Pyramid of Life

Objective: Students will be able to describe a food pyramid and list reasons why there are more plants than animals and more herbivores than carnivores present in the natural world. Students will be able to evaluate the health of a pyramid and tell if the situation is one that will be able to support a population for a sustained period of time.

Procedures: This game requires at least six players. Give each student a slip of paper and have him secretly write the name of a plant or animal from the **Nametag List** (see Pre-Visit Preparation). Collect the slips of paper. Ask the students where the earth gets its energy? From the sun. What form of life is the first to make use of that energy? Plants. The students will now build the pyramid of life. They are going to build a pyramid as they might do in gym class. The plants will be on the bottom, because all animals depend on them directly or indirectly for food. Read all of the plants from the slips of paper. All of the students who wrote any kind of plant on their paper should kneel down close together in a line. As you read off the animals have the students identify whether they are plant eaters (herbivores) or meat eaters (carnivores). All of the herbivores stand in a line behind the plants. All of the carnivores stand in another line behind the herbivores. There will usually be more students in the upper-level groups than in the supporting plant levels.

With so many tops and so few bottoms, it will be impossible to build a stable pyramid. Some of the predators will have to forfeit their status. Challenge the students to construct their own pyramid into one that will support all members. Clearly, the higher up the food chain, the fewer the number of animals there are. Demonstrate the importance of the plant layer by pretending to pull one of them out of the pyramid.

Using the pyramid diagram below discuss the 10% rule. Is the diagram accurate? How many plants would three mice need to survive? Could 2 snakes survive on 3 mice? Could one eagle live on two snakes? Have the students draw what they think a true pyramid would look like. (To sustain life, it would take about 100 plants to support ten mice that would support one snake. To get a four layered pyramid it would take 1000 plants, 100 mice, 10 snakes, one eagle) Lead a discussion with the group to see if they can think of any animal that isn't dependent upon a plant somewhere in its food chain.