

U3D2 MAP 4CI Scatter Plots Date: _____

Scatter Plots represent _____.

Scatter plots may indicate a _____ between the two _____.

In two variable data situations, one variable may be _____ on another: in other words, its value _____ according to the _____ variable.

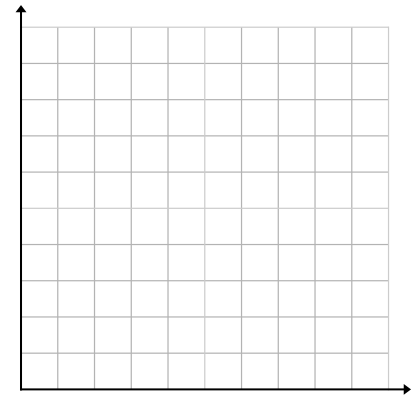
For example, the value of a car depends on _____.

So the independent value is _____

And the dependent value is _____

To plot a scatter plot the dependent variable goes on the _____.

And the independent variable goes on the _____.



CORRELATION DOES NOT MEAN CAUSATION

Example : Daylight hours and Temperature - In winter daylight hours are shortened and temperature is lower (positive correlation). But the low temperature is not caused by the low number of daylight hours. It is caused by the angle the earth makes relative to the sun.

Correlation: _____

Positive Correlation: _____

Negative Correlation: _____

What type of correlation would you expect for the value of a car over time?

Considering Possible Cause and effect. Observing a relationship does not mean that the one variable causes a change in the other. Other factors can be involved or the correlation could be a coincidence.

- 1) State whether the claim in each situation is reasonable.
 - a) A scientific study showed a negative correlation between aerobic exercise and blood pressure. It claimed that the increase in aerobic activity was the cause of the decrease in blood pressure.
 - b) A positive correlation was discovered between the gas price and the average monthly temperature. She concluded that the temperature determines the price of gas.
- 2) State whether you think the variables in each situation would have a negative correlation, a positive correlation, or no correlation.
 - a) Driving speed and time to travel 100 km.
 - b) Size of a house and its interior temperature.
 - c) A Person's age and the number of colds they have had.
 - d) Price of gasoline at the pump and the fuel efficiency of a vehicle.

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Do the following variables show positive, negative or no correlation.

Babies crying and being held by their parents

Average Daily Temperature and Distance from the North Pole

Average Daily Temperature and Distance from the Equator

Speed and the time it takes to drive a given distance.

Distance driven and the amount of fuel consumed.

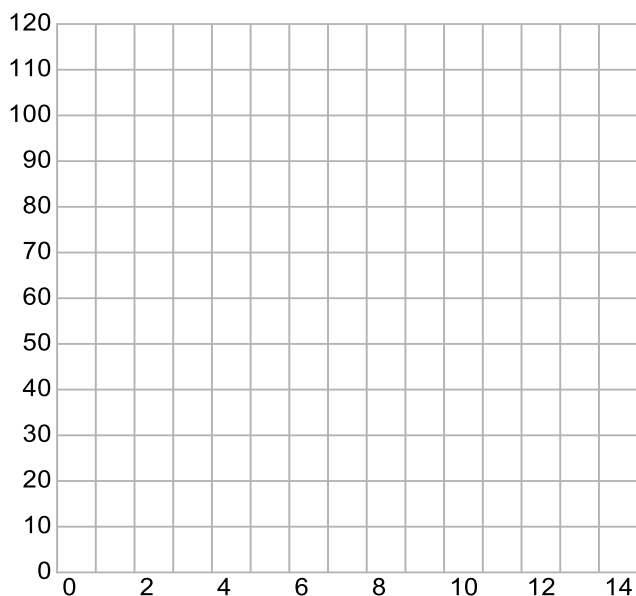
Example: Canadians consume a large amount of sodium. Although some sodium is needed to control blood volume and to help cells function properly, most Canadians consume far more than is necessary, or recommended. Most sodium is consumed as sodium chloride, also known as "table salt". Processed foods are the main source, accounting for 77% of average daily sodium intake. The maximum recommended daily salt intake from all sources (food, cooking, etc) is 1 tsp or 6 g.

Patient	Average Daily Salt Intake (g)	Diastolic Blood Pressure (mmHg)
A	8.4	80
B	10.4	105
C	4.9	78
D	7.8	87
E	12.8	112
F	11.9	108
G	8.4	96
H	11.4	88

Salt in our diet has been shown to contribute to high blood pressure. Blood

pressure (BP) is the pressure exerted by circulating blood upon the walls of blood vessels. During each heartbeat, BP varies between a maximum (systolic pressure), pressure in the arteries when the heart is contracting, and a minimum (diastolic pressure), pressure in the arteries when the heart is relaxing and expanding. A person's BP is expressed in terms of the systolic pressure over the diastolic pressure, measured in mmHg (mm of mercury, although mercury is not used), for example 120/80.

Draw a scatter plot on a set of axes, of the Diastolic BP vs. Salt Intake for the eight patients in the table.



a) Pose a question that would require one-variable data analysis.

b) Pose a question that would require two-variable data analysis.

c) Give three descriptive statements about this data.

U3D2 Homework: Pg 146 # 4, 5, 6 b c, 7, 8

(in 4 c) graph a scatter plot of Average Daily Salt Intake vs. Systolic Blood Pressure)