



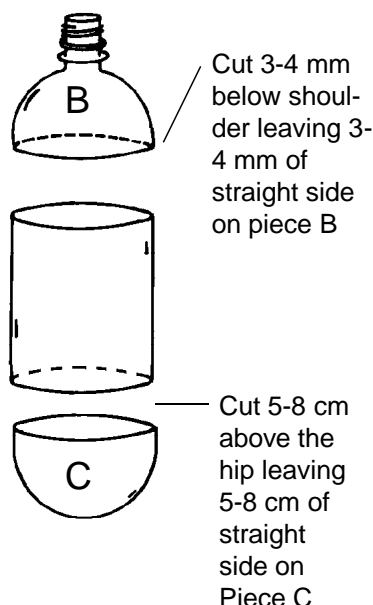
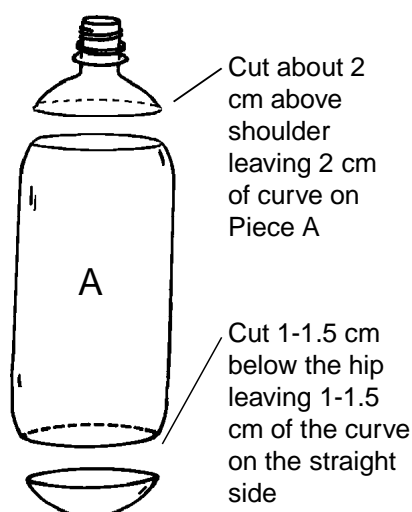
# Predator - Prey Column

## Introduction

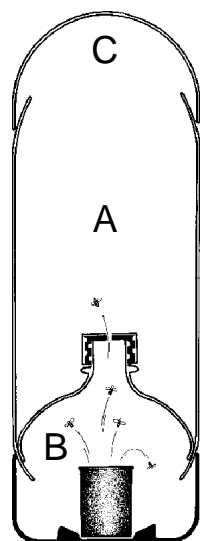
The fascinating world of predation and predator-prey relationships can be captured in the classroom. Using preying mantises, spiders or carnivorous plants as predators and fruit flies as prey, the behaviors, life cycles and interactions of the organisms can be easily observed. A predator-prey column provides a relatively simple set-up for such complex interactions.

## Construction

### Cut Bottles



### Combine Bottles



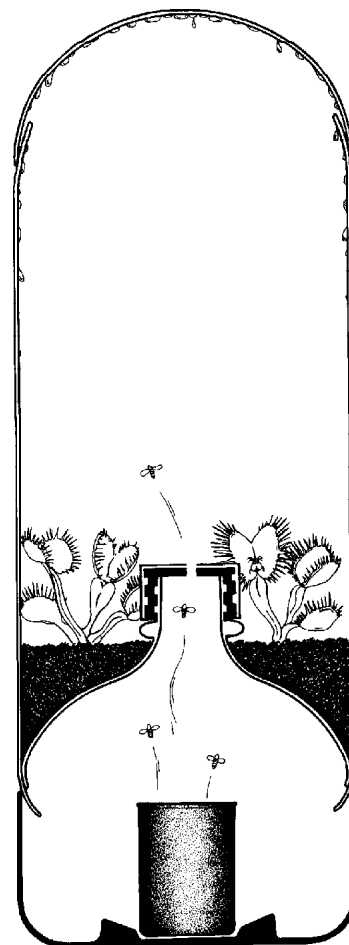
Piece C serves as a top. Access the predator chamber from here.

Slide Piece B into the hip of Piece A.

Set construction in Bottle Bottom. Access prey from here.

### Construction Tips

- Small ventilation holes can be made by poking the sides of a bottle with a sharp, thick needle (sharp darning needles work well). Push the back end of the needle into a short piece of wooden dowel to make a handle.
- Use several pieces of waterproof tape (such as postal tape) between the inside of Piece B and Piece A to hold these two pieces together.
- These columns may need frequent maintenance and attention.



### Growing Venus Fly Traps

You can purchase Venus Fly Traps (or other carnivorous plants) at a local garden store or biological supply house. Carnivorous plants generally prefer a moist habitat with peaty soil. Peat can also be purchased at a garden store. A healthy planting of Venus Fly Traps can eat a large number of fruit flies.

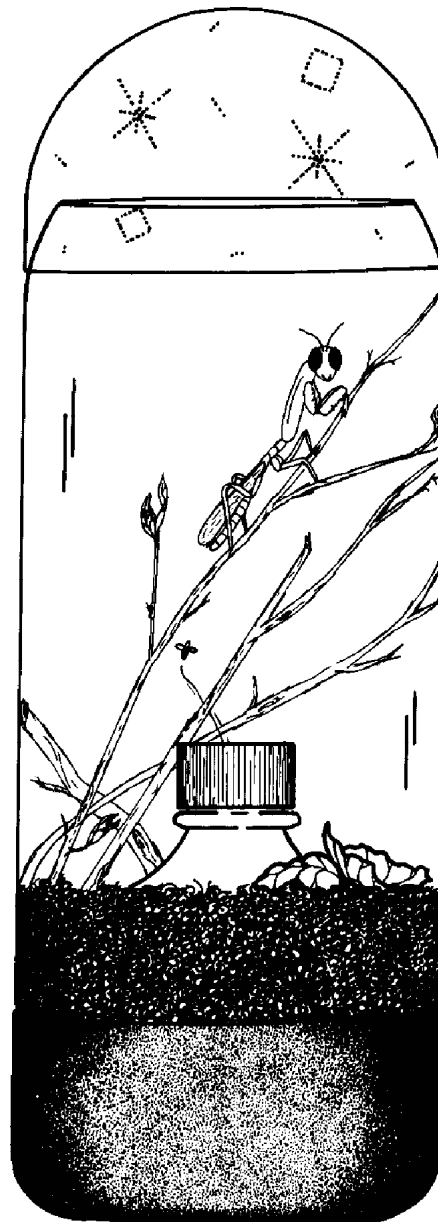
## Raising a Preying Mantis

You can purchase or collect preying mantises as adults. However, you may find it more exciting to try hatching an egg case and raising the mantises to full maturity.

You can purchase an egg case from most biological supply or pest biological control catalogues or collect one on your own. In a refrigerator, the cases will store for many months. Then simply warm them to room temperature and the clock will start ticking! After about 3-6 weeks in a mantis bottle column hundreds of tiny mantises will hatch from the egg case. These mantises must have water in the first 12 hours, so keep a moist wick in the cage during the last weeks before hatching. Without another source of food in the first 24-48 hours the mantises will begin to eat each other. Don't be alarmed if many mantises will die in the first week--this is common.

Place 4-8 mantises in a bottle column with 1-3 canisters of breeding fruit flies below. (See accompanying article for directions on how to trap and breed fruit flies.) In order to insure an ample number of flies, the fly canisters should be started at least 3-6 weeks before hatching. Depending on the number of mantises you wish to raise, you might need to start a number of fly traps and breeders. It is probably best not to take the egg case out of the refrigerator until you are certain that you will be able to trap and raise sufficient flies.

The growth rate of a mantis depends largely on how much it is fed. They will repeatedly shed their exoskeleton with the final molt revealing their wings. Females can be distinguished from males at this time by a more swollen abdomen. An older mantis will need to eat larger insects such as house flies or crickets.



## Extensions

- Try breeding mature mantises. Be aware that the female mantis will usually kill the male mantis during or after breeding.
- Use a Predator-Prey Column as part of a larger ecocolumn bottle construction.
- Use the column to explore questions of population sizes or stability. What might happen if the prey population grows very large or if the predator population is large? What factors determine the size of a population? What happens if two predator populations are put together?