

## 1.2 Activity: Graphing Relationships

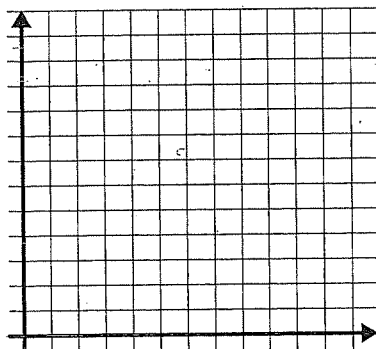
### Question

Can you produce a graph given a set of experimental data?

### Background

A beaker full of water is placed on a hotplate and heated over a period of time. The temperature is recorded at regular intervals. The following data was collected.

Temperature (°C)	Time (min)
22	0
30	2
38	4
46	6
54	8
62	10
70	12



### Procedure

1. Use the grid above to plot a graph of temperature against time. (Time goes on the x-axis.)

### Results and Discussion

1. What type of relationship was studied during this investigation?
2. What is the constant (be sure to include the units)?
3. What temperature was reached at 5 minutes?
4. Use the graph to determine the relationship between temperature and time.
5. How long would it take the temperature to reach 80°C?
6. What does the y-intercept represent?
7. Give a source of error that might cause your graph to vary from that expected.

## Slope Practice Activity

In a fish-packing plant, a supervisor recorded the following data:

1. Which variable should be considered the independent variable? Which is the dependent variable?
2. On a separate piece of graph paper, plot the "number of fish" versus "time". Ensure that all the required features are included in your graph. (Draw a "line of best fit.")
3. Using your graph, predict how many fish a typical employee could be expected to pack in 45 minutes.
4. Using your graph, predict how long it would take a typical employee to pack 437 fish.
5. What do we call the relationship between the variables shown by your graph?
6. Determine the equation for the graph. Show work!!  
Based on your equation for your graph, state the proportionality constant (the slope of the line).
7. Predict, with the aid of appropriate calculations:
  - (a) how long it should take to pack 897 fish.
  - (b) how many fish should be packed in 75 minutes.

Number of Fish Packed	Time (min)
0 fish	0 min.
58 fish	5 min.
115 fish	10 min.
137 fish	20 min.
308 fish	25 min.
372 fish	30 min.
593 fish	40 min.
662 fish	55 min.
723 fish	60 min.