Math 9 Tripp

Name: _____**KEY**_____

Chapter 7 – Data Analysis

Test Date: _____

To do:

7.1 – Data Collection
- Complete Notes ◯

7.2 – Samples
- Complete Notes ◯

7.3 – Graphing Data

7.4 – Drawing Line Graphs
- Quiz ◯

Chapter Assignment Handout ◯

Write Unit Test ◯

Math 9 **Lesson 7.1 Data Collection** Tripp

What is data??

Data is a collection of facts such as measurements and values.

Types of Data:

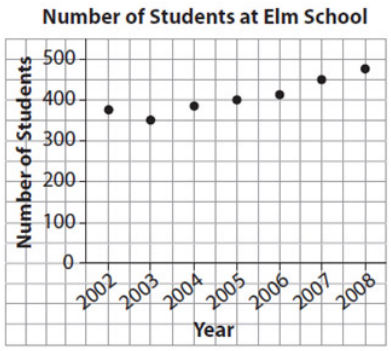
Use the picture below for examples!

Qualitative data **describes something (using words).** For example:

Sunny, cold (maybe), bright, spiky (mountains) etc.

Quantitative Data is **numerical** information. It can be continuous or discrete. For example:

3 tents, 1 person, etc.



Continuous Data can use any value within a certain **range** and it is measured. For example:

The child is 140.3 cm tall; the child is 145.210 cm tall; the child is 157.3219854 cm tall; etc.

Discrete Data uses only **certain (countable)** values that we can count, not any number in a range. For example:

The room has 10 boxes; the room has 5 boxes; the room has 1 box; etc.

Data collection can be done in a variety of ways. Some examples are:

Questionnaires, experiments.

Math 9 **Lesson 7.2 - Samples** Tripp

The entire set of items from which data are collected is called the **population**. For example:

If all members or items of the population are used or surveyed, then the data that is collected is called a **census**.

A **sample** is a portion or part of the population. It is usually selected because it is not economical with respect to time and money to use the entire population. When a population is large, sampling is used to gain information about the whole population.
The sample must be **representative** of the population in order for us to make reliable conclusions about it.

A sample should be **random and unbiased**. For a sample to be **random**, each member of the population should have an equal chance of being chosen. For a sample to be **unbiased** all groups of the population are fairly represented.

Sampling error is the difference between the results obtained by sampling and what the real truth is about the whole population.

Examples:

1. In the following example:

a) Identify the population

b) Determine whether a sample or population should be used

A farmer grows carrots and wants to know if they are ready to harvest.

a) All carrots

b) Sample

2. A random sample of 50 students out of a school population of 750 was interviewed about their favourite type of movie. If 30 percent liked adventure movies best, approximately how many students in the school would likely have chosen adventure movies?

750 x 0.30 = 225 students

Sampling techniques can be divided into two categories:

1) Probability Sampling
2) Non-probability Sampling

Probability Sampling

Involves the random selection of individuals or items from a population. There are four main ways to select samples to represent a larger population under this category.

a) **Simple random sample** – The individuals or items that become part of the sample are randomly selected. There are a number of ways that this selection can take place. For example:

b) **Systematic sample** – every nth member of the population is selected. For example:

c) **Cluster sample** – every member of a randomly drawn subdivision or segment of the total population is selected. For example:

d) **Stratified random sample** – every member or different segments of the population has an equal chance of being selected. For example:

Non-Probability Sampling

Usually cheap and convenient but gives less reliable results and has little or no mathematical structure. There are two mains ways to select samples in this category.

a) **Convenience sample** – every convenient member of the population is selected. Little or no planning goes into the selection of the sample. For example:

b) **Sample of volunteers** – a researcher asks for volunteers on a particular questions he wishes to study. Only interested members of the population will participate in the sample. For example: