

<h2 style="margin: 0;">Lesson Plan</h2>	Assessment	Observation
	Cross-curricular	Mathematics

Big Ideas

- We will explore the life cycle of a butterfly.
- We will observe the transformation process from caterpillar to butterfly.

Specific Expectations

- Investigate the life cycle of a variety of animals using a variety of methods and resources.
- Observe and compare changes in the appearance and activity of animals as they go through a complete life cycle.
- Demonstrate an understanding that animals grow and change and have distinct characteristics.
- Follow established safety procedures and humane practices specific to the care and handling of live animals.

Description

In this lesson, we will explore the life cycle of a butterfly through a hands-on experience. We will observe and compare the changes in the appearance and activity in the transformation from caterpillar to butterfly.

Materials

- Caterpillars (from Butterfly kit)
- Butterfly habitat (enclosed net)
- Paper
- Tape
- Paper towels
- Orange Gatorade

Safety Notes

- Ensure that students practice proper handwashing procedures.
- Students are not to touch the butterflies or shake/move the nets. They must stay in the nets.
- Ensure there aren't any allergies.

Introduction

***Every part of this lesson that deals with handling the caterpillars and butterflies will be done by an adult. Students can observe the process and track their observations on the “Observation Tracking” sheet.**

- Discuss the life cycle of a butterfly and the process of metamorphosis.
 - Metamorphosis: transformation or change in shape
 - There are four stages to the metamorphosis process: egg, larva (feeding stage), pupa (transition stage), and adult (reproductive stage).
-

Action

- You will receive a cup with caterpillars. They will arrive in their second instar which means they have shed their skins once already. They will do this five times before they pupate. Pupate is when they enter the chrysalis stage. When handling the cup, be very gentle. **Do not place the caterpillars in direct sunlight such as a window sill.** Do not disturb the cup once it is in the spot you have selected.
- Inside the cups, there is food provided for the caterpillars. You do not have to worry about feeding them. Do not give them water either. They have all the moisture they need. Any extra moisture can cause them to sicken and die.
- **Never take the lid off the container(s).** This can cause their food to dry out and expose the caterpillars to bacteria and mold.
- Do not be concerned if your caterpillars appear inactive at first. They need lots of rest and to digest their food. If you are very concerned, gently roll the cup. If they remain in their original spot, they are fine.
- If you see any webbing, this is a good sign. Webbing protects the caterpillars from any dangers.
- After six to eight days, you **MUST** open each container to empty the waste in the container. This will allow easier access to their food. Any webbing can be removed as well. By this point, the caterpillars should be attached to the paper on the underside of the lid. This means they are ready to pupate (enter the chrysalis stage). Wait two days for the chrysalis to harden before transferring them to the butterfly habitat/tent.
- **Transferring to habitat/tent:** Carefully take out the paper disk with your chrysalis attached. Pin as many pieces of paper as necessary to cover the ceiling of the habitat. Tape the paper liner with the chrysalis attached to the pieces of paper covering the ceiling. The chrysalis should hang down in a natural position. Do up the zipper of the habitat/tent. Place a paper towel under the habitat as meconium may fall on the surface to which the habitat is placed on.

Action (continued)

- Within twelve days, the butterflies should emerge. You may see a red liquid when the butterflies emerge. This is called meconium which is the leftover part of the caterpillar.
- When the butterflies emerge, they will hang for several days. This is because their wings need to dry. Do not touch the butterflies or move the habitat during this time.
- The best option for feeding your butterflies is feeding them orange Gatorade. Flowers can be tricky as there are different pesticides that you cannot control and can harm and even kill the butterflies. It is safest to use orange Gatorade as its composition is similar to nectar.
- Pour the Gatorade into shallow containers and cover with netting to prevent the butterflies from falling in.
- If you are using a mesh butterfly habitat/tent, you can lightly brush the sides of the tent with the Gatorade as well.
- **Release** : the butterflies can be released within one week of them emerging from their chrysalis. Release them on a day that is 18 degrees celsius or warmer.

Consolidation/Extension

- Review the observations made on the “Observation Tracking” sheet. Discuss each stage of the process.
- What was their favourite part of the process?

Resources

- *Scholar’s Choice* butterfly kit (this comes with the caterpillars, caterpillar food, containers, and caterpillar habitat/net)