

## WAYFINDER Life Cycles

The following North Carolina State Science Standards are relevant to this Wayfinder:

Grade 2	1.01, 1.02, 1.03
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### Introduction

A **life cycle** is the complete sequence of events from birth to death of an organism. For insects, this lifecycle involves rapid change from the larva to adult called a **metamorphosis**. One of the benefits of such a dramatic change is that the organism is very well suited for each stage of its life. For example, a caterpillar needs to eat as much food as possible so that it can grow and pupate. A caterpillar's body is designed so that it can adhere to leaves, easily chew through entire plants in one day, and move around discretely in a small area. On the other hand, a butterfly's purpose is to lay more eggs. Bright wing patterns help attract a mate. Wings also allow butterflies to travel before laying their eggs, ensuring that new butterflies aren't competing for resources.

### Before your visit

Have students think about the different stages in an organism's life:

- birth
- developing into an adult
- reproducing
- aging and death

Share examples of people who might be at each stage of the human lifecycle (babies, children/teenagers, adults/parents, older adults/grandparents).

As a class, discuss the lifecycle of a butterfly: egg, caterpillar, chrysalis, butterfly.

Challenge students to match the stage in a butterfly's life with a similar stage in a human's life cycle. How are these stages the same? How are they different?

### During your visit

Visit the Tobacco Hornworm exhibit in the *Bayer CropScience Insectarium*. A hornworm is a caterpillar. This caterpillar will grow into a moth. It is like a caterpillar that will turn into a butterfly. Watch the caterpillar and answer the following questions:

- 1) What does the caterpillar spend most of its time doing?
- 2) What does the caterpillar eat?
- 3) Why do you think a caterpillar needs to eat so much?
- 4) How is the caterpillar's body designed to help it eat?

Visit the Chrysalis Wall inside the *Magic Wings* Butterfly House. Ask students the following questions:

- 1) How is a chrysalis different from a cocoon? *A chrysalis is the pupal stage of a butterfly. A cocoon is that of a moth.*
- 2) Which chrysalis is your favorite? Why?
- 3) Where do you think you could find a chrysalis in the wild? *Hanging from branches and leaves*
- 4) What stage of a butterfly's life comes before the chrysalis? *caterpillar*
- 5) What stage comes after the chrysalis? *butterfly*
- 6) What do you think is happening inside of the chrysalis? *Although scientists originally thought that caterpillars were resting or sleeping inside of a chrysalis, we now know that there is a tremendous amount of activity as the caterpillar changes into a butterfly. This is when the caterpillar's body is broken down and rearranged. It changes and grows and gets its butterfly wings! While inside the chrysalis the caterpillar will not eat or excrete. Depending on its type, the caterpillar will be in this stage for weeks or even months.*
- 7) Watch the butterflies fly around the conservatory. How does having wings make it easier for a butterfly to feed from flowers and lay new eggs?

The Museum staff must provide food, air, and space for the butterflies to grow. Look for each of these things in the butterfly house and check off and describe them on the list below.

NEED	CHECK	DESCRIBE
Food		
Air		
Space		

**After your visit**

Allow students time to discuss the following questions in small groups:

- 1) How is a butterfly's lifecycle like a human's lifecycle?
- 2) How is a butterfly's lifecycle different from a human's lifecycle?
- 3) How are a butterfly's needs the same as/different from your needs?
- 4) What new questions do you have about a butterfly's lifecycle?