

# WORLD 10-1: STATISTICS DEFINITIONS AND SAMPLING

## Learning Intention:

Goals: To learn basic statistics definitions, and to use our awesome proportion skillz to complete a Representative Sampling table.

## Success Criteria:

- 1) I know the difference between a census, study, and poll
- 2) I can set up a proportion to calculate a representative sample (**cross multiply & divide! Yay!**)

# DEFINITIONS: (PAGE 154)

Match the definition with the correct term provided below

Population : all people or items that one wants to study.

census : collects information on every member of the population being studied.

study : a statistical survey where experts in the field are questioned

poll : a systematic way of collecting data from a small sample the population.

bias : causes of prejudice in favour or against a thing, person, or group.

census	source of bias	population	poll	study
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# DEFINITIONS: (PAGE 154)

## Methods of Sampling and Variables

### Simple random

: Used to select individuals to form a small group to represent the population to be studied elements are randomly chosen.

### systematic

: the population is ordered and every  $n^{\text{th}}$  person is selected.  
Ex. the 10<sup>th</sup>, 20<sup>th</sup>, 30<sup>th</sup>, ..... person is questioned,

### Cluster sampling

: the population being survey is mainly homogeneous and split into groups called "clusters" which are subsets of the population. A few clusters are chosen to form the sample group.

### Stratified sampling

: used for populations which are mainly heterogeneous and divided into categories (called strata)

### quantitative

: the variable that expresses a quantity and uses numerical values.

### qualitative

: the variable that expresses a quality and does not use numerical values. Ex. eye colour, or poor, good, excellent.

### Discrete variable

: a set of values that can only take on integers or whole numbers.  
Ex. digital clocks only show minutes 1,2,3,4

### Continuous variable

: a set of values that can be any real number. Ex. a hand watch

discreet variable

continuous variable

qualitative

cluster sampling

simple random sampling

quantitative

systematic sampling

stratified sampling

# REPRESENTATIVE SAMPLING

- Imagine that you wanted to survey the school about a year-end activity.
- You could send out a questionnaire to everyone (a census) but it's really hard to get a response from *everybody*
- Instead, you do a survey, which is asking a smaller group out of the population
- In a *representative sample*, the person collecting the data specifically targets a representative section of the whole group. For example, if 40% of the school population is girls, then 40% of the people you survey should be girls.



# Representative Sampling

Example 1:

Here is the breakdown of students at D'Arcy. Student council printed 135 surveys to give out to see what the end-of-year activity will be.

Grade	Boys	Girls
9	70	90
10	60	70
11	100	60

**How many Grade 9 boys will be surveyed?**

Step 1: Find the total number of people in the population.

450

Step 2: Find the proportion of the people being surveyed.

$\frac{135}{450}$

Step 3: Use the proportion to answer the question!

$$\frac{135}{450} = \frac{x}{70}$$

*21 boys will be surveyed!*

