

## ACTIVITY

# Woodland Chase

### Summary:

*Participants experience the predator/prey relationship with a fun outdoor activity.*

### Grade Level:

3-6

### Time:

45 minutes

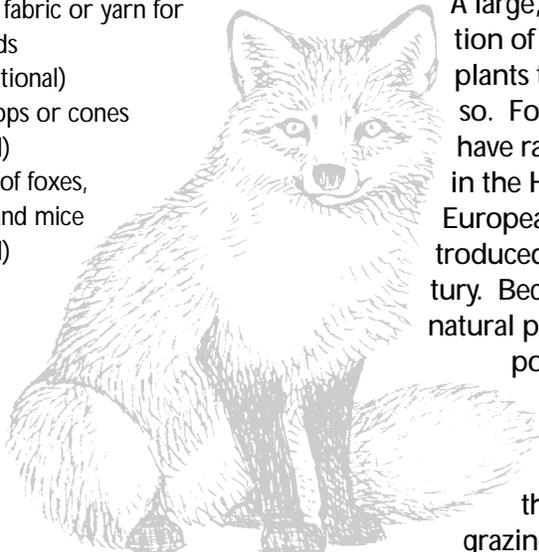
### Learning Objectives:

Participants will be able to:

- ◆ Simulate the predator/prey relationship.
- ◆ Demonstrate an understanding of the roles of both predators and prey in maintaining healthy populations.
- ◆ Understand some of the ways predators and prey try to outwit each other.

### Materials Needed:

- ◆ Index cards
- ◆ Markers
- ◆ Colored fabric or yarn for arm bands
- ◆ Tape (optional)
- ◆ Hula hoops or cones (optional)
- ◆ Pictures of foxes, rabbits, and mice (optional)



### Background:

The predator/prey relationship is, on some level, one of the simplest cycles in nature to comprehend. It is also an extremely important cycle in any ecosystem.

In short, animals that are **predators** hunt other animals, or **prey**, as an important (and often primary) food source. Generally, predators go after the easiest prey they can find, including the old, weak, ill, or very young. When many of these members are weeded out, a prey population remains stable and healthy. Any moderate reduction in a prey population helps keep numbers in check. If, for example, the rabbit population in an area is too large, the rabbits can decimate their food supply, and they either have to move on or die of starvation.

A large, unchecked population of **herbivores** can eat plants to extinction, or nearly so. For example, wild pigs have ravaged the countryside in the Hawaiian Islands since European wild boars were introduced in the late 18th century. Because the pigs have no natural predators to keep their population in check, and since many Hawaiian plants have no adaptations to protect themselves from overgrazing, the pigs have caused

tremendous declines in many plant species. Some 25% of plants on the U.S. endangered species list are **endemic**, or unique, to the Hawaiian Islands, and the status of most of these plants is, at least in part, due to the destruction caused by these pigs.

In a healthy ecosystem, when prey is plentiful, predator populations increase. As predator numbers increase, prey numbers decrease. Following the decline in their food source, the predator population declines. With a decrease in the number of predators, the prey population can increase again, and the cycle continues.

Certain prey have developed effective defenses against their predators, such as chameleons with their camouflage, turtles and their armor, rabbits that freeze in place, and birds that flock together for safety. At the same time, predators have developed techniques to enhance their hunting practices. For example, bats find their prey by **echolocation**, which means essentially that they bounce sounds off their prey to locate them, like radar. Wolves hunt in packs to increase their hunting success, and foxes lie still in thickets or other cover to ambush their prey. It is an ongoing race to outwit each other!

In this game, participants will simulate the predator/prey relationship,





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assuming the roles of foxes, rabbits, and mice. If desired, substitute a local predator and its prey from your region.

### What to Do:

1. Ask participants to define the terms predator and prey. Have them cite example pairs such as wolf/elk, grizzly bear/salmon, or owl/mouse. Introduce the group to the predator/prey relationship. Explain the roles of both, and why they are both important. Briefly introduce hunting techniques and prey adaptations.

2. Next, tell participants that they are going to play a game where they get to be either a predator (fox) or a prey species (rabbit or mice). It can be played either indoors or outdoors, but should take place in a large, open area free of obstacles. To play the game, divide the participants using the guidelines below.

3. Give each player an identity card. See Figure 1 for game breakdown. This ratio may be varied in later rounds depending on outcomes. Tell players that some of the rabbit cards have a safety symbol on them (a red X). Foxes cannot capture a rabbit with a safety symbol on their card, so a rabbit in this situation will remain safe and alive, and the fox will have to find other prey. The safety symbol represents the fact

that predators are not always successful in the hunt. When players receive their card, they should not reveal whether or not they have a safety symbol.

Figure 1:

Number of Players	Foxes	Rabbits (safety)	Mice
15-18	2	4 (1)	9-12
19-28	4	6 (2)	9-22
29-35	6	9 (3)	14-20
36-45	7	10 (3)	19-28
46-50	9	12 (4)	15-29

4. Give each group a different colored arm band, or tape pictures of their animals on their backs. Participants must remain in character throughout the game.

**Foxes:** Foxes hunt independently. Depending on the number of players, divide the game area into hunting territories and have each fox select a territory. During the course of the game, foxes must hunt only in their given territory. If a fox hunts outside of its territory, he or she must sacrifice all the prey cards and start again. To kill prey, foxes must tag the prey with both hands. Foxes must take 5-10 seconds to collect their prey's arm band or picture. In reality, it takes some time for a fox



to consume its prey or to carry the kill to its den to feed its young. It is very unlikely that a fox will ever leave its kill unprotected to continue hunting.

**Rabbits:** Rabbits are herbivores, and should begin the game scattered about the playing area. If a fox tags a rabbit without a safety symbol, the rabbit is considered "dead;" he or she must give his or her card to the fox and must go sit on the sidelines. If tagged, rabbits with safety symbols must show the fox their card and then may resume play. Rabbits may move in between all hunting territories.

**Mice:** Most mice are considered omnivores, since they eat seeds, grains, and insects. They should begin the game scattered around the playing field. The same rules for rabbits apply for mice.

The leader will decide when to end each round of the activity. At the end of the round each fox counts their food points to see if they were able to successfully hunt enough food to survive. Mice are worth one point and rabbits are worth





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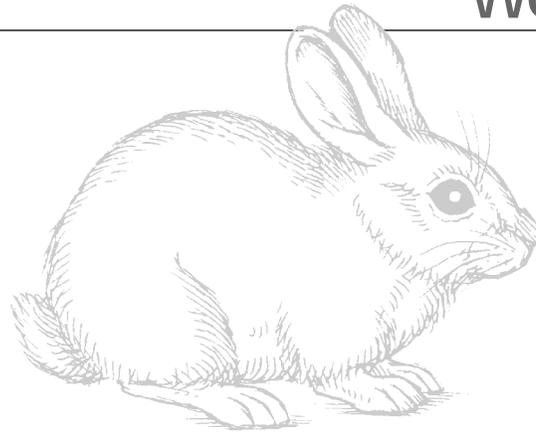
five points. See Figure 2 to determine fox survival needs.

Figure 2:

Number of Players	Survival Points
15-18	12-15
9-12	20-25
19-28	35-40
9-22	36-45
29-35	50-55

5. At the beginning of the next round, explain that in a healthy ecosystem, surviving prey animals often reproduce a significant number of young, and predators that found enough food will also reproduce, though usually they produce a smaller number of young than the prey animals. Therefore, the animals that survived the first round remain the same, the foxes that did not survive become mice, rabbits who were eaten become foxes, and mice who were eaten become rabbits.

It is important to note that the numbers of animals each round produces might not be exactly true to life, but participants should get the general idea of how the predator/prey relationship works. If possible, rotate predator/prey roles so that each participant gets to experience both sides of the relationship.



6. After the second round, modifications may be made. For example:

- Add a competing predator, such as a coyote or bobcat, who for the purposes of the activity hunts only rabbits.
- Add a poison symbol to some of the prey cards, which kills the fox or foxes that hunt that animal.
- Decrease the number of prey animals and increase the number of predators; cite drought or disease as a reason.
- Add safe zones (use hula-hoops or cones to mark-off areas), where prey animals can stand. Players can stay there for a count of ten, then they must move on. If a fox is waiting for their prey animals, it must step back ten paces from the safe zone.

7. Wrap up by asking some of these questions: *What aspects of the activity made it realistic?* (Safety symbols, use of territories, etc.) *What would make the game more realistic?* *How do competing predators affect the game?*

## Questions:

- How do predators and prey depend on each other?
- What would happen if there were no predators in a place with many prey?
- How would competing predators affect the ecosystem?

## Adaptations:

*Refer to general adaptations on pages 11-16.*

### *Hearing Disabilities:*

- Use pictures/drawings to illustrate predator/prey examples and related information in the introduction to the activity.
- Demonstrate each step of the game as you explain it.
- Use a signal such as a flag to show when time is up.

### *Learning/Cognitive Disabilities:*

- Use pictures/drawings to illustrate predator/prey examples and related information in the introduction to the activity.
- Demonstrate each step of the game as you explain it.
- Simplify the predator/prey roles as needed and/or play without safety cards.
- Prepare signs with the name and picture of the creature for each participant to wear.
- Slow game down to a fast walk as needed.
- Use a whistle to signal when time is up.





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- Narrate the game to decrease confusion as needed.

### *Motor Disabilities:*

#### *Overall:*

- Choose a largely accessible site for the game, such as a gym floor or blacktop.
- Have "prey" walk quickly instead of running as needed.
- Decrease the size of the playing field as needed.

#### *For participants with limited muscle strength, coordination, or dexterity of the hands:*

- Have participants who have difficulty "tagging" others call out the "prey's" name once they are within a one to two foot area from the prey.

### *Visual Disabilities:*

#### *Overall:*

- Prepare large print/ Braille animal cards for participants to wear.
- Use a timer or bell that participants can hear to end each round.
- Narrate the game to decrease confusion as needed.
- Have "prey" wear or carry bells to increase orientation.
- Have "prey" walk quickly instead of running as needed.
- Have partners assist with moving about the field

and tagging "prey" as needed.

This can be done through verbal orientation directions and/or allowing participants who have difficulty tagging others to call out the "prey's" name once they are within a one to two foot area from the prey.

- Have participants identify themselves before tagging participants with visual disabilities.
- Decrease the size of the playing field as needed.

