



Energy Flow: Interconnectedness of Organisms in Ecosystems

Predators and Prey

Key Question

How do organisms interact in ecosystems to get the energy they need to survive?

Objectives

- Students will **understand** predator-prey interactions
- Students will **investigate** predator-prey interactions in their schoolyard
- Students will **visualize** how energy flows through an ecosystem via food chains

Grade: 2-5

Time: 45 minutes

Location: Classroom

Materials

- EOL Trait Cards (http://education.eol.org/species_cards)
- Drawing paper
- Art supplies (markers, crayons, colored pencils)
- Journals + pencils
- White board or floor space
- Field Guides (optional)

Culminating Activity

After making observations and inferences about predator-prey relationships in their schoolyard, students work together to build food chains of the organisms they observe.

Directions

Engage/Explore: Observe and make inferences about schoolyard predators and prey (20 minutes)
Bring students outside and break them into small groups. Each group will walk around with journals and find 3-5 organisms, including at least one plant. If field guides are available, students can use them to try to identify plants and invertebrates. The purpose is for students to make observations and inferences about organisms, not to make identifications, so field guides are not necessary.

For each organism, students should sketch the organism. They should write down what they think this organism eats or how it gets its energy and *why* (what observations can they make that allow them to infer this?). They should write what this organism might get eaten by and *why* (again, what observations do they make to support this inference). They will be using these lists later.

Explain/Elaborate: Investigate relationships between predators and prey (20 minutes)
Bring class back inside, or bring art supplies outside if there is an outside space where students can draw and color on paper, sheltered from wind. Have groups make a sheet for each of their organisms,

including a sketch and identification if possible. On the back of the sheet, students should make their list of possible **predators** and possible **prey**. They can color the organism. Have each group present 2-3 of their organisms. There will likely be repetition of organisms, so it may be helpful to check with groups and help them choose different organisms (you don't want everyone to have a green anole, a beetle, and grass)!

After presenting, the first group will take a species sheet and place it on the board or on the ground so everyone else can see it, they say what it eats, what eats it, and ask for other input. Remind students that we might not know what all of the species actually eat, but this exercise helps us understand the relationships between predators and prey species.

Ask students what *observations* they made about the organism that led to their *inference* about its predator-prey relationships.

Next, have another group put one of their organisms on either side of the first group's organism. Have students draw an arrow from the prey to the predator.

The class will end up with a chain of organisms. We call this a **food chain**, which we will learn about in the next activity.

Evaluate: Ongoing; question class about the differences between observations and inferences. Evaluate students' understanding of a series of predator-prey relationships as a food chain.

Extension (10 minutes)

Game: While outside, play "predator-prey" game. The purpose of this activity is for students to differentiate between predators and prey, and to have fun!

Ask a student to volunteer to be a rabbit (or choose anything, even a plant or fungi). The rabbit is hungry and is standing outside of its burrow to make sure the coast is clear before searching for some primary producers to snack on.

Assign the rest of the class as predators. Have each predator announce his/her species as an evaluation of the predator/prey concept.

The "prey" will stand in one place, and is not allowed to move except to turn. Predators will start from a spot on another side of a playing field or playground. The object is for the predators to catch the prey. If the prey is not looking, predators can move. If a predator is in plain sight but standing still, it is as if the predator is invisible. As soon as the prey sees someone move, that person must go back and start at the beginning. Play a few rounds!

Next Generation Science Standards

5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water.

5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

5-PS3-1. Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.



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