

# Butterflies and Moths

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### COPYMASTERS

<b>Student Activity Sheets</b>	
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<b>School-Home Connection</b>	
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# About **Butterflies and Moths**

**DeltaScienceModules**, THIRD EDITION

**S**tudents explore the colorful, captivating world of moths and butterflies. From tiny larvae on beds of food to fluttering adults in a mesh tower, butterflies and moths grow and develop with your students' care. Teams of two raise a painted lady butterfly and a wax moth, observing metamorphosis from larva to pupa to adult. When adults emerge from chrysalis and cocoon, students study their features and behaviors. Some may even see a new generation of larvae hatch. Students record observations in logbooks and learn about survival adaptations—camouflage, mimicry, and ultrasensitivity to odors. The unit includes a field trip to collect and identify wild larvae, as well as hints for distinguishing between butterflies and moths at every stage of their life cycles.

In the Delta Science Reader *Butterflies and Moths*, students read about the life cycles of butterflies, moths, and other insects. They learn the identifying characteristics of all insects. They discover the similarities and differences between moths and butterflies. Students also read about a biologist who studies Monarch butterflies and find out about the amazing migration of the Monarch butterfly.

# Overview Chart for Hands-on Activities

Hands-on Activity	Student Objectives
<b>1 Meet the Larvae</b> <i>page 15</i>	<ul style="list-style-type: none"> <li>• discuss how to treat living things</li> <li>• set up containers with larvae food</li> <li>• make initial observations of the larvae</li> </ul>
<b>2 Body Parts and Products</b> <i>page 23</i>	<ul style="list-style-type: none"> <li>• learn the names of the body parts of the larvae</li> <li>• observe these body parts on the living specimens</li> <li>• observe the growing larvae every 2 days for approximately 7–15 days</li> </ul>
<b>3 Colorful Camouflage</b> <i>page 31</i>	<ul style="list-style-type: none"> <li>• play a game with colored pipe cleaners</li> <li>• discuss how color affected the results of the game</li> <li>• learn that larvae use color to camouflage themselves</li> <li>• learn how some larvae use color to indicate that they are poisonous</li> </ul>
<b>4 Farther Afield</b> <i>page 39</i>	<ul style="list-style-type: none"> <li>• learn how and where to look for larvae outside</li> <li>• take a field trip and search for butterfly and moth larvae</li> <li>• collect butterfly and moth larvae and their food plants</li> </ul>
<b>5 Wild Larvae</b> <i>page 47</i>	<ul style="list-style-type: none"> <li>• examine the new larvae closely, describing and drawing them</li> <li>• look for the body parts described on the transparency</li> <li>• use resource materials to attempt to identify the larvae</li> </ul>
<b>6 The Big Change</b> <i>page 53</i>	<ul style="list-style-type: none"> <li>• discuss the pupal stage in butterfly and moth development</li> <li>• observe and draw the butterflies' chrysalises</li> <li>• observe and draw the moths' cocoons</li> <li>• compare cocoons to chrysalises</li> </ul>
<b>7 Making Scents</b> <i>page 61</i>	<ul style="list-style-type: none"> <li>• discuss how humans use their sense of smell</li> <li>• learn how moths use scents to find their mates</li> <li>• pretend they are moths and practice using their own sense of smell</li> </ul>
<b>8 Camouflage and Mimicry</b> <i>page 71</i>	<ul style="list-style-type: none"> <li>• review the concept of camouflage</li> <li>• learn about mimicry as a protective strategy</li> <li>• color paper butterflies in order to hide them through mimicry or camouflage</li> <li>• see how many hidden paper butterflies they can find</li> </ul>
<b>9 Emerging Adults</b> <i>page 79</i>	<ul style="list-style-type: none"> <li>• observe the butterflies emerge from their chrysalises</li> <li>• learn about the process of metamorphosis</li> <li>• observe the moths emerge from their cocoons</li> <li>• discuss the difference between the adults and the larvae</li> </ul>
<b>10 Butterfly Behavior</b> <i>page 89</i>	<ul style="list-style-type: none"> <li>• learn about butterfly mating behavior</li> <li>• observe structure and function of the mouth parts of the adult butterflies</li> <li>• compare the food of caterpillars with adults</li> </ul>
<b>11 The Life Cycle</b> <i>page 97</i>	<ul style="list-style-type: none"> <li>• observe the eggs laid by the adults</li> <li>• investigate the concept of the life cycle</li> <li>• observe newborn larvae</li> </ul>
<b>12 Butterfly or Moth?</b> <i>page 105</i>	<ul style="list-style-type: none"> <li>• study the differences between butterflies and moths</li> <li>• examine these differences in their own specimens</li> </ul>
<b>Assessment</b> <i>page 111</i>	<ul style="list-style-type: none"> <li>• See page 111.</li> </ul>

## Butterflies and Moths

Process Skills	Vocabulary	Delta Science Reader
observe, compare, communicate	larva, larvae	pages 2–3
observe, compare, communicate	exoskeleton, frass, mandibles, molt, segments, sucker feet, true legs	pages 4–5, 10
classify, use numbers, infer, define based on observations	camouflage	page 10
predict; observe; compare; collect, record, display, or interpret data	leaf litter	pages 10, 14
collect, record, display, or interpret data; compare		pages 10, 14, 15
observe, compare, classify	chrysalis, cocoon, pupa, pupae	page 11
experiment, use variables	antenna, antennae, odor, scent	pages 6–7
define based on observations, infer	mimicry	page 15
observe, compare, communicate	metamorphosis, ovipositor	page 12
observe; compare; collect, record, display, or interpret data	nectar, proboscis	pages 6–7, 10
observe, define based on observations	life cycle	pages 2–3, 8, 9
observe, compare, classify	Lepidoptera	pages 6–7

See the following page for the Delta Science Reader Overview Chart.

# Overview Chart for Delta Science Reader

## Butterflies and Moths

Selections	Vocabulary	Related Activity
<b>Think About...</b>		
<b>What Are Living Things?</b> <i>page 2</i>	adult, life cycle, living things, nonliving things, nutrients	Activities 1, 11
<b>What Is an Insect?</b> <i>page 4</i>	abdomen, antennae, exoskeleton, head, insect, thorax	Activity 2
<b>Butterflies and Moths</b> <i>page 6</i>		Activities 7, 10, 12
<b>Life Cycle of Butterflies and Moths</b> <i>page 8</i> <ul style="list-style-type: none"> <li>• Egg <i>page 9</i></li> <li>• Larva <i>page 10</i></li> <li>• Pupa <i>page 11</i></li> <li>• Adult <i>page 12</i></li> </ul>	egg, larva, metamorphosis, pupa     chrysalis, cocoon   nectar	Activity 11  Activity 11  Activities 2, 3, 4, 5  Activity 6  Activities 9, 10
<b>Other Insect Life Cycles</b> <i>page 13</i>	nymph	
<b>People in Science</b>		
<ul style="list-style-type: none"> <li>• A Biologist <i>page 14</i></li> </ul>		Activities 4, 5
<b>Did You Know?</b>		
<ul style="list-style-type: none"> <li>• About Migration <i>page 15</i></li> </ul>	migration	Activities 5, 8

See pages 119–128 for teaching suggestions for the Delta Science Reader.



# ACTIVITY SUMMARY

**This Delta Science Module gives students a chance to learn about the life cycles of butterflies and moths by closely observing Painted Lady butterflies and Wax moths as they grow and develop from eggs to larvae to pupae to adults.**

**ACTIVITY 1** Students are introduced to the larvae of butterflies and moths and set up individual containers for the butterfly larvae. They observe the two kinds of larvae and compare their food sources.

**ACTIVITY 2** Students take a closer look at the larvae and learn about some of their body structures. Among other things, they learn to tell the difference between the six true legs and the sucker feet, or false legs, of the larvae. They also begin to make daily observations of the rapidly growing larvae.

**ACTIVITY 3** Students play a camouflage game in order to understand certain larval adaptations. By scattering, then trying to collect, different-colored pipe cleaner pieces on multicolored surfaces, they learn how larvae use color camouflage to hide from predators.

**ACTIVITY 4** Students take a field trip outside to search for wild larvae. They have a chance to discover a wide variety of insects in the same stage of development as the larvae that they have in their classroom. If possible, they bring some of these inside for further investigation in Activity 5.

**ACTIVITY 5** Students examine more closely the larvae they collected outside. They study the various body parts of the larvae and give the larvae names based on how they look or behave. They also compare their wild larvae to the butterfly and moth larvae they have been studying. Finally, students try to identify their wild larvae based on information they find in field guides.

**ACTIVITY 6** Students closely observe the original larvae as they enter the pupal stage of their life cycle. They learn how insects can change form.

**ACTIVITY 7** Students experiment with their own senses of smell as they learn about the extraordinary sense of smell possessed by many moths and discover how moths use this sense to find their mates.

**ACTIVITY 8** Students are introduced to other special adaptations of butterflies and moths. They learn how the coloring of many of these insects protects them from predators by camouflaging them or making them look like something else, usually something inedible or dangerous. They then attempt to hide paper butterflies in the classroom by coloring them in a way that camouflages them or that mimics something within the classroom.

**ACTIVITY 9** Students observe the butterflies and moths as they begin to emerge from their pupae. They learn about the many structural and functional differences between these newly emerged adults and the larvae.

**ACTIVITY 10** Students continue to observe the adults and learn about their feeding and mating behavior.

**ACTIVITY 11** Students see the whole life cycle of the insects by observing their eggs and possibly trying to raise a new generation of larvae. They also discuss the potential for population growth in an insect population that lays hundreds of eggs at a time.

**ACTIVITY 12** Students learn about the characteristics that differentiate butterflies from moths.