Preparation:
✓ Choose an area large enough to move around in safely as students play the game.
✓ Familiarize yourself with the area in which you will be teaching.
   Check for poison ivy, jagged rocks & other safety concerns.
✓ Gather the materials needed for the lesson.
✓ Know how many students are in your group.

Background:
Organisms interact with one another in their ecosystem in order to receive the resources they need to survive. The flow of energy through the ecosystem originates from the sun. Producers utilize sunlight to make their own energy through the process of photosynthesis. A consumer must eat other organisms in order to obtain its energy. Consumers are grouped based on the other organisms they eat. A carnivore eats other animals while an herbivore eats only plants. An omnivore eats a combination of plants and animals. Scavengers eat dead plants and animals. The prey is the animal being eaten by the predator, which is also another animal. Decomposers return materials to the ecosystem by breaking down dead organisms. They receive energy from these other organisms and create organic matter from previously living things. The food chain outlines the flow of energy from producers to consumers to decomposers. In most ecosystems, a food web is more accurate because it links different food chains together in an ecosystem.

This activity will demonstrate a food chain involving hawks, snakes, and mice. The Red-Tailed Hawk is the most common hawk found in North Carolina. They can fly up to 300 feet searching for prey such as rodents, rabbits, or snakes. In this activity, the hawk will eat a snake. Corn snakes are one of many snake species found in North Carolina. They typically eat rodents, birds, or small mammals. The corn snake in this activity will eat a Deer Mouse. They eat small insects, seeds, fruits, nuts, and other plants.

Instructions:
1. Students use the game Rock, Paper, Scissors to act out a food chain in an ecosystem.
2. Explain to students that you are going to play a game about food chains.
3. As the game incorporates playing Rock, Paper, Scissors, briefly review how to play it and confirm that students understand the basic rules before adding in the ecosystems portion of the game.
a. Consider asking for a student volunteer to help explain and demonstrate how to play Rock, Paper, Scissors.

b. Explain that students will be choosing either rock, paper, or scissors for each round. Show the different corresponding hand motions.

c. For each round, you will pair off with another student.

d. Demonstrate to students moving your fist up and down as you count to 3 and then say “go” to signal when to show if they chose rock, paper, or scissors for that round.

e. To win a round:
   i. paper covers rock (paper wins)
   ii. scissors cut paper (scissors win)
   iii. rock crushes paper (rock wins)

f. You may even choose to demonstrate a quick round with a volunteer or have students turn to a student next to them to play a quick round.

4. For Rock, Paper, Scissors Ecosystems, a food chain will be incorporated into the game to determine which students will be paired together for each round.

5. Explain that our ecosystem contains mice, snakes, and hawks. Ask students to show the flow of energy in this ecosystem by creating a food chain.

   a. Mice -> Snake -> Hawk

6. Each animal has a hand motion to help students find like animals in the game.

   a. For mice, use three fingers next to your mouth to make whiskers.

   b. For snakes, place your palms together in front of you and stretch your arms out in front of you while wiggling your hands and arms back and forth like a snake.

   c. For hawks, stretch out your arms into wings and flap your arms up and down.

7. Everyone begins the game as mice. As you win a round, you move up the food chain. So, if you win the first round you become a snake. If you lose, you stay a mouse.

8. Mice play mice and snakes play snakes in the second round. If you win as a snake, you become a hawk.

9. Play for several rounds to allow several students to become hawks.

10. Once a hawk, students can play other hawks and discuss what happens next in a food chain.

11. Ask students, “Who won?” Decomposers! Ask a student to explain how decomposers are the real winners.

12. You can then play again starting over with everyone as mice or play again another time. You could even change the food chain to different animals.

**Behavior & Materials Management Tips:**

♦ Model the behavior to the students so they see exactly how you expect them to behave.
  o Students are more likely to meet expectations if have been clearly demonstrated.
  o Having the students then model the behavior back to you reinforces the behavior.

♦ Give students defined boundaries for how far they can go.
References & More Information:


Credits:
Illustrations by Cindie Brunner.

Header photo of the Neuse River by Lauren Greene at Cliffs of the Neuse State Park on March 6, 2020.

Adapted from Rock, Paper, Scissors, Ecosystems by Sean Higgins, North Carolina State Parks.

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