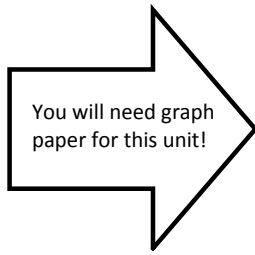


# UNIT 3: Graphing Relations

## Lesson 3.1: Scatter Plots



Introduction: 200 Years, 200 Countries, 4 Minutes.

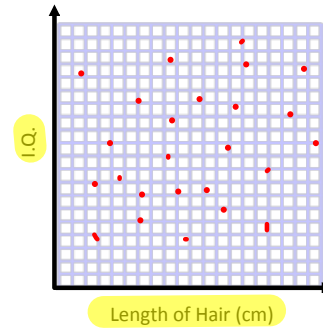
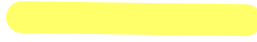
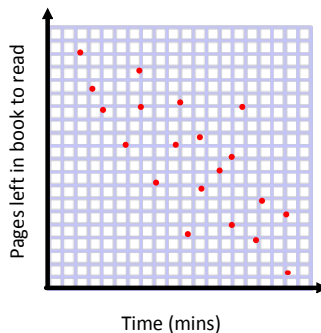
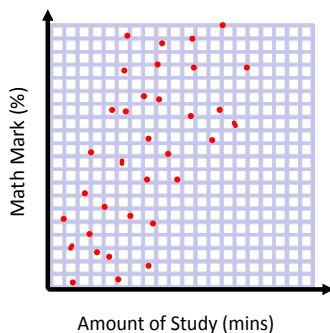


- What is being compared?
- Write down words that you think are important.
- What can you conclude?

### A. What is a scatter plot?

- It is a graph showing a set of points.
- It shows a relationship between two variables.
- The relationship can be described by a trend.
- Trends can be upward or downward. It's also possible to have no trend!

Ex. 1 Describe the trend shown in each of the following relationships.



Investigate trends.



## B. Interpreting a Scatter Plot

Ex. 2 The scatter plot below shows July temperature data for some Ontario communities.

- a) One data point is for Fort Frances, at latitude  $48^{\circ}\text{N}$ . What is the average daily maximum temperature in Fort Frances in July?  $\approx 19.5^{\circ}$

approximately  $\rightarrow$  .6, 7, 8

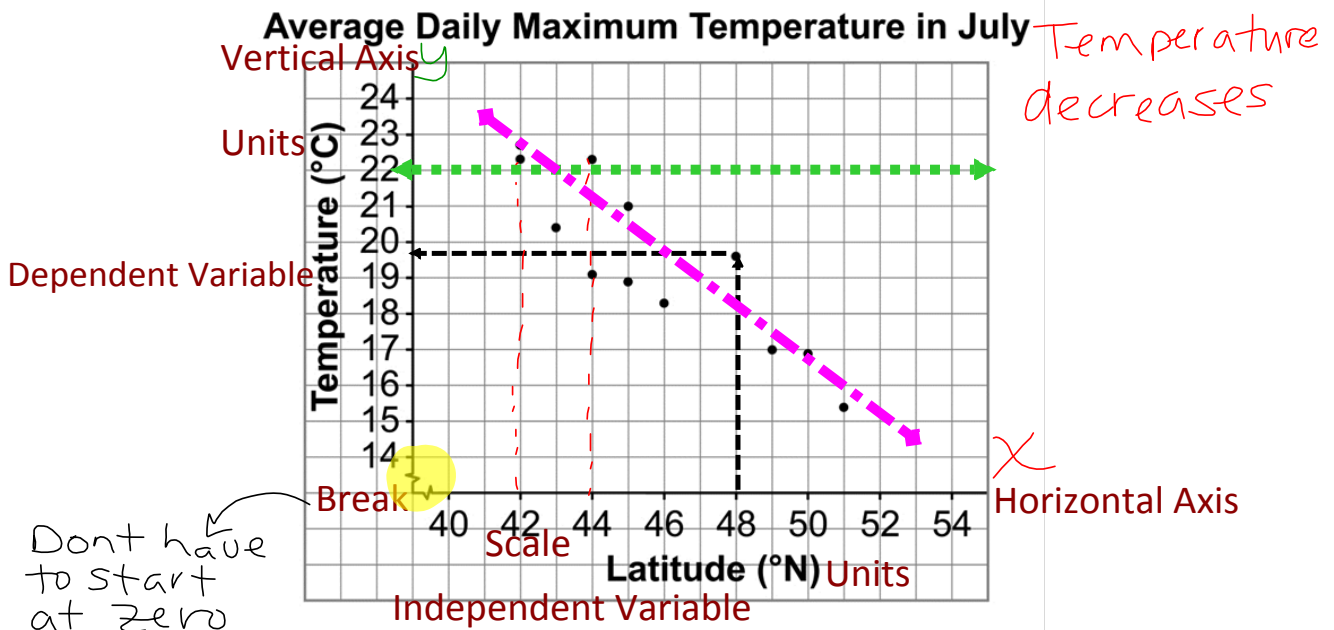
This information can be shown as a set of coordinates:  $(48, 19.7)$

- b) How many of the communities represented on this graph have average daily maximum temperatures greater than  $22^{\circ}\text{C}$ ? What are their latitudes?

3  $\rightarrow$  latitudes:  $42^{\circ}\text{N}$  and  $44^{\circ}\text{N}$

- c) Is there a trend in the data? Explain.

Downward Trend. As latitude increases

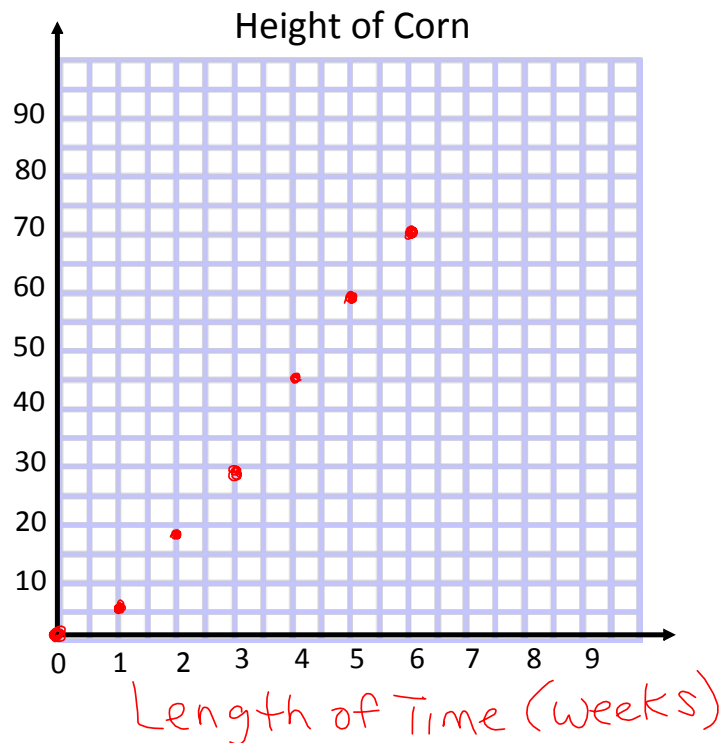


- d) Label the important features of a scatter plot.

### C. Creating a Scatter Plot

Ex. 3 Data was collected on the height of corn each week to see if there was a relationship between time and height. The data is shown in the following table of values.

Length of Time (weeks)	Height of Corn (cm)
0	0 ✓
1	5 ✓
2	18
3	29
4	45
5	59
6	70



- Label the horizontal axis. This is the independent variable.
- Label the vertical axis. This is the dependent variable.
- Plot the points to create the scatter plot.
- Describe the relationship between height and time.

As length of time ↑  
the height of corn ↑ } "Relationship"  
→ upward trend

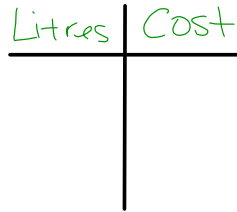
D. Practice

Ex. 4 When you put gas in a car, the gas pump shows the number of litres of gas you have put in and the total cost.

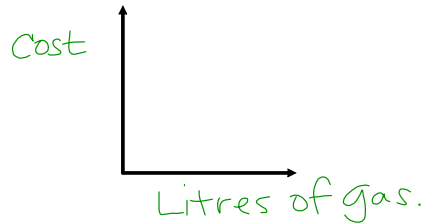
a) What is the independent variable? Litres of Gas.

b) What is the dependent variable? Cost

c) Label a table that could be used to gather data for this relationship.



d) Label the axes that could be used to graph the data for this relationship.

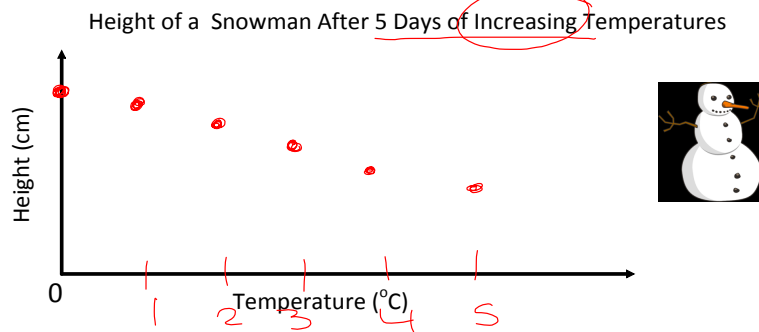


e) Describe the relationship you would expect to see from this data.

As litres of gas ↑  
Cost ↑

Ex. 5 Consider the following situation as it is labelled on the graph below.

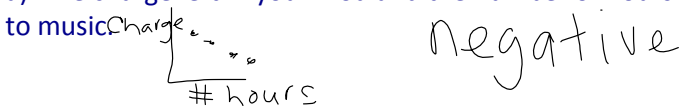
a) Graph the points that you think could be part of the scatter plot.



b) Explain your answer.

Ex. 6 Will each of the following sets of data show a positive correlation, a negative correlation, or no correlation? Justify your answer.

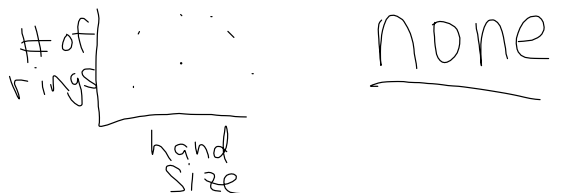
a) The charge left in your iPod and the number of hours you have listened to music



b) The amount of money you make and the number of hours you work.



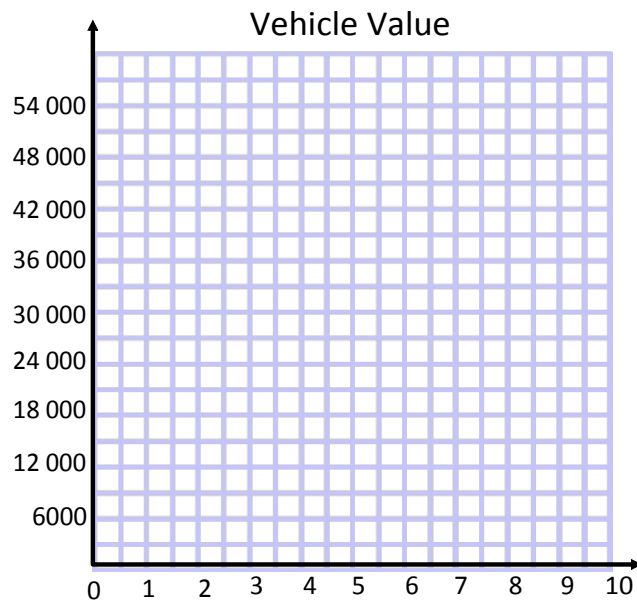
c) Your hand size and the number of rings you own.



## E. Homework

1. The data in the table represents the values of a vehicle after different amounts of time.

Number of Years After Purchase	Value of the Vehicle (\$)
0	28 000
1	24 000
2	21 000
3	18 000
5	14 000
8	9 000
10	5 000



- Label the horizontal axis. This is the independent variable.
- Label the vertical axis. This is the dependent variable.
- Plot the points to create the scatterplot.
- Describe the relationship between vehicle value and time.

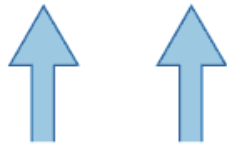
2. Will each of the following sets of data show a positive correlation, a negative correlation, or no correlation? Justify your answer.

- The outside temperature in the summer and the number of people swimming.
- The depth of Lake Ontario and the amount of rainfall and snowfall for that year.
- The number of pets you own and the number of years you are educated.
- Your science mark and the number of hours of spent playing video games.
- The outside winter temperature and the number of centimetres of ice on Trout Lake.

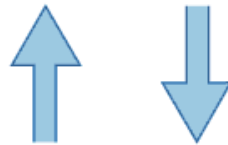
# Homework

## Page 148 #1, 4, 5 + Handout Questions

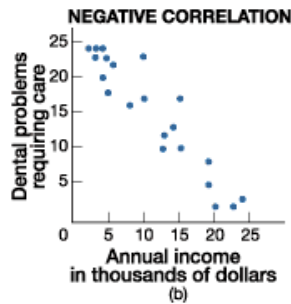
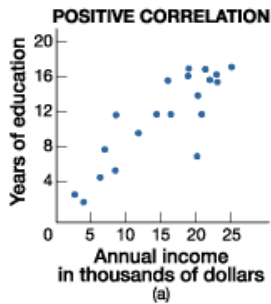
*Doing now*



**Positive Correlation**



**Negative Correlation**





## Attachments

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3.1 SP Handout 1.2A 2.notebook

3.1 SP Handout 1.2B.notebook