

Insects Big Ideas

Systems	Inquiry	Application	LS1 Structures	LS2 Ecosystems	LS3 Heredity
Role of Each Part in a System	Conducting Investigations	Solving Problems	Life Cycles	Changes in Ecosystems	Variation of Inherited Characteristics
See how parts of objects, plants, and animals are connected and work together.	Carry out <i>investigations</i> by using instruments, observing, recording, and drawing evidence-based conclusions.	Develop a solution to a problem by using a simplified technological design process. Investigate the use of tools.	Plants and animals have life cycles.	Changes in ecosystems affect living populations and the non-living elements of a defined area.	Plants and animals vary from one another and their parents. These differences serve as the basis for natural selection.

Why Big Ideas: Research shows students learn science by building on a limited number of unifying ideas.

In Life Science they include:

What does it mean to be alive?

How do living organisms interact with their environment?

How are all living organisms related?

FOSS	Standards	Focus Question/PE	Big Idea Question
Mealworms	APPB Solving Problems K-1 LS2B Habitats Support Growth of Animals/plants	Focus: Habitat What do mealworms need in their habitat to stay alive? <i>(Mealworm) Food, Water, Shelter, and Air</i>	How do living organisms interact with their environment?
Larva, Pupae, Adult	INQB Investigate K-1 LS1B Animal Parts	Focus: Inquiry How do scientists keep data for investigations that extend many days? <i>Scientists record data in their science journal or notebook.</i>	How do scientists investigate questions they have?
Life Cycle	2-3 LS1B Life Cycle 2-3 LS3B Parents and Offspring INQD Using Magnifiers	Focus: Inheritance Predict how a baby mealworm will look compared to its parent. <i>The offspring of a darkling beetle is a mealworm (both have 6 legs).</i>	How are all insects related?
Waxworms	INQB Investigate K-1 LS2B Habitats Support Growth of Animals/plants	Focus: Habitat What do waxworms need in their habitat to stay alive? <i>(Waxworm) Food, Water, Shelter and Air</i>	How do living organisms interact with their environment?
Larva, Pupa, Adult	INQF Evidence K-1 LS1B Animal Parts	Focus: Inquiry How do we know that waxworms and mealworms are both insect larvae? <i>6 Legs, Life Cycle</i>	Do you have evidence for your explanation?
Life Cycle	2-3 LS1B Life Cycle	Focus: Life Cycle Do all insects have life cycles?	What does it mean to be alive?
Milkweed Bug Eggs	INQD Magnifiers 2-3 LS1B Life Cycle	Focus: Life Cycle Do all insects have the same steps in their life cycle?	What does it mean to be alive?
Habitats	SYSA Systems K-1 LS2B Habitats Support Growth of Animals/plants	Focus: Systems What parts are needed to build a milkweed bug habitat? <i>Sticks, Water, Milkweed Bug Food, Air</i>	What parts make a complete habitat?

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Growing Milkweed Bugs	INQB Investigate 2-3 LS2B Ecosystems Change	Focus: Habitat What changes in the environment could affect the milkweed bug habitat? <i>Too much waste, run out of food or water.</i>	How do living organisms interact with their environment?
Eggs	K-1 LS3A Living/non-Living	Focus: Life Cycle Are insect eggs alive? <i>All living organisms have life cycles.</i>	What does it mean to be alive?
Larvae	APPB Problem Solving K-1 LS2B Habitats Support Growth of Animals/plants	Focus: Problem Solving What is needed for a silkworm habitat? <i>Mulberry Leaves (special food)</i>	How do scientists and engineers work together to solve problems?
Close Observation	INQD Magnifiers	Focus: Inquiry What can you see with a magnifier that is difficult with just your eyes? <i>Spiracles, Head, Prolegs</i>	How do scientists get answers to their questions?
Silkworm Structure	SYSA Living Systems	Focus: Systems What parts are common to all 3 insect larvae? <i>Head, Segments, Legs</i>	How are all insects related?
Pupae and Adults	2-3 LS1B Life Cycle K-1 LS3C Classify	Focus: Life Cycle How do you know a pupae is alive? <i>When a larvae hatches.</i>	What does it mean to be alive?
Caterpillars	2-3 LS3A Variation	Focus: Inheritance Are caterpillars insect larvae? <i>Yes, 6 legs, segments.</i>	How are all insects related?
Chrysalises	SYSE Similar parts	Focus: Systems Are chrysalis and pupae the same or different? Explain <i>Same: Part of Metamorphosis</i>	
Butterflies	2-3 LS2B Life Cycle	Focus: Life Cycle Describe the life cycle of a butterfly. Egg, Larvae, Pupa, Adult	What does it mean to be alive?
Crickets	APPB Technological Design K-1 LS2B Habitats Support Growth of Animals/plants	Focus: Technological Design Build a cricket habitat based on what you have learned about insect habitats. <i>Food, Water, Air, Shelter</i>	How do scientists and engineers work together to solve problems?
Ants	K-1 LS2B Habitats Support Growth of Animals/plants	N/A	N/A
Aquatic Insects	2-3 LS2D Human Impact on Ecosystems Environmental and Sustainability Standard	Focus: Habitat How can you use the kind of insect to determine water quality of a stream or pond?*	How do living organisms interact with their environment?

*Use aquatic insect guide for our area.