



## Insects!

### Concepts

Food chains illustrate how living things are dependent on one another. They reveal the important role of plants, insects, and other animals in many systems. However, many insects are successful at escaping predation. One insect defense, camouflage, demonstrates the relationship between organisms and their environment (*e.g.*, the insects ability to blend into its surroundings)

### HCPS III Benchmarks

SC.K.1.2

SC.K.3.1

### Duration

45 minutes

### Source Material

PRISM

### Vocabulary

Predator

Prey

Food chain

Camouflage

## Insect Food Chain & Camouflage

### Summary

In this lesson, students will learn some of the animals that feed on insects. Building upon the previous lesson on Insect Diet, students will construct a simple food chain demonstrating how insect prey and predators are related. Students will also learn one method insects use to defend themselves against predators: camouflage.

### Objectives

- Students will be able to identify what animals feed on insects
- Students will be able to describe the relationship between insects, their prey, and their predators (food chain)
- Students will be able to explain how insects use camouflage to defend themselves against predators

### Materials

#### For each student:

Heavy-duty paper for watercolor

Water colors and paint brush

Butterfly cutout handout

Crayons

Scissors & glue

#### For teacher:

Chart paper

Markers

Food chain printouts

String

### Making Connections

Food chains demonstrate how living things are dependent on one another. The concept is widely applicable to most environments and includes many organisms (including plants and microscopic decomposers). We play important roles in our food chains – usually as the top predator.

### Teacher Prep for Activity

At least one day prior to lesson, have students create a watercolor painting to serve as a backdrop for the camouflage activity. Advise students that they are to cover an entire sheet of letter paper with the design of their choice and they may use as many colors as they want. Let dry before lesson. Print out food chain components and laminate if possible, otherwise print on cardstock. Put string around printouts so that students may wear them around their necks. Make enough copies of butterfly cutouts for each student.



## Background

Given the diversity of insects, the variety of insect diets (plant eater, decaying matter eater, and animal eater), and the numerous insect **predators** (organisms that live by preying upon other organisms), insects are vital components to hundreds of **food chains** (series of living things dependent on one another). Food chains demonstrate causal links between each of the components (what eats who and in what order) – without one link the entire chain falls apart.

Simplifying the insect food web to three components gives: the producers, the consumers, and the predators. Producers include plants and plant parts (*e.g.*, flowers, leaves, and stems). Producers get their energy through photosynthesis, and are the basis of most food chains. Because the first component of our food web involves plants, all consumers (organisms that consume producers) in this lesson are plant-eating insects. Lastly, the predators are at the top (or end) of the food chain and are the organisms that consume the insects. Insect predators are vast and numerous and can also include other insects.

Despite an insects' role in the food chain as **prey** (organism that is hunted or captured as food), many insects are quite successful at escaping predation. Different insects use different methods to elude predators – some possess stingers, some taste bad, some mimic other harmful insects, and some use camouflage. **Camouflage** allows insects to blend in with their surroundings because they are either the same shape and/or color as their surroundings. Examples of camouflage in the insect world include, stick insects, katydids and camouflage moths (wing-pattern resembles weathered tree bark).

## Vocabulary

1. Predators – organisms that prey upon other organisms.
2. Food chains – series of living things dependent on one another as food resources.
3. Prey – organism that is hunted or captured as food.
4. Camouflage – animals' ability to blend in with their surroundings because they are either the same shape and/or color as their surroundings.

## Procedure

1. Have students gather as a group for discussion.
2. Briefly remind students what they learned during the Insect Diets lesson.
3. Ask students, “What kind of animals do you think would eat insects?”  
*Optional:* record answers on chart paper.
4. After several different answers are given, ask students, “What kind of insects do you think these animals might eat?”
5. Ask students, “What a chain is and/or what it is used for?”
6. Tie the chain concept in with the food chain and insects: what they eat and what eats them
7. Take out the food chain printouts and ask for 3 volunteers.
8. Place one food chain component on each student and read aloud what that student represents
9. Introduce food chain vocabulary at this time.
10. Have the 3 volunteers stand in a line in the wrong order in front of the class.
11. Ask the class to properly order the food chain.
12. Once food chain is in the correct order (flower, butterfly, bird), have volunteers hold hands to resemble a chain.
13. Ask the class, “What do you think would happen if the insect was removed from the food chain?”



14. Ask volunteers to release hands.
15. Explain that each component is necessary and important – without the insect the bird would go hungry.
16. Switching gears, introduce the idea of insect defense
17. Explain to students that while many insects are eaten as food for other animals, many insects are good at avoiding predation.
18. Briefly introduce camouflage vocabulary.
19. Instruct students that they will be camouflaging a butterfly to blend into their watercolor background.
20. Hold up the butterfly cutout and demonstrate how students should color their butterfly to match their background design.
21. Demonstrate how to cut out their butterfly and glue it on their background.
22. Hand out watercolor background and butterfly cutout and have students return to their desks to work.
23. Monitor students and assist if necessary.
24. Remind students that their insect will need to hide in their background so they should look carefully at the colors and patterns in their background.
25. Collect camouflage artwork when complete.

### Assessments

Group discussion and anecdotal records (during camouflage activity)  
Camouflage Artwork

### Extension Activities

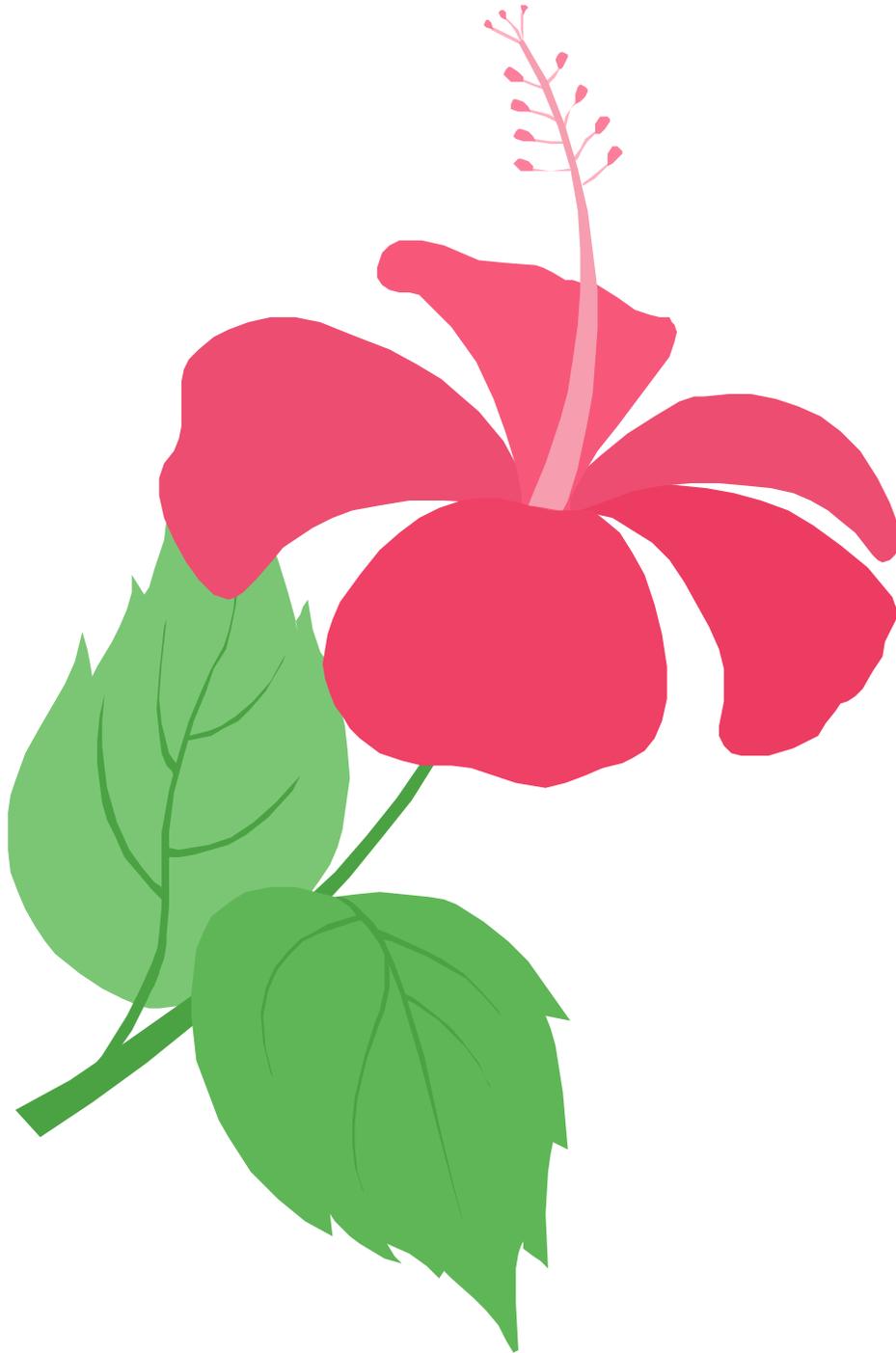
Students can go on a bug hunt around their campus to look for camouflaged insects or areas that might be good for insects to camouflage to. They could draw what they find or talk about the different ways that insects use camouflage (*e.g.*, resembling shapes or colors of surroundings). Additionally, students can see insect camouflage in action by viewing pictures of well-hidden insects. Pictures can be found online at <http://www.cals.ncsu.edu/course/ent425/tutorial/Ecology/camo/index.htm>.

### Art Connection

Camouflaging butterflies into their watercolor backgrounds allows students to demonstrate their understanding of color and color patterns.

### Literature Connection

Students can learn more about camouflage in the animal world from the book ‘Who’s Hiding?’ by Satoru Onishi. All pages are covered with several different kinds of animals, each a different color. Depending on the color, some animals are well blended into the background (with either their faces or feet showing).



# Flower



# Butterfly



# Bird



Color and **camouflage** your butterfly.



Cut out butterfly  on dashed -- line.



Glue your butterfly  to your paper.

