



# Predator/Prey

## Program Purpose

The purpose of this program is to learn about the food chain and populations in nature using an interactive game.

## Program Length

1 ½ hours

## Age

Grades 4<sup>th</sup>-8<sup>th</sup>

## Maximum Number of Participants

None (great all camp activity)

## Objectives

After completion of this activity students should be able to:

- Define what a predator is and what prey is
- Explain how the food chain works
- Identify some components of nature which keep the food chain balanced.

## Preparation

Before the class arrives:

- Set up the food, water and shelter signs around camp according to the map.
- Count out critter tags for the students. There are 7 groups total and the size of the groups depends on the number of students playing (see appendix A).
- Meet with the adult volunteers for the group to explain the game rules and answer questions. This usually takes about 15 minutes. The number of naturalists available to be group leaders will determine the number of adults needed. Seven leaders are needed total.
- Gather all materials for the class

## Basic Outline

- I. Introduction (*10 minutes*)
- II. Explain Rules (*10 minutes*)
- III. Play the game (*45-60 minutes*)
- IV. Conclusion (*15 minutes*)

## Materials

- 4 whistles
- 5 bandanas
- 1 orange vest
- 7 maps and keys
- 1 bullhorn
- 1 dry erase board and markers
- One critter tag for each student

## Introduction

Hand out critter tags (insects, frogs, snakes, hawks) as the students come in the door. Instruct all like insects (i.e. mosquitoes) to sit together, all like frogs to sit together, etc. There should be one adult with each group who will collect the tags as the students come to them.

Introduce yourself and explain that the class will be playing a game that represents the food chain. Begin by asking the students what all creatures need to survive (food, water, shelter, and space). Next, ask the students how animals get these things, specifically the food. Ask the students if anyone knows what a predator is and what prey is. Define predator and prey. Explain that in the next few minutes the students will create a mini food chain using volunteers. Start off by asking where all living things get their energy from (the sun). Have a volunteer from the audience come to the front of the room to be the sun. Instruct them to say "Hot, Hot, Hot" so they are recognized as the sun. Next ask the

audience for something that gets its energy from the sun (a plant). Choose a volunteer to come up and be a flower saying, “Open in the morning, close in the evening.” Now ask what eats plants (insects) have someone come to the front of the room to be a bee (bzzzzzz). Continue the chain with frogs (ribbit) eating insects, snakes (hsssss) eating frogs, and hawks (soar and glide) eating snakes. As a finale have all of the students in the food chain make their noises at the same time. Ask the class what you have just created (a food chain). Explain that the game you are about to play represents real life survival for animals in the wild.

### **Rules for Predator/Prey Game**

The following game is an interactive tag game, which allows students to learn about the food chain by becoming a part of it. The object of this game is to tag as many people from the group you are attacking as possible. Likewise, if you are being attacked, your goal is not to get tagged.

Before explaining the rules, take a preliminary count of how many people are in each group. Draw a pyramid on the board showing the numbers. Combine all of the insect species together for one overall insect count. Likewise combine all of the frog species. Put the insects on the bottom of the triangle and the hawks on the top.

### **ATTACKS**

- This is a walking tag game! You may only run when an attack is on and only in designated areas (sand field, pine plantation, parking lot).
- Insects can’t attack because they are prey for all of the other animals in this game. Frogs may attack insects. Snakes may attack frogs and insects. Hawks can attack all 3. There is no cannibalism in this game (i.e. frogs may not attack other frogs).

- An attack lasts about 30 seconds. The attack begins when the adult leader of the attacking group blows his or her whistle once. In order to stop an attack the leader will blow his or her whistle twice. Prey who are tagged (eaten) join the predator group. Prey who were not tagged stay with the prey group.
- During an attack, the goal is to tag as many of the prey as possible.
- A group may not split up for an attack. Groups must attack as an entire team (i.e. groups cannot attack from different sides of a building.)
- A group cannot attack the same prey twice in a row. They must either attack another group or get a different survival requirement (water, shelter).
- Two groups may not attack the same prey group at a time.
- A predator group may not attack a different predator group that is already attacking a prey group.
- Each group gets a designated amount of “peace time” after being attacked. Insects get 1 minute, and frogs and snakes get 20 seconds. Peace time is designated by holding the peace sign (2 fingers) up in the air.

### **SURVIVAL**

- If all but one member of a group gets tagged, the surviving member must join the predator group because one member of a species cannot survive on its own. (This is due to reproduction, but don’t tell the students yet. Let them come up with it during the conclusion).
- The adult leader is not a member of the group. They can call attacks and end attacks, but they cannot actually attack or be attacked.
- The leader has the authority to freeze members of their own group who are not following the rules (i.e. running when

there is not an attack or going out of the boundaries).

- In order to survive, the group must obtain food, water, and shelter. There are posts around camp where these necessities may be found (see map for locations).
- Attacking a prey group counts as food points, however water and shelter must be obtained using the posts.
- When getting the food, water, or shelter points, everyone in the group must be touching the tree or pole the resource card is on. All group members must also sing a song (it doesn't matter what song, but they all should be singing the same song) to obtain the resource.
- Groups can be attacked while obtaining food, water, or shelter.

#### **BOUNDRIES**

- No one may go outside the designated boundaries (from PBM to the base of cabin hill, between the road and the path along the river—NOT on the beaches).
- No one may go into buildings during the game.
- Groups may only hide for a total of 5 minutes during the game.

#### **GAME END**

- The end of the game is signaled by the bullhorn. At this time group leaders should count the number of students in their group and all should report to the meeting place (main lodge). (Notify group leaders ahead of time when the game will end so they can bring students back in case they do not hear the bullhorn).

#### **Conclusion**

Collect the final numbers from each of the groups. Compare the numbers at the beginning of the game to the numbers at the end of the game. Next to the triangle on the board representing the numbers of critters in each group from the beginning of the game, draw a shape representing the numbers at the end of the game (again have insects on the bottom and hawks on the top). The numbers from the end of the game should resemble either an inverted triangle or an hourglass shape. Ask the audience which way they think nature is more stable. Have a volunteer from the audience help demonstrate the stability. First have them stand like the triangle you have just drawn that represents the beginning numbers (feet apart, arms over head with hands together). Give the person a little push and see if they fall over (it's pretty hard to push them over in this stance). Next have them stand like the ending shape. Push them again (but gently because they will fall). This works best if you choose a dramatic student to help demonstrate.

Nature likes to be stable and the beginning triangle is more stable than the inverted one or the hourglass. Ask the students what nature does to keep things balanced that we did not have in our game (reproduction). Now revert the triangle using the number of offspring each animal has. Multiply the ending number of insects by 10,000, the ending number of frogs by 100, the ending number of snakes by 10, and the ending number of hawks by 2. This will revert the triangle making nature stable again.

**\*Note**

You can also talk about bioaccumulation of DDT in Eagles or other human impacts on these animals.

If you play the game more than once it is interesting to add humans into the equation either as cars, DDT, or something else that affects the Hawks. If you decided to have the humans effect the hawks, after they are attacked (it works best if only 1 or 2 adults are representing the human group) return them to an insect group.

**Reference**

Upham Woods 4-H Environmental Education Center (2001). Predator/prey lesson plan. Wisconsin Dells, WI.