



Name \_\_\_\_\_

Date \_\_\_\_\_ Period \_\_\_\_\_

## Graphing (Line Graphs)

### Introduction:

Line graphs show how one quantity changes when changes are made to another quantity. The quantity that is changing because of the other is called the *dependent variable*. The quantity that changes or is changed to test the effect on the other is the *independent variable*.

The dependent variable “depends on” the independent variable.

### Practice Determining Variables:

Audrey measured the height of a tomato plant every day for a week. Name the two variable she must have recorded. Which is the dependent, the independent?

Variable 1: \_\_\_\_\_ Variable 2: \_\_\_\_\_

Which one “depends” on the other? \_\_\_\_\_

### Rules for Making Line Graphs:

1. Label the horizontal axis (left to right)
  - \*usually use the independent variable
  - \*include numbers and units
  - \*use the entire paper (large graphs are better)
  - \*use even increments, correct scale
2. Label the vertical axis (down to up)
  - \*usually use the dependent variable
  - \*include numbers and units
  - \*use the entire paper (large graphs are better)
  - \*use even increments, correct scale
3. Plot the points
4. Draw a smooth curve or a straight line. (choose best fit)
  - \*do not just connect the dots
5. Title the graph
  - \*a title must state what two things are being compared

Practice Problems:

Use the practice and the rules from the first page.

Determine which quantity is the dependent and which is the independent variable.

Draw a labeled line graph that will represent each of the following problems.

1. The number of seeds germinating in a plot of ground at certain times is as follows:

May 4: 24 seeds  
May 5: 32 seeds  
May 6: 41 seeds  
May 7: 52 seeds  
May 8: 40 seeds  
May 9: 30 seeds  
May 10: 23 seeds

2. The temperature of seawater at variable depths below the surface is as follows:

0 m (surface): 20.0 degrees C  
500 m: 19.4 degrees C  
1000 m: 18.9 degrees C  
1500 m: 18.5 degrees C  
2500 m: 17.6 degrees C  
3000 m: 16.8 degrees C  
4000 m: 15.9 degrees C  
5000 m: 15.0 degrees C

3. The size of a bacterial colony over a period of time as shown here:

0 minutes: 10 cm<sup>2</sup>  
30 minutes: 28 cm<sup>2</sup>  
60 minutes: 74 cm<sup>2</sup>  
90 minutes: 205 cm<sup>2</sup>  
120 minutes: 550 cm<sup>2</sup>  
150 minutes: 1500 cm<sup>2</sup>

4. The height of a morning glory vine measures at various dates is as follows:

Day 1: 8.0 cm  
Day 2: 12.0 cm  
Day 4: 19.5 cm  
Day 6: 28.3 cm  
Day 10: 43.7 cm  
Day 14: 64.8 cm