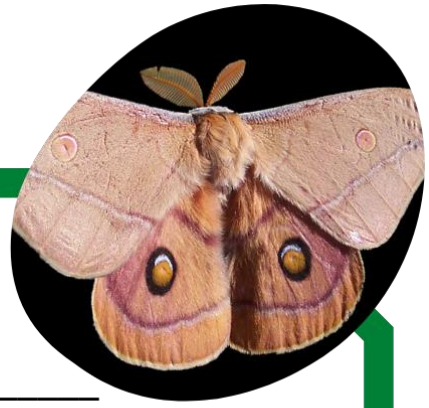
Virtual Monarch and Meadow Month Lesson: Chrysalis vs. Cocoon
In this lesson, participants will learn how to identify a chrysalis and how to identify a cocoon!

We all grow and change as we age, but no one does it with more style than *Lepidopterans*! Also known as moths and butterflies, these critters undergo four life stages: **egg, larva, pupa, and adult**. When referring to the pupal stage, people use the words *chrysalis* and *cocoon* - or even *butterfly* and *moth* interchangeably, but this is inaccurate! Moths are much older than their butterfly cousins on the evolutionary tree, and moths tend to be *nocturnal* (active at night), while butterflies are *diurnal* (active during the day) – both with exceptions. Since moths are nocturnal, their bodies are adapted to flying in the dark: their **antennae** look feathered, allowing them to pick up chemical signals in the dark. Their bodies tend to be fuzzy and many are dully colored (but definitely not all). Butterflies tend to be more colorful because they are active in the daylight, and their antennae are long, thin, and usually rounded at the tips. During the 3rd life stage, you can differentiate the two - because though they both *pupate*, they do so in different ways. Moth caterpillars construct a **cocoon** around their bodies to protect themselves while in the very vulnerable pupal state; some moths spin cocoons entirely out of silk they produce, while others use silk to wrap objects around themselves such as leaves, small twigs, or even found human items. Butterflies also use silk, but they use it to create a small button stuck to the underside of a plant or other surface, then they attach their last set of *prolegs* to the button and BECOME the **chrysalis** by shedding their final layer of old skin and hardening the new layer underneath into a shell.

Check out this awesome video from SciShow Kids to learn more. Then see if you can fill out this diagram on the similarities and differences between butterflies, moths, and their two pupal stages.



Butterflies

- _____
- _____
- _____
- _____
- _____
- _____

Both

- _____
- _____
- _____
- _____
- _____

Moths

- _____
- _____
- _____
- _____
- _____
- _____

Additional Resources

To learn even more about these amazing insects, check out these Duke Farms Distance Learning Portal articles!

Want to enjoy some beautiful artwork and learn more than you could have ever imagined about moths and butterflies? Check out this Sizzling Summer Reading review by Education Manager, Kate Reilly, of a collection of books about all things Lepidoptera! You'll be turning these pages all summer long.

If you want to study these animals up close in your own space, check out this How-To article by Duke Farms Educators, Abigail Schmid and Joanne Vogel, on how to create a native butterfly garden! It includes not just in-depth instructions and recommendations, but also activities for kids to enhance their understanding and involvement.

In this 3-part series, Artist and Duke Farms Educator, Meghan Martin, takes you through her process of painting a stunning meadow scene, complete with 14 different species of native moths. Each installment includes guided questions about the moths added to the piece and allows you to see these animals in a whole new light. You can find Part 1 here!