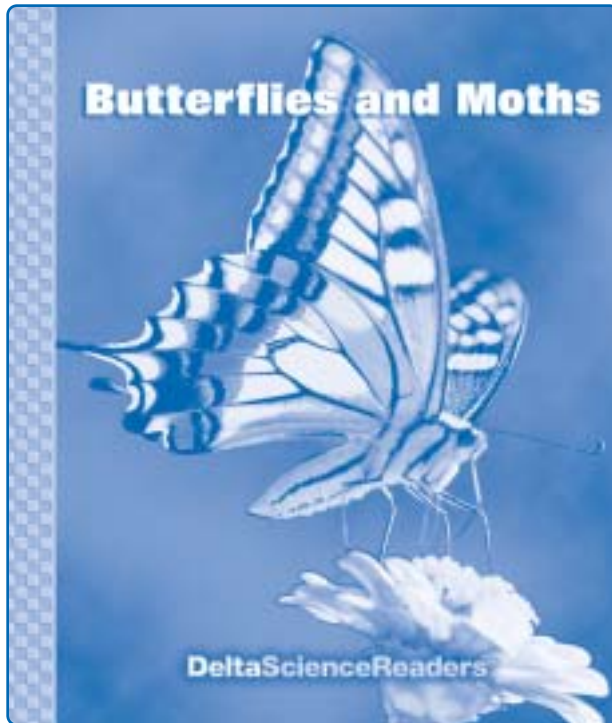


Butterflies and Moths



Delta Science Readers are nonfiction student books that provide science background and support the experiences of hands-on activities. Every **Delta Science Reader** has three main sections: *Think About . . .*, *People in Science*, and *Did You Know?*

Be sure to preview the reader Overview Chart on page 4, the reader itself, and the teaching suggestions on the following pages. This information will help you determine how to plan your schedule for reader selections and activity sessions.

Reading for information is a key literacy skill. Use the following ideas as appropriate for your teaching style and the needs of your students. The After Reading section includes an assessment and writing links.

OVERVIEW

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.

Students will

- ▶ identify the characteristics of insects
- ▶ compare and contrast butterflies and moths
- ▶ trace the stages of an insect's life cycle
- ▶ identify the body parts of larvae and adult butterflies and moths
- ▶ predict migration patterns of Monarch butterflies
- ▶ examine nonfiction text elements such as table of contents, headings, and glossary
- ▶ interpret photographs and diagrams to answer questions
- ▶ complete a KWL chart

READING IN THE CONTENT AREA SKILLS

- Compare and contrast
- Draw conclusions
- Sequence of events
- Critical thinking
- Make predictions
- Classify and categorize
- Summarize

NONFICTION TEXT ELEMENTS

Butterflies and Moths includes a table of contents, headings, photographs, diagrams, captions, boldfaced terms, labels, a map, and a glossary.

CONTENT VOCABULARY

The following terms are introduced in context and defined in the glossary: *abdomen, adult, antenna, chrysalis, cocoon, egg, exoskeleton, head, insects, larva, life cycle, living things, metamorphosis, migration, nectar, nonliving things, nutrients, nymph, pupa, thorax*

BEFORE READING

Build Background

Access students' prior knowledge of butterflies and moths by displaying and discussing the cover. Read aloud the title and ask, *What do you see in this photograph?* (a butterfly on a flower) *Is this a moth or a butterfly? How do you know? What do you think the butterfly is doing on the flower?*

Read the title aloud, and invite students to share what they know about butterflies and moths from their personal experiences and hands-on explorations in science. To stimulate discussion, ask questions such as these: *Have you ever seen a butterfly or moth? Where? What did it look like? What was it doing? Have you ever seen a caterpillar?*

How do you think a caterpillar and a butterfly or moth are related?

Begin a KWL chart by recording facts students know about butterflies and moths in the K column. You may want students to copy the KWL chart so they can maintain their own charts as they read.

K What I Know	W What I Want to Know	L What I Learned	+ What I Want to Explore Further

Preview the Book

Tell students that one way to find out what a book is about is to *preview* the book. Explain that when students preview nonfiction, they should look at the title, the table of contents, headings, boldfaced words, photographs, diagrams, and captions.

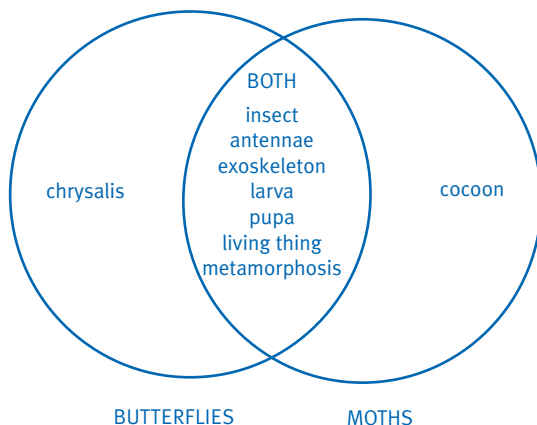
Then preview the book with students. As you flip through the pages, call attention to the various nonfiction text elements and explain how they can help students understand and organize what they read. Ask questions such as these: *What do you see in this picture? What do you think this diagram will tell us about butterflies and moths? What on this page might help you find out what this section is about? Why do you think these words are in darker type? How might these words help you predict what you will be reading about?* Explain that the words in boldface type are important words related to butterflies and moths. Point out that these words are defined in the glossary. Choose one word and have students find its definition in the glossary.

Preview the Vocabulary

You may wish to preview some of the vocabulary words before reading rather than

waiting to introduce them in the context of the book. Possibilities include creating a word wall, vocabulary cards, sentence strips, or a concept web.

For example, you might draw the following Venn diagram on the board. List several vocabulary words and have students predict whether each word is related to butterflies, to moths, or to both. Have students look up each word in the glossary or a dictionary and list it in the appropriate section of the diagram.



▲ Venn diagram for **Butterflies and Moths**

Set a Purpose

Discuss with students what they might expect to find out from the book, based on their preview. Record students' questions in the W ("Want to Know") section of the KWL chart. Encourage them to use the questions on the chart to set an overall purpose for reading.

GUIDE THE READING

Preview the book yourself to determine the amount of guidance you will need to give for each section. Depending on your schedule and the needs of your class, you may wish to consider the following options:

- **Whole Group Reading** Read the book aloud with a group or the whole class. Encourage students to ask questions and make comments. Pause as necessary to clarify and assess understanding.

- **Shared Reading** Have students work in pairs or small groups to read the book together. Ask students to pause after each text section. Clarify as needed and discuss any questions that arise or have been answered.
- **Independent Reading** Some students may be ready to read independently. Have them rejoin the class for discussion of the book. Check understanding by asking students to explain in their own words what they have read.

Tips for Reading

- If you spread out the reading over several days, begin each session by reviewing the previous day's reading and previewing what will be read in the upcoming session.
- Begin each text section by reading or having a volunteer read aloud the heading. Have students examine any illustrations or graphics and read accompanying captions and labels. Discuss what students expect to learn, based on the heading, illustrations, and captions.
- Help students locate context clues to the meanings of words in boldface type. Remind them that these words are defined in the glossary. Provide help with words that may be difficult to pronounce.
- As appropriate, model reading strategies students may find helpful for nonfiction: adjust reading rate, ask questions, paraphrase, reread, visualize.

Think About . . . (pages 2–13)

Pages 2, 3 *What Are Living Things?*

Page 2

- Help students identify the pictures on page 2. Point out that a tree, an elephant, and a butterfly are very different, yet they are alike in at least one way. Ask, *How are these three things alike?* Accept all reasonable answers. Then read aloud the caption to confirm students' predictions.

- Read aloud the heading on page 2. Point to objects in the room or name familiar objects, such as a book, a tree, a person, a rock, and a dog. Ask about each one, *Is this a living thing or a nonliving thing?*
- Read aloud page 2. Ask, *What is the difference between living and nonliving things?* (Living things can grow and change. Nonliving things cannot grow and change.) *What do plants and animals need to stay alive?* (air, water, light, nutrients or food, shelter)

Page 3

- Ask, *Do you look the same as you did when you were a baby? Do you act the same? How have you changed?* Tell students that on the next page they will learn how living things change as they grow.
- Read aloud page 3. Explain that the life cycle of a living thing includes all the stages, or changes, that it goes through from the beginning of its life to the start of the life of its young. Ask, *What do you think the stages of a human being's life cycle are?* (infant, child, teenager, adult, infant) Explain that although all animals have a life cycle, the stages in the life cycle may be different for different animals.
- Ask students to look at the life cycle diagram on page 3. Ask, *What animal's life cycle does this diagram show?* (bird) Have students point to the eggs on the life cycle diagram. Have them trace the arrow from the egg to the young bird and read aloud the label. Have them trace the arrow to the adult, read the label, and continue tracing back to the egg. Ask, *What shape did you make?* (a circle)
- Explain that the life cycle is shown in a circle because when the adult bird lays its eggs, another life cycle begins. Ask, *What do you think happens to the adult bird after it lays its eggs?* Point out that eventually the adult bird will die. However, the eggs that it lays will hatch, and the new young birds will grow into adults that lay eggs of their own. So the life cycle will continue.

Pages 4, 5 *What Is an Insect?*

- Ask students to identify the pictures on pages 4 and 5. (Students may be able to identify all three: beetle, water strider, and ladybug.) Point to and read aloud the word *insect* in the heading on page 4. Ask, *Which of these do you think is an insect?* Tell students that they will find out as they read the next two pages.
- Read aloud page 4. On the board, draw a simple outline of a ladybug. Ask, *What do we know about insects?* Record students' responses inside the outline as they summarize the information on page 4.
- Direct students' attention to the diagram of the ladybug on page 5. (Note that the ladybug is also often called a ladybird or ladybird beetle.) Ask, *What are the three main parts of an insect's body?* (head, thorax, and abdomen) Have volunteers find each label and point to each part on the diagram. Do the same for the labels *legs*, *antennae*, and *wings*.
- Point out that the beetle, water strider, and ladybug on pages 4 and 5 are all insects. With students, brainstorm a list of familiar insects, such as ants, bees, beetles, grasshoppers, butterflies, and moths. If students suggest spiders, centipedes, or other non-insects, remind them that all insects have six legs.
- If necessary, provide help with the pronunciation of *abdomen* (AB-duh-muhn), *antennae* (an-TEN-ee), *exoskeleton* (EK-so-skel-uh-tuhn), and *thorax* (THOR-ax).

Further Facts

- Based on fossil remains, scientists have determined that insects have been on Earth for at least 400 million years. Scientists discover thousands of new species of insects each year. Today, 90 percent of all animals are insects.

