

UC Davis Arboretum Outdoor Education Program

“Butterfly Camouflage”

Goals:

Students will understand how camouflage is an adaptation that allows animals to hide from their predators.

Time: 15-30 minutes (plus preparation time of 15-30 minutes)

Age: K-6

Materials:

Several sheets of newspaper (or 2 rolls of floral wrapping paper)

Colored paper that does not match the newspaper

Coloring crayons, markers, or pencils (to color in a bar graph)

Tape

Bar graph worksheet (One per table.)

White paper

Straws

Overview:

This activity simulates a butterfly's adaptation to its habitat through means of camouflage, and the role adaptations play in predation. The goal of this activity is to introduce or re-emphasize the idea of adaptation by looking at an example of camouflage. This activity should give students a good understanding of how animals' adaptations, such as camouflage, help them survive. They should understand that camouflage is only **one** aspect of adaptation, and this activity can be bridged into discussions about other adaptations. Students will use their analysis skills by formulating a bar graph. This activity also enhances students' hand and eye coordination.

Background:

This activity demonstrates one way that butterflies are adapted to their environment. The larger context of this activity is the important role that the environment (or habitat) plays on the survival of butterflies. This is one reason why habitat alteration is a critical issue that directly affects butterfly populations.

Advance Preparation:

Cut small butterfly shapes out of the newspaper and the colored paper (cut at least 100 butterfly shapes of each, the more butterflies the more challenging the activity will be). Note: Many craft stores also sell tools that cut butterfly shapes out of paper (something like a big hole punch in the shape of a butterfly). Additionally, to save time you can cut out shapes other than butterflies (circles, squares, abstract, etc.).

Make enough of the bar graph worksheets for each table or group of students. If you choose not to provide worksheets, students can put their results on a bar graph on the chalkboard.

Tape the remaining pieces of newspaper either to the floor or on top of some of the students' desks. This will simulate a flower garden on the students' desks, from which they will try to find butterflies.

Procedure:

- 1) After separating the students into teams, describe briefly that they are going to be the predators that feast on butterflies. The object of the game is to "eat" as many butterflies that are resting on flowers (the newspaper) as possible before they fly away.
- 2) Before the act of feasting begins, have the students discuss their ideas. Which type of butterflies do they think they will be able to grab the most of? Let them predict how many of each they think their group will be able to get.
- 3) Have the students sit in their groups, facing away from the newspaper. Sprinkle the different colored butterflies on the newspaper.
- 4) When you say "START" have the students suck through the straws to "catch" as many butterflies as they can in the amount of time allotted. We suggest you try 5-10 seconds. The straws simulate bird beaks. The students suck up the butterfly and place it in a cup or in their hands. If they drop a butterfly it does not count, and they must try again. When "STOP" is announced, students should stop.
- 5) In their teams, students should count the number of butterflies of each color that their team caught. Students can record their results on the

bar graph worksheet provided or on a class graph created on the chalkboard/whiteboard. This is where students will apply their mathematical skills in designing their bar graph.

Discussion: Once the teams are finished graphing their data, have one student from each team explain their results. As a whole class, discuss the results of this activity and the hypotheses. Which hypothesis did the class results support? Then discuss how this activity relates to the concept of camouflage and adaptation.

Extension: Discussing another way that bright color patterns can be adaptive (warning coloration) can extend the concept of adaptation. Orange, red, and yellow are often signals that the animal is toxic or unpleasant to eat; for example, the colors of the Monarch butterfly tell predators that it tastes bad.

UC Davis Arboretum Connection:

At the UC Davis Arboretum students will discover that plants and animals have adaptations that allow them to survive in different California environments. To connect "Butterfly Camouflage" to this theme, discuss other animals that camouflage themselves.

This activity was adapted from one written by Simone Guazelli & Aimee Ruskewicz as part of Putah Creek Explorations, Science Education Outreach and Internship Program, University of California, Davis. Program directors Joyce Gutstein and Carmia Feldman, Public Service Research Program, 2000.

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Numbers of Butterflies Found

Colors of Paper Used

