

Butterfly Feeders

Grade: 3-4

Time: 45min

Activity Overview :

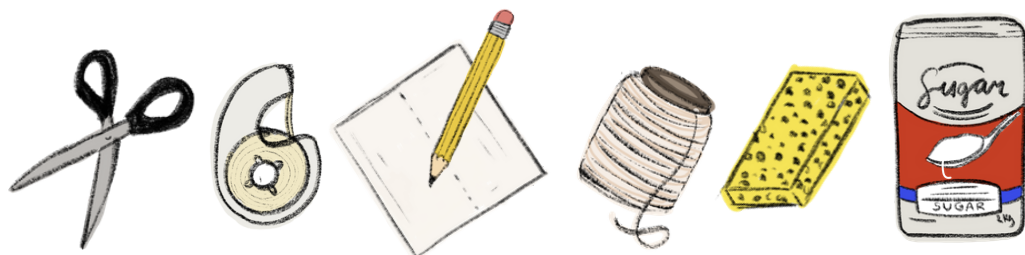
What type of weather do you think butterflies like most? Have you ever thought about their favourite food? Today you will explore this since you are going to be ecologists and have been asked to complete a special task. You are going to be making a butterfly feeder to attract the beautiful creatures. You will learn about butterflies, what they eat, and how they interact with their environment. In this activity, you will also be designing a structure to keep other insects out, which will ensure the butterflies are getting the nutrients they need.

Before we begin think about the following questions:

- 1) What type of butterflies have you seen in your area? What colour were they?
- 2) Have you ever noticed what butterflies like to eat?
- 3) How do caterpillars turn into butterflies?
- 4) What type of weather have you observed butterflies in? Why would that be?

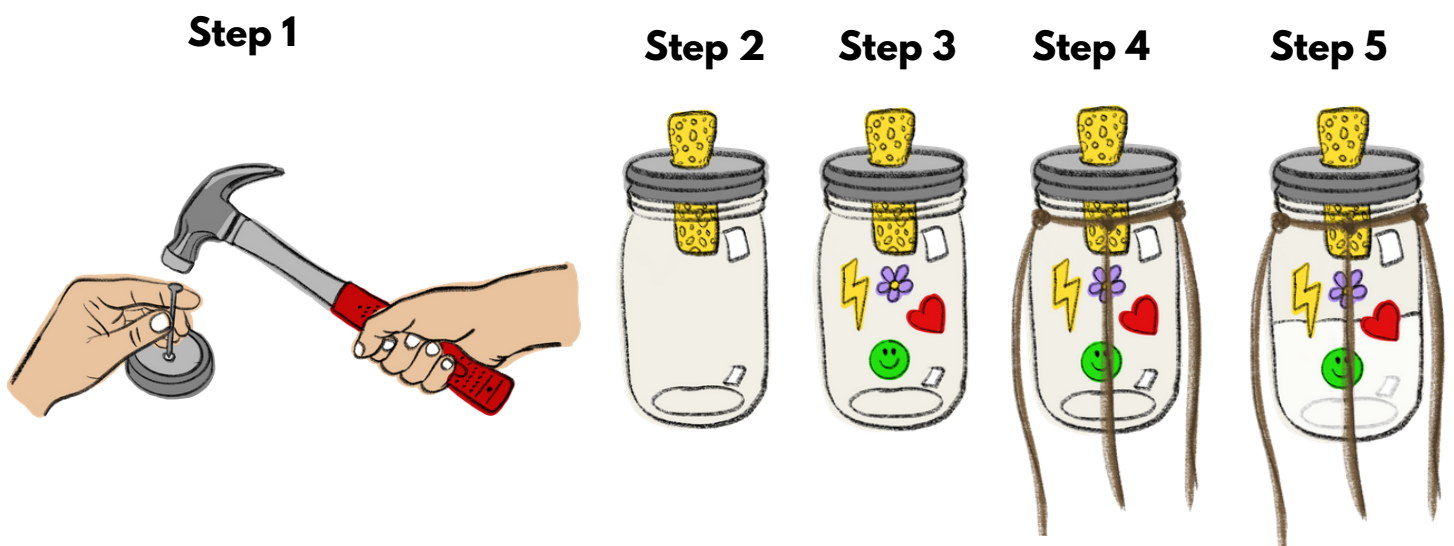
Materials:

- Glass Mason Jar
- String
- Scissors
- Colourful Stickers
- Colourful Construction Paper
- Nail
- Hammer
- Sponge
- Sugar
- Water
- Gatorade (or fruit juice)
- Tape
- Paper and Pencil



Activity:

- 1** Ask a parent to help you with this part. Using the hammer and nail, make a hole in all three glass jar lids.
- 2** Ask a parent to help you with this part. Cut a piece of sponge and poke it through the hole that was made in the jar. It might help to use the nail or tweezers to pull it through.
- 3** Decorate all 3 jars with colourful stickers and construction paper. This attracts the butterfly to your feeder. It makes it look like a flower!
- 4** Tie string around your jar (it will hang upside down so that the sponge is at the bottom) and use tape to secure the string if needed. Repeat steps 1-4 for the other 2 jars.
- 5** Ask a parent to help you with this part. Add a cup of warm water (or ask a parent to boil water) with a $\frac{1}{4}$ cup of sugar (you can also use Gatorade). Mix them together and wait until it is cooled before you put this solution in one of the jars.
- 6** For the second jar, fill it with gatorade or fruit juice.
- 7** For the third jar, fill it with fresh fruit.
- 8** Flip all 3 jars over and hang them on different branches or hooks outside. Now, just wait until you see butterflies!

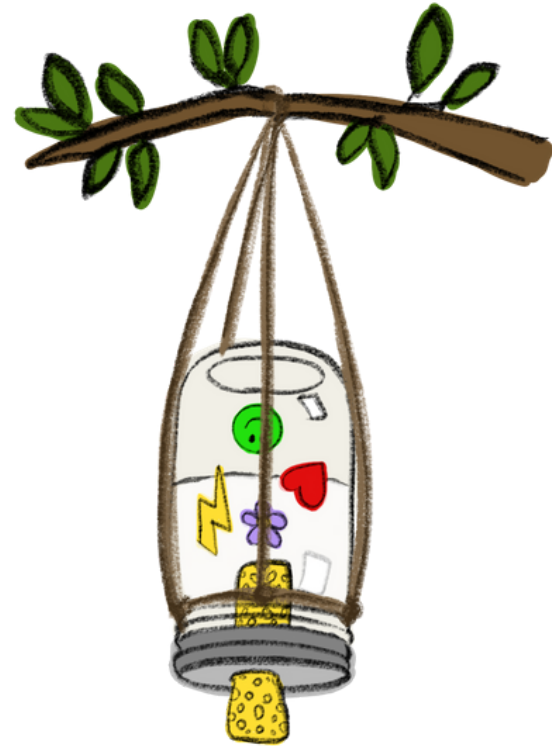


Design a Structure to Keep other Insects Out:

- Since this is a butterfly feeder, you may want to make sure that they are the main users of it. Use cardboard and other materials to design and build a structure to keep the other insects out.
- Be creative and think about how other insects crawl or move and limit their entrance into the feeder.
- You can also place a plate on the ground with fruit for them to use, instead of them visiting the butterfly feeder.
- If you still notice other insects at your butterfly feeder, modify your structure and try again!

Investigate and Observe:

- Using your pencil and paper, make a chart with at least 3 columns, and multiple rows. Label these columns with jar #1, jar #2, and jar #3.
- As you notice butterflies at your feeder, record which jar they visited, what type of butterfly it was, and what the weather was like.
- Try to investigate which butterflies liked which jar the most and why you think that might be.
- Observe how the butterflies might show up more in different types of weather.
- Over time, the fruit will start to rot. Observe on your chart if the butterflies react better or worse to this difference.



Engineering and Science Connections

Ecology

Ecology is a branch of biology that focuses on how living things interact with their environment. Ecologists are the workers who study these interactions. Some work outside doing observations, while others work in museums. Today, you acted as ecologists since you created your feeder that was attractive to butterflies. Hopefully, you observe not only butterflies eating, but other animals such as birds and insects near the feeder as well. Butterflies and other animals are attracted to the sweet taste as they are in search of nectar. The sugar solution gives the butterfly energy and nutrition to keep flying!

Butterflies are very sensitive to the cold and rainy weather since their main movement is from their wings. When their wings are too cold or wet, they cannot go looking for food. This means that butterflies enjoy the hot weather much more than cooler temperatures. Their bodies work best at about 28 degrees Celsius. As a result of this, many migrate to Mexico and the Southern United States when it gets colder here.

Biodiversity

Biodiversity represents how much variety of organisms are within a certain environment. Every species is connected since we all rely on each other. If all Oak trees disappeared, we would lose the oxygen that they produce, and birds would miss their habitats in these trees. Biodiversity is really important since it helps increase the productivity of the species in an ecosystem. This means that the animals in the environment work harder. When bees collect nectar from plants, they are also pollinating them, which means that more plants can grow. Bees are very important for biodiversity and allow us to grow many different yummy plants such as raspberries and strawberries! Today, you used your feeder to bring butterflies to the environment to help improve biodiversity.

Metamorphosis

Metamorphosis is a process performed by certain living things. It involves the different stages of an animal going through its life cycle, from larva to adult. Many animals such as butterflies, frogs, and bees undergo this process. When you set out the feeder, you hopefully will observe butterflies. Since this species will spend more time in your view, look out for caterpillars, cocoons, and different types of butterflies!

Extensions

Try making a plate butterfly feeder as well and observe how the butterflies feed. Set out some fruits such as orange slices on the plate. Are they more attracted to one than the other? Do certain kinds of butterflies prefer one feeder while another kind likes the other?

Share your creations!

Don't forget to share your experiments and creations with us! We would love to see what you've made. You can Email us at: esqinfo@uwaterloo.ca or send us a message/tag us on our social media!

Facebook: @uwengoutreach

Twitter: @UWEngOutreach

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Thanks for exploring, discovering, and learning with us!

3, 2, 1 Done!

3 - Write or draw 3 things you learned from this activity

2 - Write or draw 2 things you found super interesting or cool and want to learn more about

1 - Do you have any questions about the activity? Did something make you wonder...what if? how? or why?