



The Life Cycle of a Butterfly

8A

Note: Introducing the Read-Aloud may have activity options which exceed the time allocated for this part of the lesson. To remain within the time periods allocated for this portion of the lesson, you will need to make conscious choices about which activities to include based on the needs of your students.

Introducing the Read-Aloud

10 minutes

What Have We Already Learned?

10 minutes

Review with students that a cycle is a sequence of events that repeats itself again and again. A life cycle includes all the stages a living thing goes through from birth to adult. Discuss with students how the seasonal cycle affects the life cycles of living things: most new life occurs in the spring, when there is more sunlight and temperatures are warmer.

Remind students that when a living thing becomes an adult, it is then able to reproduce, or make more of its own kind, to begin the life cycle again. In the case of plants and trees, remind students that we can describe their life cycles as going from “seed to seed.” Remind students that as they have discovered with chickens and frogs, animals also journey through stages from egg to adult called a life cycle.

Have students use Image Cards 10–16 to help them compare and contrast the life cycle of a chicken and a frog. How do the life cycles of chickens and frogs begin?

Vocabulary Preview

5 minutes

Metamorphosis (met-uh-MOR-fuh-sis)

← Show image 8A-13: Butterfly Life Cycle

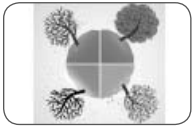
1. In today’s read-aloud we will learn about a life cycle of another animal that also goes through a stage called *metamorphosis*.



2. Say *metamorphosis* with me three times.
3. Metamorphosis is the process by which some young animals completely change the way they look as they become adults.
4. Look at the image, can you guess which animal also goes through metamorphosis?
After the caterpillar goes through metamorphosis to become a butterfly, it looks completely different.
5. [Show images of butterfly metamorphosis.] Tell your partner about what changed in this picture. Does the adult insect look anything like the young insect?

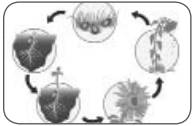
Purpose for Listening

Explain to students that they are going to continue learning about another life cycle—the life cycle of a butterfly. Tell students to listen for the main topic in today’s read-aloud: the changes that occur in the butterfly’s life cycle from egg to adult butterfly. Tell them to listen carefully for the word *metamorphosis* and its role in the life cycle of this animal.

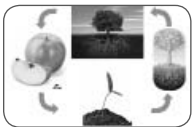


The Life Cycle of a Butterfly

← Show image 8A-1: Seasonal Cycle



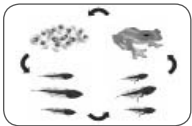
← Show image 8A-2: Plant Life Cycle



← Show image 8A-3: Tree Life Cycle



← Show image 8A-4: Chicken Life Cycle



← Show image 8A-5: Frog Life Cycle

1 [Use images 8A-1 through 8A-5 to help students review these cycles.]

2 At what time of the year do we see butterflies? (We usually see butterflies during spring and summer. If it is warm enough we might see them in early fall too.)



← Show image 8A-6: Butterflies

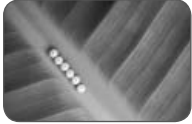
3 [Use a ruler to show students these lengths.]

You have already learned about five cycles!¹ You have learned about the seasonal cycle, the life cycle of a flowering plant, the life cycle of a tree, the life cycle of a chicken, and the life cycle of a frog. Today you will learn about the life cycle of a butterfly. Similar to the life cycle of a frog, a butterfly's life cycle also includes a stage called metamorphosis. Metamorphosis is a process in which a living thing changes or transforms from one shape into another. This means that it literally changes its entire appearance. Let's hear more about the extraordinary life cycle of those beautiful creatures called butterflies.²

Did you know that there are about 25,000 different kinds of butterflies in the world? Butterflies vary in size from about one-eighth of an inch, to almost twelve inches in size.³ The largest butterfly in the world is the Queen Alexandra Birdwing. Its wingspan is twelve inches wide! It lives in the rainforests of Papua New Guinea. The smallest butterfly is the Western Pygmy Blue from Africa.

4 85°F is the temperature on a warm, summer day.

5 55°F is the temperature on a chilly day.



6 Here, the word *round* refers to the shape of the eggs. The word *round* also can mean to go or pass around something.

7 [Show students something that is cylinder-shaped in your classroom for reference.]



8 Let's try to move like caterpillars!

9 What happens when you outgrow your clothes?

Incredibly, butterflies can only fly when their bodies are warm enough. The butterfly's body temperature must be 85°F for them to take to the air.⁴ When they do, the fastest butterflies can fly at 12 mph. They cannot move at all if their body temperature drops below 55°F.⁵ Well, now that you know some interesting facts about butterflies, it's time to find out about their life cycle.

← **Show image 8A-7: Butterfly eggs**

A butterfly begins its life as an egg that has been produced by its mother. Butterfly eggs can be round or oval.⁶ There are even some that are cylindrical in shape.⁷ The shape of the egg often depends on the kind of butterfly that laid the egg.

Female butterflies lay their eggs on the leaves of plants. They do this so that when their young hatch, there is food right there for them to eat. They choose these leaves carefully, selecting only the leaves that their young will eat. Depending on the kind of butterfly, it can take from six days to twenty days for the eggs to hatch.

← **Show image 8A-8: Butterfly larva**

Can you guess what hatches out of a butterfly egg? Well, it isn't a butterfly. It is actually a tiny caterpillar, also called a **larva**. A caterpillar is a small creature that moves by squeezing its muscles. It squeezes its muscles starting at the back end of its body and moving up to its head. This movement pushes the caterpillar forward.⁸

A caterpillar also uses its muscles to eat. The caterpillar's job is to eat as much as it can. A caterpillar eats the leaf that sheltered it. Then it begins to eat the leaf on which it was born. The tiny caterpillar keeps on eating, devouring all the leaves around it. Caterpillars don't sleep, so they eat during the day and at nighttime, too. They grow very quickly.

Because caterpillars grow so quickly, they outgrow their skin. This means that because their skin does not grow with them the way yours does, they **molt**, or shed, their outer skin to reveal new skin underneath. They do this repeatedly until they are fully grown. Some caterpillars even eat their own old skin!⁹

A caterpillar is usually fully grown somewhere between nine and twenty days. At this stage, the caterpillar will leave its food supply and go in search of a safe, leafy place to enter into the next stage of its life cycle. Once in this safe place, it attaches itself to a twig or small branch by making a silk pad on the bottom of the branch or twig. The caterpillar then hooks itself onto the silk pad.



← **Show image 8A-9: Pupa in chrysalis**

In the next stage, the caterpillar forms a protective outer casing called a pupa, or chrysalis. The formation of the chrysalis is the final stage of molting, or shedding outer skin. When it molts for the final time, the new skin becomes the outer shell of the chrysalis.

Inside the chrysalis something incredible happens. The caterpillar transforms from one thing into another in the process called metamorphosis.



← **Show image 8A-10: Newly hatched butterfly**

Think about what a caterpillar looks like when it is fully grown, just before metamorphosis. It is small and round. When it emerges from the chrysalis, it is no longer a caterpillar but a delicate, beautifully colored butterfly with wings. The caterpillar's body has completely changed. (For some butterflies it is sometimes possible to tell when the butterfly is fully transformed and ready to emerge because its chrysalis becomes **transparent**, or see-through.) The butterfly does not look anything like the small, round-bodied creature it used to be. Instead of mouthparts that chew, the butterfly has a straw-like tube that can suck nectar from sweet-tasting flowers. It has antennae. This metamorphosis takes between ten to fourteen days to complete.

At first, the butterfly's wings are very delicate. They are quite soft and are folded up, not yet ready to carry the butterfly up into the air. It will take several hours before the butterfly is ready to take to the sky. During this time, a fluid is being pumped all around the butterfly's body, especially into the wings. When the butterfly is ready to fly, it is also ready to find a mate.



← **Show image 8A-11: Butterfly body parts**

Butterflies use their eyes to find a mate. Male butterflies send out special scents to attract female butterflies. Male butterflies fertilize the eggs of female butterflies. The life cycle begins all over again as female butterflies search for the right places to lay their eggs.

Amazingly, female butterflies use their feet to find the best place to lay their eggs. The butterfly “tastes” various leaves using her feet to find just the right home for her young. She knows that when her eggs hatch, they will need an instant food supply.



← **Show image 8A-12: Migration**

Did you know that butterflies do not live for a very long time? Many butterflies live for just about one month. There are even some that live for just a matter of days. However, there are a few, such as the Monarch butterfly, that can live for almost a year and in the fall migrate thousands of miles.¹⁰

10 What does the word *migrate* mean again?



← **Show image 8A-13: Butterfly Life Cycle**

During their lifetime, butterflies help to pollinate our flowering plants. Because they are cold-blooded and like only warm weather, we only see them in the late spring and summer. But when we do, they are a beautiful sight to see in our gardens and parks. Perhaps now that you know all about the life cycle of a butterfly, when you next see one, you will appreciate them even more.

Discussing the Read-Aloud

15 minutes

Comprehension Questions

10 minutes

1. *Literal* What is the main topic of the read-aloud? (The main topic of the read-aloud is the life cycle of a butterfly.)
2. *Literal* How does a butterfly begin its life? (A butterfly begins its life as an egg.)
3. *Literal* What hatches out of the egg? (A caterpillar or larva hatches out of the egg.)

4. *Literal* Caterpillars grow so quickly that they outgrow their skin. What does a caterpillar do with the skin it outgrows? (A caterpillar will molt or shed the skin it outgrows.)
5. *Literal* What is the next stage called when the caterpillar forms a protective case? (When a caterpillar forms a protective case, this is called the chrysalis or pupa stage.)
6. *Literal* What comes out of the chrysalis or pupa? (An adult butterfly comes out of the chrysalis or pupa.)
7. *Evaluative* [You may wish to have students refer to Cycles Poster 6 as they answer the following question.] What are the four stages in the life cycle of a butterfly? (The four stages in the life cycle of a butterfly are egg, larva/caterpillar, chrysalis/pupa, and adult).
8. *Evaluative* After metamorphosis, does the adult animal look like it did when it was younger? (After metamorphosis, the adult does not look like it did when it was younger.)
9. *Inferential* Why do some butterflies migrate? (For those butterflies that live longer, they cannot stay in cold, wet conditions. When temperatures fall below 55° F, they cannot move. If it is very cold, they will die, and so in order to survive, they must migrate.)

[Please continue to model the *Think Pair Share* process for students, as necessary, and scaffold students in their use of the process.]

I am going to ask a question. I will give you a minute to think about the question, and then I will ask you to turn to your neighbor and discuss the question. Finally, I will call on several of you to share what you discussed with your partner.

10. *Evaluative Think Pair Share:* The life cycle of a flowering plant could be described as going from seed to seed, and the life cycles of a frog and a chicken, from egg to egg. How would you describe the life cycle of a butterfly? (Using that example, the life cycle of a butterfly could be described as going from egg to egg. When the adult butterfly lays an egg, the life cycle begins. The larva/caterpillar hatches from the egg; the larva/caterpillar molts several times as it grows; the chrysalis/pupa forms; and finally the chrysalis/pupa splits open so the adult butterfly can emerge. The adult butterfly is then able to reproduce, and the female lays eggs on a leaf to begin the life cycle again.)

11. After hearing today’s read-aloud and questions and answers, do you have any remaining questions? [If time permits, you may wish to allow for individual, group, or class research of the text and/or other resources to answer these questions.]

Word Work: Transparent

5 minutes

1. In the read-aloud you heard, “For some butterflies it is sometimes possible to tell when the butterfly is fully transformed and ready to emerge because its chrysalis becomes *transparent*, or see-through.”
2. Say the word *transparent* with me.
3. *Transparent* means see-through.
4. Mike’s water bottle is transparent, so he is able to see how much water he has left.
5. What are things you have seen that are transparent? Try to use the word *transparent* when you tell about it. [Ask two or three students. If necessary, guide and/or rephrase the students’ responses: “_____ is transparent.”]
6. What’s the word we’ve been talking about?

Use a *Making Choices* activity for follow-up. Directions: I am going to name several things. If what I name is transparent, say, “_____ is transparent.” If what I name is not transparent, say, “_____ is not transparent.” Remember to answer in complete sentences.

1. a window (A window is transparent.)
2. a brown paper bag (A brown paper bag is not transparent.)
3. a classroom pet tank (A classroom pet tank is transparent.)
4. a book (A book is not transparent.)
5. the lenses in a pair of glasses (The lenses in a pair of glasses are transparent.)
6. clear plastic wrap (Clear plastic wrap is transparent.)



Complete Remainder of the Lesson Later in the Day



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8_B

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Extensions

20 minutes

↔ Multiple Meaning Word Activity

5 minutes

Context Clues: Round

Note: You may choose to have students hold up one, two, or three fingers to indicate which image shows the meaning being described, or have a student walk up to the poster and point to the image being described.

1. [Show Poster 4M (Round).] In the read-aloud you heard, “Butterfly eggs can be *round* or oval.” Here *round* means shaped like a circle or ball. Which picture shows round shapes?
2. *Round* can also mean something else. *Round* means to go or pass around something. Which picture shows somebody rounding the base?
3. *Round* means many of the same event or things. Which picture shows people giving a round of applause?
4. I’m going to say some sentences using the word *round*. Hold up one finger if my sentence uses *round* in picture one; hold up two fingers if my sentence uses *round* in picture two; and hold up three fingers if my sentence uses *round* in picture three.
 1. The dogs round the corner of the yard when they hear their owner coming home.
 2. Baseballs are round.

3. We will watch round three of the basketball game.
4. This is our second round of reading this story.
5. Can you think of something that has a round shape?

↔ **Syntactic Awareness Activity**

10 minutes

Compound Words Review

Teacher Reference Chart			
Compound Words by Topic			
People		Animals	
any	body	black	bird
class	mate	bob	cat
cow	boy/girl	butter	fly
fire	fighter	dragon	fly
fisher	man	earth	worm
goal	keeper	grass	hopper
mail	man	jelly	fish
police	man/woman	lady	bug
story	teller	rattle	snake
super	man/woman	silk	worm
Food		Clothing	
apple	sauce	bath	robe
corn	bread	back	pack
cheese	cake	brief	case
dough	nut	ear	ring
egg	plant	eye	glasses
meat	ball	hand	bag
pan	cake	neck	tie
oat	meal	over	alls
pop	corn	shoe	lace
cup	cake	under	wear

Note: The purpose of these syntactic activities is to help students understand the direct connection between grammatical structures and the meaning of text. These syntactic activities should be used in conjunction with the complex text presented in the read-alouds. There may be variations in the sentences created by your class. Allow for these variations, and restate students' sentences so that they are grammatical. If necessary, have students repeat the sentence after you.

Directions: Today we are going to practice making and using compound words.

1. What are compound words? (two words added together to form a new word)
How can you figure out the meaning of a compound word? (If you know the meaning of the two words, you will most likely be able to tell the meaning of the new compound word.)
2. In today's read-aloud we heard several compound words. Listen to my sentences and raise your hand if you hear a compound word. Tell me which two words make a compound word. Then, try to guess the meaning of the compound word based on what you know about the two words that make up the compound word.
 - A *butterfly* begins its life as an egg. (butter+fly = an insect with colorful wings that can fly)
 - The largest butterfly's *wingspan* is twelve inches wide! (wing+span = the length or span of an animal's wing)
 - During their *lifetime*, butterflies help to pollinate our flowering plants. (life+time = the length of time someone or something is alive)
3. [Give each student an index card with part of a compound word written on it.] I have given you one half of a compound word. Try to find the match for your word on the board. Make up a sentence using your compound word.
4. [Invite students to come up to the board and put their index card next to a word on the board to create a compound word.] What compound word did you make? What does your compound word mean? Can you use it in a sentence?

[If you have samples of any of the compound words, give them to the class as the word is being presented.]

Extending the Activity

Ask students whether they notice any themes with the compound words (e.g., people, animals, food, and clothing). Have them group the compound words according to theme. Invite students to think of their own compound words for these categories.

↔ Vocabulary Instructional Activity

5 minutes

Word Work: Reveal

1. In the read-aloud you heard, “[Caterpillars] shed their outer skin to *reveal* new skin underneath.”
2. Say the word *reveal* with me three times.
3. To reveal means to show or make known.
4. The eager children waited for the magician to reveal the rabbit hiding in her black hat.
Our teacher will reveal the plans for our field trip on Wednesday.
5. If reveal means to show or make known, what do you think is the antonym, or opposite, of *reveal*? [Accept accurate antonyms.]
6. What’s the word we’ve been talking about?

Use a *Synonyms* and *Antonyms* activity for follow-up. Directions: A synonym is a word that means the same thing as another word. What are some synonyms for the word *reveal*? (Answers may vary, but may include *tell, expose, inform, show, announce, proclaim, give away, etc.*)

Antonyms are words that are the opposite of another word. What are some antonyms, or opposites, of *reveal*? (Answers may vary, but may include *hide, conceal, deny, keep quiet, cover, etc.*)

10 Sequencing the Life Cycle of a Butterfly (Instructional Masters 8B-1 and 8B-2)

15 minutes

- Show students Image Cards 17–20, and have them explain and sequence the butterfly’s life cycle. You may wish to show students Cycles Poster 6 (Life Cycle of a Butterfly) and have them once again identify the four stages of the butterfly’s life cycle. (egg, caterpillar, chrysalis/larva, butterfly)
- Give students Instructional Masters 8B-1 and 8B-2. Tell them that they will create Response Card 7; it will show the life cycle of a butterfly. [**Note:** This Response Card should be held and viewed using landscape orientation.]

- First, have students cut out the images of the stages of the life cycle of a butterfly on Instructional Master 8B-1.
- Next, have them put the images in the correct order of the life cycle of a butterfly.
- Then, students should glue or tape the images in the correct blanks on Instructional Master 8B-2.
- Finally, have students describe the life cycle of a butterfly to their partner or home-language peers.

Writing an Explanatory/Informational Paragraph: Life Cycle of a Butterfly (Instructional Master 7B-3) 20+ minutes

- Show students Cycles Poster 6 (Life Cycle of a Butterfly), and have them identify each stage of the life cycle of a butterfly.
- Tell students that they are going to write a paragraph to explain the stages of the life cycle of a butterfly. Emphasize that the life cycle of a butterfly goes from “egg to egg.”
- Tell students that they are going to write a paragraph explaining what they learned about the life cycle of a butterfly. Ask students what they call this type of paragraph. (informational paragraph)
- Refer to the paragraph planning chart you have created. Point out each part of the planning chart. Model this planning step of the writing process on the planning chart. [You may also wish to write sentence starters or complete sentences that students have suggested on the chart for students.]
 - **Introduction**—This sentence tells the reader what the paragraph is about.
 Suggestions: *There are four stages in the life cycle of a butterfly.*
The life cycle of a butterfly is from egg to egg.
Today I learned about the life cycle of a butterfly.
 - **First**—Tell about the first stage in the life cycle.
 Suggestions: *First, the butterfly is an egg.*
First, female butterflies lay their eggs on leaves.
 - **Next**—Tell about the second stage in the life cycle.
 Suggestions: *Next, a caterpillar hatches.*
Next, a caterpillar hatches and grows and molts.

- **Then**—Tell about the third stage in the life cycle.
Suggestions: *Then, the caterpillar forms a pupa.*
 - **Finally**—Tell about the fourth stage in the life cycle.
Suggestions: *Finally, a butterfly comes out.*
 - **Conclusion**—This sentence finishes and wraps up the paragraph.
Suggestions: *The adult butterfly lays eggs and the cycle starts over again.*
These are the four stages of the life cycle of a butterfly.
- After modeling the planning step, have students write their sentences on Instructional Master 7B-3. Remind students to use capital letters at the beginning of their sentences and the correct punctuation at the end.
 - Allow students to share their paragraphs with their partner or with home-language peers.
 - If time allows, you may wish to have students complete the editing step of the writing process.