or a worksheet will be inserted.

**Day to Day Procedures:**

**Day 1**

Students are prepared for the arrival of the caterpillars. T. assesses prior knowledge of the caterpillars and their relationship to the butterfly.

1. Students look forward to the arrival of the caterpillars.
2. Students brainstorm what they know, what they think that they know, and what they want to know, about caterpillars. T. records on a chart and displays it. Students draw what they already know about caterpillars and butterflies. (Preassessment)

**PO 1. Generate topics through prewriting activities (e.g., brainstorming, webbing, mapping, drawing, writer's notebook, K-W-L charts, scaffolds, group discussion)**

**4SC-F6. Recognize that offspring within families have both similarities and differences**

**PO 1. Identify similarities that offspring can have within a family**

**PO 2. Identify differences that offspring can have within a family**

**Day 2**

The caterpillars arrive. Students prepare the food cups and learn how to care for them. Then students meet the caterpillars and record their first observations.

1. Students prepare the food cups and learn how to care for the caterpillars.
2. Students learn how to use a magnifier
3. Students make and record their first observation of the caterpillars.
4. Teacher records class description of the caterpillars on the class calendar, and then draws a circle around this date.
5. Teacher sets up butterfly net and puts the extra caterpillars in for class display.

**PO 1. Record observations (e.g., logs, lists, graphs, charts, tables, illustrations)**

**PO 2. Write an introductory statement**

**PO 3. Report events sequentially**

**PO 4. Write a concluding statement**

### **Day 3**

In this lesson, students observe the caterpillars and learn more about how to take care of them.

1. Students learn about the characteristics that living things share.
2. Students become aware of what living things need to survive.
3. Students recognize the specific needs of their caterpillars.
4. Students observe how caterpillars grow and change.

**4SC-F6. Recognize that offspring within families have both similarities and differences**

**PO 1. Identify similarities that offspring can have within a family**

**PO 2. Identify differences that offspring can have within a family**

### **Day 4**

Students begin to record their cover page and the storyboard first page.

1. Students design a cover page and first page of their storyboard using the information that they have observed.

**FOUNDATIONS (Grades 1-3)**

**Students know and are able to do all of the above and the following:**

**Recognize different types of visual media**  
**Plan and present a report, using two or more visual media**  
**Access, view and respond to visual forms such as computer programs, videos, artifacts, drawings, pictures and collages**  
**Interpret visual clues in cartoons, graphs, tables and charts that enhance the comprehension of text**

**FOUNDATIONS (Grades 1-3)**

**Students know and are able to do all of the above and the following:**

**W-F1. Use the writing process, including generating topics, drafting, revising ideas and editing, to complete effectively a variety of writing tasks**

**PO 1. Generate topics through prewriting activities (e.g., brainstorming, webbing, mapping, drawing, writer's notebook, K-W-L charts, scaffolds, group discussion)**

- PO 2. Align purpose (e.g., to entertain, to inform, to communicate) with audience**
- PO 3. Write a first draft with the necessary components for a specific genre**
- PO 4. Revise draft content (e.g., organization, relevant details, clarity)**
- PO 5. Edit revised draft using resources (e.g., dictionary, word lists and banks, thesaurus, spell checker, glossary, style manual, grammar and usage reference)**
- PO 6. Proofread revised draft**
- PO 7. Present final copy according to purpose (e.g., read aloud, display, publish, mail, send, perform)**
- W-F2. Use correct spelling, punctuation, capitalization, grammar and word usage, and good penmanship to complete effectively a variety of writing tasks**

**In final copy of student's own writing tasks:**

- PO 1. Spell high frequency words correctly**
- PO 2. Punctuate endings of sentences**
- PO 3. Capitalize sentence beginnings and proper nouns**
- PO 4. Use standard, age-appropriate grammar and word usage (e.g., basic subject-verb agreement, complete simple sentences, appropriate verb tense, regular plurals)**
- PO 5. Write legibly**
- W-F4. Gather, organize and accurately, clearly and sequentially report information gained from personal observations and experiences such as science experiments, field trips and classroom visitors**
- PO 1. Record observations (e.g., logs, lists, graphs, charts, tables, illustrations)**
- PO 2. Write an introductory statement**
- PO 3. Report events sequentially**
- PO 4. Write a concluding statement**

## **Day 5**

Teacher introduces the Hyperstudio program by showing students how to enter it and a sample presentation. Students continue working on cover, and first page.

1. Students observe an overview of the Hyperstudio program.
2. Students practice entering Hyperstudio and set up their own folder during center time.

**Recognize different types of visual media**  
**Plan and present a report, using two or more visual media**  
**Access, view and respond to visual forms such as computer programs, videos, artifacts, drawings, pictures and collages**  
**Interpret visual clues in cartoons, graphs, tables and charts that enhance the comprehension of text**

### **Day 6**

Students will look for answers to some of the questions recorded on the K.T.W. chart by observing the caterpillars more closely.

1. Students observe the structures and activities of caterpillars more closely. Emphasis is upon the caterpillars body parts.
2. The K.T.W. is revisited and an “L” portion is added. (Learned)
3. Students predict what changes may occur to the caterpillars by the next day.
4. Teacher makes presentation about how to make a button with sounds and transitions so that students can create their first page.
5. Marshmallows, toothpicks, string, and straws are put into the science center for students to construct their own caterpillar.
6. Worksheets on body structure are added to the center also.

**4SC-F3. Identify the basic structures and functions of plants and animals**

**PO 1. Identify basic animal structures**

**PO 2. Describe the functions of basic animal structures**

**4SC-F4. Identify characteristics of plants and animals (including extinct organisms) that allow them to live in specific environments**

**PO 2. Identify adaptations of animals that allow them to live in specific environments**

### **Day 7**

During this lesson, students will be watching closely for the caterpillars to molt. If not observed, students look for evidence that a molt has occurred.

1. Students observe growth and change in the caterpillars and relate this to changes in their own bodies.
2. Students notice evidence of changes, such as shed skin, the shed head capsule, or increases in frass and decreases in food.

3. Students begin to work on page 1 of Hyperstudio.

### **Day 8**

Today students observe caterpillars' silk and try to discover caterpillars in the process of producing it.

1. Students observe and draw the silk threads spun by a caterpillar.
2. Students understand how a caterpillar uses silk.
3. Students continue to work on page 1 of Hyperstudio.

### **Day 9**

The caterpillar is about to undergo its amazing transformation. It will turn into a chrysalis. The students will observe the characteristic J-shape just before the transformation. Students may have the opportunity to witness the final molt that results in the chrysalis. In a few days students will transfer the chrysalises to the butterfly net.

1. Students observe the J-shape that proceeds the caterpillar's transformation into a chrysalis.
2. If possible, students witness the final molt that results in the chrysalis.
3. Teacher assesses student progress in learning caterpillar anatomy and finds out how much students know about butterfly anatomy.
4. Students begin to work on page 2 of their storyboard.
5. Teacher adds tadpoles and mealworms to the observation portion of the science center. Teacher also posts a large calendar of each organism for students to record observations.

### **Day 10**

The chrysalis stage lasts for about a week. During this time students will make close observations. Students will create a second page on their storyboard and transfer it to their Hyperstudio presentation.

1. Students work on their observational skills.
2. Students realize that even at this apparently inactive stage, important changes are taking place within the chrysalis.
3. Students make predictions about what will emerge from the chrysalis.
4. Students transfer page 2 of their storyboard to Hyperstudio.

**4SC-F4. Identify characteristics of plants and animals (including extinct organisms) that allow them to live in specific environments**

**PO 2. Identify adaptations of animals that allow them to live in specific environments**

## **Day 11-12**

These two days are used to have all students complete: The cover page, page 1(eggs) and page 2 (caterpillar) on their Hyperstudio presentation. This may be done in the lab if there are a large number of students, or in the classroom if only a few students need to finish up. Students will continue to observe all organisms, and do the activities in the science center.

## **Day 13**

The butterflies begin to emerge! First, they “pump up” their wings and hang them out to dry and harden. Then they are ready for flight.

1. Students observe the butterflies emerging from the chrysalis (or they discover the butterfly and the empty chrysalis case).
2. Students observe some distinct butterfly body parts.
3. Students make a Life Cycle Wheel. (Used for assessment)
4. Students begin page 4 (chrysalis) on their story board.

### **4SC-F2. Trace the life cycles of various organisms**

#### **PO 1. Identify the stages in a life cycle**

#### **PO 2. Record life cycle stages in sequence**

## **Day 14**

A day or two after emerging, the butterflies will need food. The students will observe the butterfly’s specialized proboscis in action.

1. Students compare the way a butterfly eats with the way a caterpillar eats.
2. Students observe how the butterfly uses the proboscis to eat.
3. Students continue page 4 (chrysalis) on their story board.

## **Day 15**

Students will be making closer observations of the butterfly body parts. They will relate butterfly parts to their own body parts and compare their relative functions.

1. Students observe the physical characteristics and the behavior of their butterflies.
2. Students compare the butterflies to themselves.
3. The teacher further prepares students for the release of the butterflies by helping them see how butterflies are equipped to survive in the natural world.
4. Students transfer page 4 (chrysalis) from their story board to their Hyperstudio presentation.
5. Students make a butterfly kite.

## Day 16

In this lesson, the students release the butterflies. They come to understand that as wild creatures, the butterflies are part of the natural world and belong out in it.

1. Students go to a location where there are many painted butterflies to release them.
2. Students realize that butterflies have their place in the environment.
3. Students finish transferring page 4 (chrysalis) from their story board to their Hyperstudio presentation.

**4SC-F4. Identify characteristics of plants and animals (including extinct organisms) that allow them to live in specific environments**

**PO 2. Identify adaptations of animals that allow them to live in specific environments**

## Day 17

Students review by watching a filmstrip.

1. Students view the filmstrip, "Painted Lady Butterfly," from Insect Lore Products.
2. Students begin page 5 (butterfly) on their story board.

## Day 18

In this lesson, students review the unit by revisiting all the work they have produced in their learning log, and activities. After reviewing the materials, students use their own data to answer their questions about the life cycle of the butterfly.

1. Students use their own data to answer their questions.
2. Students continue with page 5 (butterfly) on their story board.

## Day 19

After having studied one insect closely, students now learn the characteristics all insects have in common. They apply what they have learned to distinguish an insect from a non-insect.

1. Students learn that the butterfly is an animal called an insect.
2. Students discover the characteristics that all insects share.
3. Students observe beetles and frogs to characterize them as insects or non-insects
4. Students transfer page 5 (butterfly) on their story board to their Hyperstudio presentation.

## Day 20

Students compare the life cycles of the beetle, frog, and butterfly.

1. Students brainstorm to create two Venn diagrams. The first to compare the butterfly with the beetle, and the second to compare the butterfly with the frog.
2. Students finish transferring page 5 (butterfly) on their story board to their Hyperstudio presentation. Teacher will make prints as well as copy to a disk. Parents will be invited to view students presentations during parent conferences.

Assessment:

1. 50 pts. \_\_\_\_\_ Teacher compares the detail and knowledge from the first drawings to the detail and knowledge contained in the Hyperstudio presentation.
2. 50 pts. \_\_\_\_\_ Science log is assessed on completeness and amount of detail shown.

\* All days are approximations due to the behavior of the organisms and the progress of the students.