

MAKING MODELS

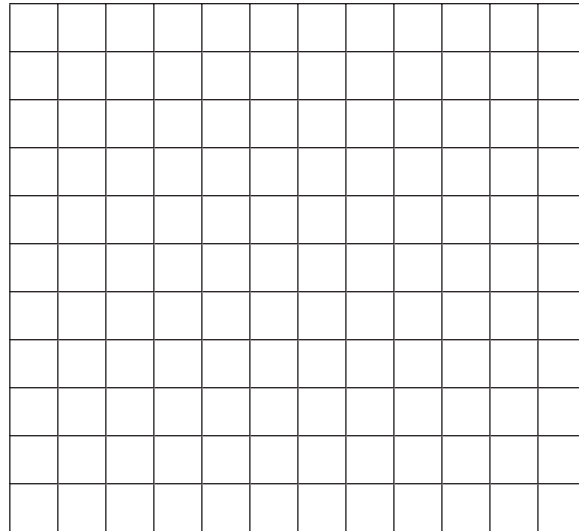
Using a Mathematical Model

Mathematical models are useful for representing and understanding numerical relationships. You can draw conclusions about these relationships with the help of graphs, tables, and mathematical equations. Mathematical models are very useful to make predictions or for estimation. Graphs of data can be used to predict future trends, such as population growth over time.

Suppose you buy a fish tank and two guppies. You observe the guppy population in the tank over the next several months. The table below shows the population of guppies in the tank. Plot these points on a graph using the grid below.

Table 1. Guppy Population

Month	Population
1	2
2	4

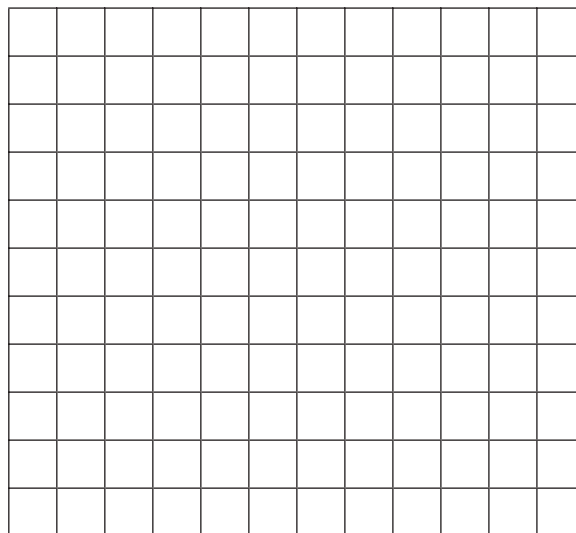


1. Based on the graph you drew above, estimate of the guppy population in the tank after five months. _____
2. What about the graph leads you to make this prediction? Explain.

The table below shows additional data on the guppy population in your fish tank. Plot all of the data points on the grid on the following page to improve your estimate of the population after five months. You may need to use a different y -axis scale on your new graph.

Table 2. Guppy Population

Month	Population
1	2
2	4
3	8
4	16



- Based on the new graph that includes all of the guppy population data, what would you estimate the guppy population to be after five months? _____
- How did the extra data points change your estimate of the guppy population trend?

Challenge Summarize the advantage of using more data points when you develop and use a mathematical model.
