

Instructions for *The Very Hungry Caterpillar* Larval Activity

The first step is to order the butterfly growth chamber online using the link below. Then set up the cage and order the butterfly eggs, so that you will have them before you intend to start the project. Follow the instructions that come with the eggs to prepare them for hatching. Try to coordinate ordering and starting the eggs around the time you want to begin the project with the children. Another option is to order caterpillars that have already hatched and are ready for the experiment.

Read *The Very Hungry Caterpillar* by Eric Carle with the children. Discuss all of the food that the caterpillar eats and let the children fill out the pre-test to see if they think real caterpillars will eat the same food items. After they have taken the pre-test teach the children about caterpillar's natural habitats and diets. Explain that the class will be raising caterpillars and testing what they like to eat.

After the caterpillars or eggs arrive, place them in the cage and follow the rearing instructions to make sure they will grow and survive. Begin by giving each student a worksheet that has all of the food that you plan on giving to the caterpillars. Tell the children that each day a new food item will be introduced into the cage, and they must watch if the real insects will eat it. Make sure there is some of the proper caterpillar food (use what the manufacture suggests) in the cage so they will have something to eat if they don't like the experimental food.

Start with the first food item on our worksheet and place a small piece into the enclosure. If you use the Painted Lady Butterflies that come with the cage, then you will only have about a week to test different foods. If you want to test all of the food in the book then you will need to run two separate cycles of caterpillars, or two cages can be set up at the same time. The food used in the book includes apples, pears, plums, oranges, strawberries, chocolate cake, ice cream, a pickle, swiss cheese, salami, a lollipop, cherry pie, sausage, a cupcake, watermelon, and some leaves. You don't have to test every single food item, but the more that you can use the better the experiment will be.

Make sure to remove the food from the previous day because it can spoil quickly and be harmful to the insects. Also, make sure the children are observing the caterpillars throughout the day to see if they are eating the specific new food of the day.

After about a week the caterpillars will turn into a chrysalis. Then the metamorphosis activity can begin.

Butterfly Kit:

https://www.carolina.com/butterfly-kits/butterflies-in-the-classroom-kit-with-prepaid-coupon/144015.pr?intid=jl_pdp&jl_ctx=on_site

Very Hungry Caterpillar: What Happens In the Cocoon?

Instructions for Activity

This activity is meant to help children get a very basic grasp on metamorphosis.

The activity can be done using the pictures provided, or you can make your own. Draw a caterpillar, cocoon, and butterfly, each on a different page. Use different colored pipe cleaners for each part of the body that will be talked about: legs, antennae, wings, eyes, mouth, stomach, and lungs. Make a color key to identify what each color represents. Glue the pipe cleaners to the pictures, or if you like, make copies of the pictures and pre-cut the pipe cleaners so the children can glue it themselves.

1. There is a color key to explain what each color of pipe cleaner represents.
2. The drawing of the caterpillar has pipe cleaners on it. Some of them are easily understood: legs, eye, mouth. Some of them are not: antennae, wings. The stomach and lungs might be tricky, but the point is that both the caterpillar and butterfly have them.
3. In the cocoon, the caterpillar dissolves, leaving only certain structures intact, such as the stomach, brain, and lungs. The rest of the butterfly's body forms from the protein in this "caterpillar soup" around things called "imaginal discs." The point here is that even though a cocoon doesn't look like a caterpillar *or* a butterfly, all the parts are there.
4. The butterfly has all of its parts now, and the idea is to see that the parts are all there, but different. The legs are long and so is the mouth. The butterfly has wings and antennae. But the caterpillar had them too, they were just harder to see.

Have the children try to make the connection by pointing at each pipe cleaner "body part" for each stage, or if they are doing the gluing, having them glue each body part. At the end, ask if they are surprised that a caterpillar can turn into a butterfly, and discuss if they are interested in learning more, or if they grasp the concept.

Note about insect anatomy: We've made this exercise simple to understand for the age group. However, it's important to point out some differences between humans and insects. You may wish to integrate these differences as a discussion point at the end of the activity.

Eyes: Humans have eyes that see one image...insects can see many images from their compound eyes.

Mouth: Humans chew with their teeth. Some insects can chew with mandibles (like teeth), but others like the butterfly can't chew but can suck fluid like a straw.

Legs: Humans only have two legs, insects have six!

Antennae: Insects use antennae to sense their surroundings, humans don't have antennae!

Wings: Humans can't fly like insects can.

Stomach: Insects have a 3 part "stomach," but what digests most of the food is called a "midgut."

Lungs: Insect "lungs" are small holes on the outside of the body called spiracles, located on their sides. So, they "breathe" differently than humans, who breathe through their mouths.

Activity Instructions for the Adult Butterfly Activity

After the butterflies emerge, discussions on this adult stage of the life cycle can begin! The first step of the butterflies emerging is to make sure they have enough food. This is a great point in time for discussions of what this previously very hungry caterpillar wants to eat now that it has changed into this new stage in life. Our butterflies need a simple sugar syrup on sponges, which mimics flower nectar. We can see how butterflies eat different foods from the caterpillar by placing out a few food stations in the habitat and noting which ones the butterflies choose. We can also discuss how the butterfly proboscis is a long tongue used to drink up the liquid.

The butterfly path to food worksheet can be used here as well. There are several butterfly species and their food sources that are featured on this worksheet. Kids can trace the path the butterflies take to connect them to what they like to eat. Discussions about wild butterflies versus butterflies that live in habitats can naturally occur here.

Adult butterflies have several activities in life, not just eating and fluttering. Activities include perching, basking, and even puddling. This is a great time to discuss with the students what they like to do in their free time and connect it to a butterfly's free time. An easy open-ended activity of butterflies puddling or basking can be done here where the kids draw what they think their butterfly might do if it were outside.

This being the end of the activity, it seems natural that there would be a number of questions with this age group as they are processing the information that has been given to them throughout the stages of the butterfly's life. It should be viewed and encouraged as an open time for review and questions.