Step 2   Write down all your group parameters and rules, including those for possible larger litters of pups.

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Step 3   Cut out pieces of paper to represent coyotes and mice. You will need many more mice than coyotes, probably about 300 mice to 15 coyotes. The actual number of each may vary based on the parameters you choose.

The pieces of paper should be of two sizes, possibly at a ratio of about 2:1, to simulate the feeding needs of the coyote. They can be squares cut from graph paper for uniformity or, if you are artistically inclined, silhouettes of the animals. Different groups may want to experiment with different size ratios and then compare their results at the end of the simulation.

Step 4   Drop the papers representing the starting number of mice into the square. They should fall randomly inside the borders of the "field." Experimentation will determine from how high the papers need be dropped to give consistent random falls within the square.

Step 5   Once your mice are distributed, drop 1 preying coyote into the field. For the coyote to survive and reproduce, it must fall directly on the number of mice determined by your parameters (see Step 2). Take the "eaten" mice out of the square. Assume that the remaining mice get to reproduce by doubling their number. This ends one generation.

Step 6   The next generation is represented by the new number of mice and they are preyed on by the number of surviving coyotes. If no coyotes survive a generation, start again with one coyote. If all the mice are eaten, start again with the same number as in the first round.

Step 7   Record the number of surviving mice and coyotes after each round in your Table of Data (**Fig. 17-2**).

Note: To monitor whether the relationship is going as expected, data can be entered directly into a spreadsheet or a graphing program as the simulation proceeds.

- If you enter the data into a spreadsheet such as *Excel*, when you are ready to make a graph, highlight your data and click on the chart icon. On the chart Wizard, select "Custom Types" and then scroll down to "Lines on Two Axes."

- You can also use graphing programs such as *Graphical Analysis* to monitor the data after each generation. It is possible to use graphing calculators as well, but you will need a GraphLink cable to get the data and graph into a computer so that you can write up the lab.