

1st Grade Plant and Animal Unit(STC The Life Cycle of Butterflies Portion)Unit Blueprint

Lesson	Essential & Unit Questions (for conceptual benchmarks)	Benchmarks	Formative and Summative Assessments	Using Assessments to Monitor Student Learning
Lesson 1: Getting Ready for Caterpillars Pacing: See Sample Class Calendar in Teacher's Guide for approximate timetable	How do caterpillars grow and change?	11C(K-2)#3: Things can change in different ways, such as in size, weight, color, and movement. Some small changes can be detected by taking measurements.	Pre-unit assessmentStudent drawings of caterpillar and stages of caterpillar life (See <i>Procedure</i> Step 6 in Teacher's Guide.)	 Student Drawings of Caterpillar Are students able to correctly draw some parts of a caterpillar? To what extent do students' drawings show knowledge of the different stages in a caterpillar's development?

*Essential questions are major questions driving the unit of study. They are directly aligned with the benchmarks. Generally, no one lesson addresses a question in its entirety. By the end of the unit, students should be able to answer these core questions.

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Lesson 2: Caring for Caterpillars Pacing: See Sample Class Calendar in Teacher's Guide for approximate timetable	What are the basic needs of the caterpillars?	 5C(K-2)#2: Most living things need water, food and air. 5D(K-2)#1: Animals eat plants or other animals for food and may also use plants (or even other animals) for shelter and nesting. 1C(K-2)#3: A lot can be learned about plants and animals by observing them closely, but care must be taken to know the needs of living things and how to provide for them in the classroom. 	Class discussion of caterpillar food (See Steps 1 & 2 of <i>Procedure</i> on page 17 of Teacher's Guide.)	Do students understand why it is important to prepare and provide specific food for the caterpillars?
	How can observations be made more accurate?	 6D(K-2)#1: People use their senses to find out about their surroundings and themselves. Different senses give different information. Sometimes a person can get different information about the same thing by moving closer to it or further away from it. 5C(K-2)#1: Magnifiers help people see things they could not see without them. 	Activity Sheet 1	 Do the students use their senses to observe the caterpillars and caterpillar food? Do the students list different information when using sight, smell and touch to make observations? Do students correctly use a magnifying glass to make observations?

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	How do caterpillars grow and change? What are some ways to describe things?	 11C(K-2)#3: Things can change in different ways, such as in size, weight, color, and movement. Some small changes can be detected by taking measurements. 12D(K-2)#1: Describe and compare things in terms of number, shape, texture, size, weight, color, and motion. 11B(K-2)#3: One way to describe something is to say how it is like something else. 	Class Calendar (See Step 1 of Final Activities.)	 Do the students understand that the observations on the class calendar show how the caterpillars change over time? Are students able to describe in enough detail the features of the caterpillars to determine how caterpillars change over time? Do students describe the different sizes and activity levels of the caterpillars?

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Lesson 3: Learning More About Caterpillars Pacing: See Sample Class Calendar in Teacher's Guide for approximate timetable	What are the basic needs of living things?	 5C(K-2)#2: Most living things need water, food and air. 5D(K-2)#1: Animals eat plants or other animals for food and may also use plants (or even other animals) for shelter and nesting. 	Class discussion about the question "How do the caterpillars get what they need to survive while in the classroom?" (See <i>Procedure</i> step 4 on page 24 of Teacher's Guide.) Answers to questions about the specific needs of the caterpillars on <i>Activity</i> <i>Sheet 2</i> . (See page 26 in Teacher's Guide.)	 Class Discussion Do students know what living things need to survive? Do students apply that knowledge to the needs of caterpillars? Activity Sheet 2 Do students recognize the specific needs of their caterpillars? Can students explain where their caterpillars get each of these basic needs in the classroom environment?
		6A(K-2)#1: People need water, food, air, waste removal, and a particular range of temperatures in their environment, just as other animals do.	Class discussion about the question "Do caterpillars and humans have the same needs?" (See <i>Procedure</i> step 3 on page 24 of Teacher's Guide.)	 Do students recognize that humans and caterpillars share the same basic needs: water, food, air and shelter? Can students explain where humans get each of these basic needs?
	How do caterpillars grow and change?	 11C(K-2)#4: Some changes are so slow or so fast that they are hard to see. 11C(K-2)#3: Things can change in different ways, such as in size, weight, color, and movement. Some small changes can be detected by taking measurements. 	<i>Class Calendar</i> observational statement (See <i>Final Activities</i> steps 1-3 on page 25.) Class discussion about prediction	 Do the students recognize that it is difficult to actually observe a slow change like the caterpillars' growth? Do students understand how the class calendar will help them test predictions and see how the caterpillars grow and change?

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Lesson 4: Observing the Caterpillars Pacing: See Sample Class Calendar in	What features do the caterpillars have that help them survive?	 5A(K-2)#2: Plants and animals have features that help them live in different environments. 5F(K-2)#1: Different plants and animals have external features that help them thrive in different kinds of places. 	Student observations of the parts of a caterpillar and their functions (See <i>Activity Sheet 3</i> on page 32 of Teacher's Guide.)	Can students identify how parts such as special legs, mouth and bristles help the caterpillar survive in its environment?
Teacher's Guide for approximate timetable	How do caterpillars grow and change?	11C(K-2)#4: Some changes are so slow or so fast that they are hard to see. 11C(K-2)#3: Things can change in different ways, such as in size, weight, color, and movement. Some small changes can be detected by taking measurements.	Class discussion about student observations of caterpillars (See <i>Procedure</i> Steps 1-3 on page 30 of Teacher's Guide) and observations on <i>Class Calendar</i> (See <i>Final Activities</i> Step 1 on page 30 of Teacher's Guide.)	 Can the students see how the caterpillars are growing and changing? Do the students describe the caterpillars or the contents of their cups in terms of number, shape, siz,e weight, color, and motion? Do the students compare observations and see differences in the caterpillars' activities, shapes, sizes or weights?

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Lesson 5: Observing Change: Growth and Molting Pacing: See Sample Class Calendar in Teacher's Guide for approximate timetable	How are living things alike and different?	5A(K-2)#1: Some animals and plants are alike in the way they look and in the things they do, and others are very different from one another.	Student observations of physical features of caterpillars and themselves (See Activity Sheet 4 on page 37 of Teacher's Guide.) **Suggestion: Complete a class Venn diagram comparing humans and caterpillars **Suggested change to the last question on Activity Sheet 4: How are you like a caterpillar? How are you different from a caterpillar?	 Class discussion Do students compare the growth and changes of the caterpillars to the changes in their own bodies? Do students identify basic needs such as water, food, shelter or suitable temperature as common to people and caterpillars? Activity Sheet 4 Do students identify the similarities and differences of the physical features of people and caterpillars?
	What are the basic needs of living things?	 5C(K-2)#2: Most living things need water, food and air. 5D(K-2)#1: Animals eat plants or other animals for food and may also use plants (or even other animals) for shelter and nesting. 	Class discussion about the relationship between food and growth. (See <i>Procedure</i> Steps 3 on page 35.)	Do students understand that food is responsible for the growth of the caterpillars?

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	How do caterpillars grow and change?	11C(K-2)#3: Things can change in different ways, such as in size, weight, color, and movement. Some small changes can be detected by taking measurements. 11C(K-2)#4: Some changes are so slow or so fast that they are hard to see.	Class discussion about molting (See <i>Procedure</i> Step 6 on page 36 of Teacher's Guide.) <i>Class Calendar</i> observational statement about molting and growth of caterpillars (See <i>Final Activities</i> Step 2 on page 36 of Teacher's Guide.)	 Class discussion Do students observe molting or change in the size of the caterpillars? Do students observe indirect evidence of growth or molting (shed skin, shed head capsule, changes in feeding or amount of frass)? Class Calendar Do students record the observations they make of the growth and change (by molting) in the caterpillars?

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Lesson 6: Silk Spinning Pacing: See Sample Class Calendar in Teacher's Guide for approximate timetable	What features do caterpillars have that help them survive?	5A(K-2)#2: Plants and animals have features that help them live in different environments.	Student observations of silk and class discussion about spinning habits of caterpillars.	 Class Discussion and Class Calendar Can students explain how spinning silk helps caterpillars to survive? Do students observe caterpillars using silk as a support when resting or eating, as a bridge to travel upon or as an anchor in preparation for a molt?
		12D(K-2)#2: Draw pictures that correctly portray at least some features of the thing being discussed.	Student drawings of silk	Do students' drawings of the silk spun by the caterpillars contain details? Is the drawing clear enough that another person could understand it?
	How do caterpillars grow and change?	 11C(K-2)#3: Things can change in different ways, such as in size weight, color, and movement. Some small changes can be detected by taking measurements. 11C(K-2)#4: Some changes are so slow or so fast that they are hard to see. 	Class Calendar observational statement about molting and growth of caterpillars (See Final Activities Step 4.)	Do students record the observations they make of the growth and change in the caterpillars?

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Lesson 7: From Caterpillar to Chrysalis Pacing: See Sample Class Calendar in Teacher's Guide for	How do caterpillars grow and change?	 12D(K-2)#1: Describe and compare things in terms of number, shape, texture, size, weight, color, and motion. 11C(K-2)#3: Things can change in different ways, such as in size, weight, color, and movement. Some small changes can be detected by taking measurements. 	Class discussion about student observations of caterpillars and about the stages of transformation. (See <i>Procedure</i> steps 1-3 on page 46.)	 Do students observe a silk button spun on the lid of the cup? Do students observe a change in the activity level of their caterpillar? Do students observe the J shape that precedes a caterpillar's transformation into a butterfly? Can students describe the pupation process?
approximate timetable		12D(K-2)#2: Draw pictures that correctly portray at least some features of the thing being discussed.	Student drawings (See <i>Activity Sheet 6</i> on pages 48-49.)	 Do students draw detailed diagrams of their caterpillars? Do students draw the J shape that precedes pupation?
	How are individual caterpillars alike and different?	5B(K-2)#1: There is variation among individuals in a population. 12D(K-2)#1: Describe and compare things in terms of number, shape, texture, size, weight, color, and motion.	Student observations of each others' caterpillars and discussion about the different sizes and stages of transformation. (See <i>Procedure</i> steps 1- 3 on page 46.) Suggestion: Complete a class Venn diagram comparing caterpillars (comparison could be of caterpillars in classroom or classroom caterpillars to other species of caterpillars described in books)	Do students recognize the similarities and differences (in size, features, activity level, stages of transformation) between their individual caterpillars?

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Lesson 8: Observing the Chrysalis Pacing: See Sample Class Calendar in Teacher's Guide for approximate timetable	How do caterpillars grow and change?	 11C(K-2)#4: Some changes are so slow or so fast that they are hard to see. 12D(K-2)#2: Draw pictures that correctly portray at least some features of the thing being discussed. 	Class discussion about student observations (See <i>Procedure</i> steps 1-3 on page 52 of Teacher's Guide.) Student drawings of chrysalis and developing features visible through chrysalis (See <i>Activity Sheet 7</i> on page 55 of Teacher's Guide.)	 Class discussion Do students know that changes are taking place in the chrysalis? Activity Sheet 7 Do students make observations of any shapes that look like eyes, antennae, proboscis, wings, and abdomen? Are students' drawings detailed and representative of the actual items being drawn?
		 12D(K-2)#1: Describe and compare things in terms of number, shape, texture, size, weight, color, and motion. 11C(K-2)#3: Things can change in different ways, such as in size, weight, color, and movement. Some small changes can be detected by taking measurements. 	<i>Class Calendar</i> (See <i>Final Activities</i> on page 52 of Teacher's Guide) and class discussion about student observations (See <i>Procedure</i> steps 1-3 on page 52 of Teacher's Guide.)	 Class Calendar and Class discussion Do students observe any color changes (darkening) in the chrysalis before the butterfly emerges? Do students see evidence of eyes, wings, antennae?

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Lesson 9: The Butterfly Emerges Pacing: See Sample Class Calendar in Teacher's Guide for approximate timetable	How do caterpillars grow and change?	 11C(K-2)#4: Some changes are so slow or so fast that they are hard to see. 11C(K-2)#3: Things can change in different ways, such as in size, weight, color, and movement. Some small changes can be detected by taking measurements. 	Student observations of butterflies emerging from chrysalises (See <i>Procedure</i> steps 1-4 and <i>Activity Sheet</i> 8 Life Cycle of a Butterfly on page 64.)	Student observations Do students observe butterflies emerging from the chrysalises? or Do students conclude that the butterflies came out of the empty chrysalises? Activity Sheet 8 Are students able to sequence the pictures accurately to represent how the caterpillars grow and change?

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Lesson 10: Feeding the Butterflies Pacing: See Sample Class Calendar in Teacher's	What are the basic needs of the butterfly?	 5C(K-2)#2: Most living things need water, food and air. 5D(K-2)#1: Animals eat plants or other animals for food and may also use plants (or even other animals) for shelter and nesting. 	Class discussion about butterfly food and observations of butterflies feeding (See <i>Procedure</i> steps 1-6 on page 69.)	 Class discussion Do students recognize that the butterflies need food? Do students know what the butterflies are fed in the classroom? Do the students observe the butterflies using a proboscis to eat?
Guide for approximate timetable			Student Responses (See Activity Sheet 9 on page 71) and observations of butterflies when offered other foods (See Final Activities on page 70.)	Activity Sheet 9 Do students know what food butterflies eat outside? Final Activities Do students offer new foods to butterflies and observe butterflies feeding on some of these foods?
	What are some of the physical features of butterflies?	12D(K-2)#2: Draw pictures that correctly portray at least some features of the thing being discussed.	Student Responses (See Activity Sheet 9 on page 71.)	Activity Sheet 9 Can the students accurately draw a proboscis of a butterfly?
	What are the differences between caterpillars and butterflies?	 12D(K-2)#1: Describe and compare things in terms of number, shape, texture, size weight, color, and motion. 5A(K-2)#2: Plants and animals have features that help them live in different environments. 	Student Evaluation (See <i>Evaluation</i> on page 70.)	 Student Evaluation Can students explain that a caterpillar chews food with its jaws, but a butterfly sips it with a proboscis?

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Lesson 11: The Butterfly's Body Pacing: See Sample Class Calendar in Teacher's Guide for approximate timetable	What are some of the physical features of butterflies? What features do butterflies have that help them survive?	 12D(K-2)#1: Describe and compare things in terms of number, shape, texture, size, weight, color, and motion. 5A(K-2)#2: Plants and animals have features that help them live in different environments. 	Class discussion of student observations of the physical features of butterflies (See <i>Procedure</i> steps 1-2 on page 75 of Teacher's Guide.) Student observations recorded on <i>Activity Sheet 10</i> (See page 78 of Teacher's Guide.)	 Class discussion Do students observe the physical characteristics and the behavior of their butterflies? Do students identify the three parts of the butterfly: head, thorax and abdomen? Do students provide accurate explanations of how the parts of the butterfly are used? Activity Sheet 10 Do students accurately determine the parts and number of parts in the butterfly? Do students understand what function each of these physical features has?
	How are living things alike and different?	5A(K-2)#1: Some animals and plants are alike in the way they look and in the things they do, and others are very different from one another.	Student observations recorded on Activity Sheet 10 (See page 78 of Teacher's Guide.) Suggestion: Complete a class Venn diagram comparing humans and butterflies.	Activity Sheet 10 Do the students list the number of eyes, legs, wings arms and antennae found on the human and the butterfly body?
	How do butterflies grow and change?	6B(K-2)#1: All animals have offspring, usually with two parents involved. People may prevent some animals from producing offspring.	Class discussion of student observations of the mating of butterflies (See <i>Procedure</i> steps 1-2 on page 75 of Teacher's Guide.)	Class discussion Do the students recognize that the butterflies mating will result in another generation of butterflies?

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Lesson 12: The Butterflies Go Free Pacing: See Sample Class Calendar in Teacher's Guide for approximate timetable	What are the basic needs of the butterfly?	5A(K-2)#2: Most living things need water, food, air [and a place to live] .	Class discussion about the butterflies' place in the wild (See <i>Procedure</i> step 1 on page 80 of Teacher's Guide.)	 Class discussion Do students know that butterflies have a place in the environment? Do students recognize that in the wild butterflies have more space, can find a variety of foods, and can mate and produce eggs?
	What will happen to the eggs laid by the butterflies?	5B(K-2)#2: Offspring are very much, but not exactly, like their parents and like one another.	Student observations of the empty cages and class discussion about raising a second generation of butterflies (See <i>Final Activities</i> step 3 on page 80 of Teacher's Guide.)	 Student observations and class discussion Do students observe butterfly eggs in the empty cages? Do students determine that the new generation of butterflies will look very much like the last?

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Lesson 13: Using Our Data Pacing: See Sample Class Calendar in Teacher's Guide for approximate timetable	How can we use our data to learn about the life cycle of a butterfly?	11C(K-2)#2: People can keep track of some things, seeing where they come from and where they go.	Student responses to questions about duration of stages in life cycle of a butterfly (See <i>Activity Sheet 11</i> on page 85 of Teacher's Guide.)	 Activity Sheet 11 Do students use their data to answer questions about the length of various stages of caterpillar to butterfly development? Do students use their data to determine the longest and shortest stages of the life cycle?
Lesson 14: Discovering that Butterflies Are Insects	How are living things alike and different?	 11D(K-2)#1: Things in nature and things people make have very different sizes, weights, ages and speeds. 5A(K-2)#1: Some animals and plants are alike in the way they look and in the things they do, and others are very different from one another. 	Class discussion about the characteristics of insects (See <i>Procedure</i> steps 2-3 on page 88 of Teacher's Guide.) Student responses to questions about insects (See <i>Activity Sheet 12</i> on page 90 of Teacher's Guide.)	 Class discussion Do students list characteristics that all insects share: six jointed legs, three main body parts, two antennae, one or two pairs of wings (or none)? Activity Sheet 12 Do students determine that a butterfly is an insect? Do students determine that spiders, often confused with insects, fail to meet the criteria?

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Lesson 15: Other Life Cycles Pacing: See Sample Class Calendar in Teacher's Guide for approximate timetable	What is a life cycle? How are life cycles alike and different in different plants and animals?	Related to 6B(K-2)#1: All animals have offspring, usually with two parents involved. People may prevent some animals from producing offspring.	Class discussion about the life cycles of living things (See Procedure Steps 1-3 on pages 93-94 and <i>Figure 12-2</i> on page 94 of Teacher's Guide.)	 Do students apply what they have learned about life cycles of butterflies to new situations? Do students compare the life cycle of butterflies to the life cycle of humans and other animals or plants? Do students know that life comes from living things?