



The Foraging Game

Eat or die! All organisms must gather food, which supplies energy and nutrients necessary for survival and growth. The energy and nutrients in the food (the prey) are passed into the organism (the predator) and, eventually, on up the food web. However, it's not always easy to capture food. It's like a game.

First, the predator must find the prey, which might be....

- easily seen, or cryptic (blends in with the environment), or hiding
- plentiful or scarce
- a short or long distance away
- clumped together or scattered around

All of these affect the TIME it takes the predator to locate the prey.

Once the predator finds the prey, it might not be able to eat it right away. Prey have different HANDLING TIMES. Some can be gobbled right up; others have hard shells that must be opened or parts that can't be eaten.

Prey also have different ENERGY values. Some are mostly water or undigestible material. Others are mostly sugar, and others are mostly energy-rich fats and lipids.

The goal of foraging is to accumulate enough energy and nutrients to survive. Predators can have different FORAGING STRATEGIES maximize ENERGY gained relative to the TIME spent locating and HANDLING the prey.

In this foraging game you will be the predator. Your goal is to survive and grow. We will explore different foraging strategies and what happens when the forager is also prey.

Game Goal: Accumulate enough energy to survive and grow.

The prey:

Prey Type	Energy Value	Handling time
Raisons	1	0
Nuts	3	1
Goldfish	6	2
Gummie fruit	10	5
Granola bar	20	10

Prey are hidden inside paper bags.

When you find a prey item (pick up a bag) you must stand still and count the number of seconds handling time before you can move and search for another prey item.

Game 1

Compare group and individual foraging strategies.

Half the class forages as groups. The other half forages as individuals. Members of a group must stay together as they hunt for prey.

Foraging time: 5 minutes

To find out if you survived, add together the energy values for all prey that you captured. Group members divide the total energy value by the number of predators in the group.

Game 2

Does foraging strategy change when a predator is added?

Again, half the class forages as groups. The other half forages as individuals. Two people are predators who prey on individual foragers and individual members of groups.

Play as in Game 1. If you are 'caught' by a predator you are 'dead' and must stop foraging.

Points needed:

< 10 points	You are Dead!
10-15 points	Alive but Weak
15-25 points	Alive but not Growing
> 25 points	Alive and Growing