

Predator-Prey

Time Frame: 20-45 minutes

Age: 9 and up

Group Size: 10-20

Setting: Indoors, outdoors (at least a 20 x 20 space)

Staff: 1-2

Use: Out-of-class

NYS Education Standards:

MST-Section 4: Living Environment

Students will: understand and apply scientific concepts, principles, and theories pertaining to the physical setting and living environment and recognize the historical development of ideas in science.

- *Key Idea 1:* Living things are both similar to and different from each other and nonliving things.
- *Key Idea 5:* Organisms maintain a dynamic equilibrium that sustains life.
- *Key Idea 6:* Plants and animals depend on each other and their physical environment.

Objectives:

- ✓ Students will be able to identify 1-3 species of fish specific to fishing area
- ✓ Students will discuss fish as an aquatic resource in their area
- ✓ Students will be able to describe characteristics about the fish that inhabit their area ecosystems
- ✓ Students will be able to explain the predator-prey interaction that occurs in the ecosystem

Motivation: Game

Materials: Large playing area; fish models or pictures (one predator and one prey species); enough food tokens (laminated colored paper, game chips, or plastic bugs to represent food) for 4-6 tokens per child); 4-5 Hula-hoops or other structures to symbolize shelters; and 4 cones or natural structures to symbolize boundaries

Pre-Lesson Procedures:

1. Find natural boundaries for playing field
2. Disperse “food” on one end of the playing field
3. Place “shelters” throughout playing field

Lesson Procedures:

Introductions (1-3 minutes)

1. Introduce yourself and the I FISH NY program
2. Discuss the two major types of water
 - a. Say: What are the two types of water? Can any one give me an example of fresh water environment? What about a saltwater environment?
3. Tell students we are going to learn about some fish that live in the type of water right around us and that there will be a game to simulate the predator-prey relationship

Predator-Prey Distinction (5-8 minutes)

1. Introduce predator fish and discuss:
 - a. Types of food it eats
 - b. How it obtains the food
 - c. Where in the water the fish lives based on body shape and colorings
2. Introduce prey fish and discuss:
 - a. Types of food it eats
 - b. How it obtains the food
 - c. Where in the water the fish lives based on body shape and colorings
3. Say:
 - a. Why do you think this fish has stripes or other markings? What do you think they are used for?
 - b. Why do you think the fish is dark on the top and light on the bottom?
 - c. What does the word “camouflage” mean?
 - d. What is a predator? Is this fish a predator?
 - e. What is a prey species? Is this fish a prey species?
4. Be sure to discuss proper handling techniques, safety for students and safety for fish (external anatomy feature=its function=action to follow):
 - a. Slime layer=protection=wet hand, no rag or shirt to handle
 - b. Dorsal fin=protection=slide hand over fin
 - c. Gills=breathing=do not hold by gills
 - d. Teeth=eating/protection=do not hold by mouth and what to use for bait
 - e. Body shape=where lives=where to fish

Predator-Prey Game (5-10 minutes)

1. Introduce the game:
 - a. The field will represent a waterbody near or around the location.
 - b. There are two types of fish, one the predator and one the prey
2. Participants will represent the prey species and the facilitator will be the predator. For example in freshwater, the largemouth bass can take on the role of the predator while the bluegill sunfish can take on the role of the prey species.
3. Explain that the object of the game is for each player to cross the water to the other side, pick up ONE food card (show cards) and make it back to your nest or home and back to the food area. The catch is that the predator is out there, lurking, trying to “eat” or tag its prey.
4. There are 3-5 hula-hoops out in the water that represent shelter areas where the fish likes to hide; i.e. for freshwater: aquatic plants, stumps, and fallen trees. You can stop there to escape the predator on your journey to obtain food. You are not allowed to stay there for more than 5 seconds. The predator won’t “babysit” the safe areas.
5. There is no running, only “swimming” where everyone’s feet must stay on the ground at all times. Have students practice “swimming.” The predator must also “swim” this way.
6. Remind players they must swim to the other side and grab ONE piece of food and make it back to their nests. Players will repeat the process until the food is gone. If a player goes out of bounds (as marked by cones), starts running, or is tagged, then that player is out and must sit on the side until another round of play.

7. Ask if there are any questions.
8. If there is extra time, ask a parent, teacher or other student to play the role as the predator or predators. (Tip: There can be more than one predator).

Debrief (2-3 minutes)

1. Ask students to raise hands to indicate who collected one piece of food, two pieces of food, and so on. Ask students what might happen to the fish that didn't obtain any food.
 - a. Say: Was it easier to stay alive when you were swimming in a school? Rather than by yourself?
 - b. Say (if more than one predator): Was this round harder or easier than the last round? Why? What about in nature?

Closing (1-2 minutes)

1. Re-cap day's activities.
 - a. Say: Today we learned about some fishing areas we can visit. And we also learned about some fish and their interactions within this aquatic environment, specifically predator and prey relationships.
2. Ask a few students to tell you something that they learned in today's session.

Adapted from: Project Wild; Quick Frozen Critters lesson plan