

Walch Science Literacy Series Biology

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J. WESTON
WALCH
PUBLISHER

Portland, Maine

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Lesson 12

Brilliant Butterflies, Drab Moths

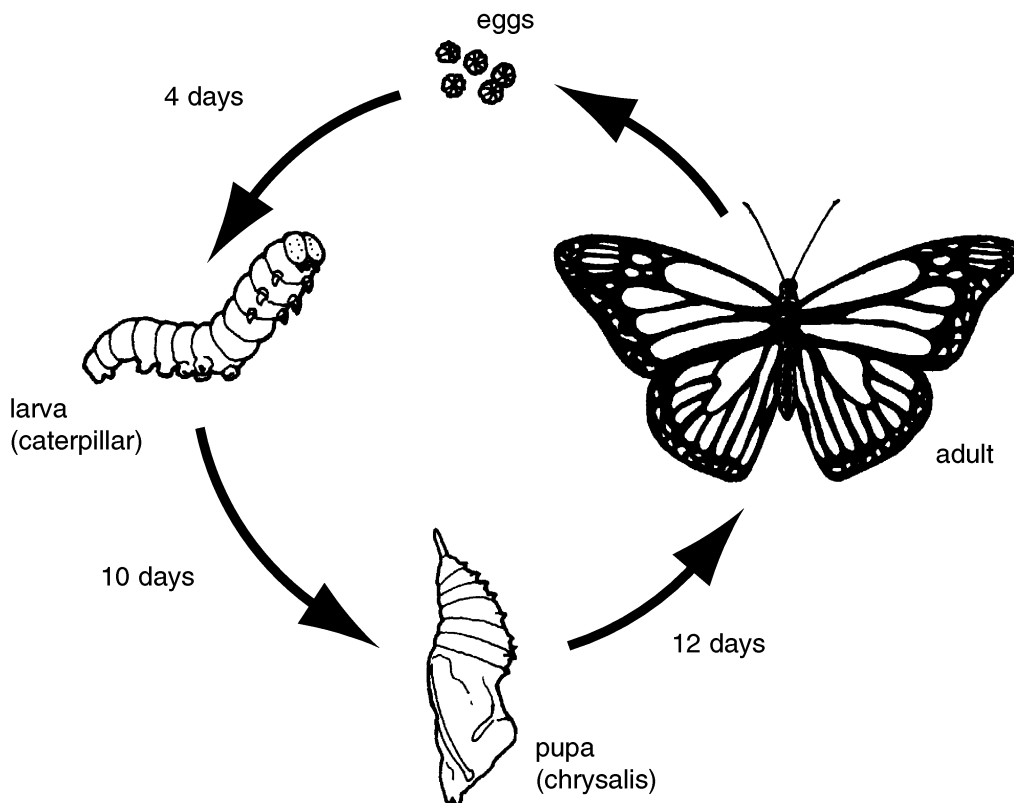
Insects



Floating gently on the soft summer breeze, an iridescent jewel lands on the tropical flower. It is a brilliant blue emperor butterfly seeking nectar to sip in the steamy jungle of Central America.

When people think of butterflies, they usually think of colorful wings fluttering in the sunlight. When they think of their relatives, the moths, they usually think of dull-colored insects flying around the porch light at night. Most of the time, but not always, they are right. Most people are more familiar with butterflies than with moths because butterflies are active during the day, and moths are mainly active at night.

Together, butterflies and moths make up the second largest insect order with more than 100,000 different species. Like all insects, they hatch from tiny eggs. But as they grow, moths and butterflies go through a change in body size and shape called **metamorphosis**. Follow the life cycle of the monarch butterfly in the drawing below.



Four days after being laid, the egg hatches into a **larva**. In this stage, the hatched larva grows and feeds. The larva is called a caterpillar. The monarch caterpillar is a fat, green-and-black striped creature you might see crawling on a milkweed plant. After 10 days, the caterpillar encases itself in a hard covering and begins to change. This stage of the butterfly's life is called the **pupa**, or **chrysalis**. The monarch chrysalis is shimmering green. In about 12 days, when the change within the chrysalis is complete, an adult butterfly emerges. The orange-and-black monarch must allow its wings to expand and stiffen to be ready for its fluttering, gliding flight.

Although monarchs are delicate looking, they are actually powerful fliers. Monarchs are one kind of butterfly that migrate long distances. The North American monarch butterfly flies thousands of miles. Some monarchs spend the summer as far north as Canada. In the fall, those from eastern Canada and the United States migrate south. By early winter, many are traveling south through the southern United States. In winter, they gather in a few areas in Mexico, not far from Mexico City. There, they crowd into small forest areas, where they completely cover thousands of trees.

In spring, these monarchs fly north, laying eggs along the way. Many die shortly after laying eggs. The eggs hatch into caterpillars that develop into butterflies. These butterflies continue to migrate northward. Finally, some monarchs reach the areas where they spend the summer. In fall, the migration begins again.

Butterflies and moths are dependent on wild plants for their survival. Because of this, they are very vulnerable to changes in the environment caused by humans. In Europe and North America, many butterflies have become endangered or extinct, as their habitats are destroyed by expanding human populations. In the tropics, where butterflies and moths are more common, destruction of rain forests has reduced the number and variety of species. In farming areas worldwide, many harmless butterflies and moths are killed by herbicides and pesticides. Butterflies and moths are also in danger from collectors. Many countries now have laws that regulate or forbid collecting.

Use reference sources, such as library books and magazines or the Internet, to find information to help you answer the following questions.

1. Butterflies undergo complete metamorphosis. Some other insects undergo incomplete metamorphosis. How are these processes different?

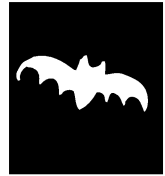
2. Why do most birds avoid eating monarch butterflies? Do other butterflies use the same kind of defense against birds?

3. Name some other butterflies and moths that migrate. How do those that don't migrate survive the winter in cold places?

Lesson 14

Bats: Friends or Foes?

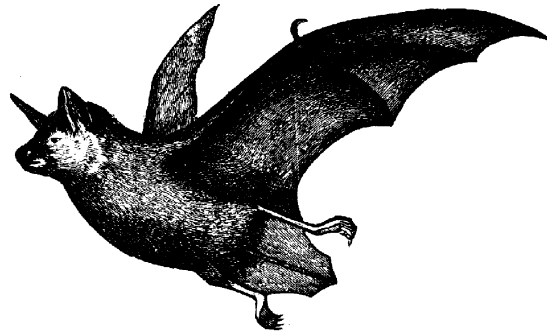
Animals



Meg and her friend Keisha were practicing for the volleyball tournament that they were going to play in later in the day. Meg was hitting the volleyball off her fingertips, higher and higher into the air in the kitchen.

The old farmhouse that Meg and her parents lived in had been remodeled, and the kitchen that was added had a high, beamed ceiling—plenty of room to practice with the volleyball. Meg’s mother only said, “Please try not to hit the ceiling fan.”

As the ball flew very high near the center beam, it disturbed a small, sleeping bat. Suddenly the bat swooped down and began flying through the kitchen. Keisha ducked, covered her head with her arms, and screamed.



Meg was startled by the bat but laughed at Keisha’s reaction. “It’s only a little bat. It won’t hurt you.”

“How do you know?” shouted Keisha, as she ran out the kitchen door.

“Because we’ve had bats in the house before. They sometimes get in accidentally, and we catch them and turn them loose outside. Then they just fly away,” Meg shouted after her.

“I’m not coming back into the house until it’s gone. Bats attack people and suck their blood. And they get tangled in their hair!” Keisha shouted.

Meg went outside to try to calm Keisha down. “Don’t worry, Mom will take care of the bat.”

“How will she get it out of the house?” Keisha asked.

“She’ll just catch it with a big fish net,” Meg replied. “Then she’ll take it outside and turn it loose. That way it won’t get hurt.”

“Why don’t you just kill it?” Keisha asked.

“Don’t you know about bats?” Meg responded. “They don’t hurt people, and they eat just about their weight in insects every night. If it weren’t for the bats around here, you’d have been eaten alive by mosquitoes last night when we grilled out. They’re really very helpful.”

Keisha doesn’t like bats and thinks they’re harmful. Meg thinks bats are harmless and actually helpful. What do you think? Are bats friends or foes?

Use reference sources, such as library books and magazines or the Internet, to find information to help you decide whether each of the following statements about bats is true or false. If the statement is false, rewrite the statement to make it true. If the statement is true, write true in the space provided. For each statement, list the source where you found your information.

1. Almost all bats carry the disease rabies.

2. Bats attack people and get tangled in their hair.

3. In Asia and the Pacific Islands, large bats live in trees like birds do.

4. The saying “Blind as a bat” is true because bats are blind.

5. Some bats catch and eat fish.

6. In China, bats are considered omens of good luck.

7. Vampire bats feed on blood and live in the United States and Europe.

8. Bats are more closely related to birds than to lemurs and monkeys.

9. The smallest bat in the world weighs about a pound.

10. Bats can fly around in the total darkness of caves without flying into the cave walls.

11. The average life span of bats is about two years.

12. All bats that live in the United States eat only insects.

13. Some bats live in colonies that include more than one million bats.

14. Most species of bats give birth to five or six young each year.

15. All species of bats fly only at night.
