Lesson: Types of Sampling Techniques:

Simple Random Sampling.

Every member of the population has an equal chance of being selected

EX: Lottery, draw names from an envelope/box

Voluntary - Response Sampling

There is an open invitation to any member of the population to participate in a survey or experiment

Convenience Sampling

Surveying members of the population that are easily accessible

Cluster Sampling

Selecting a sub-group as being representative of the entire population and every member of the sub-group participates

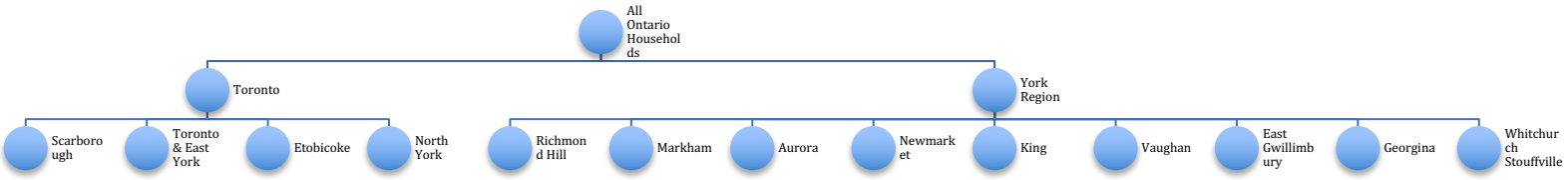
Destructive Sampling

requires that the samples that are taken are destroyed in the process of testing

Ex. Cars used in crash tests

Multistage Sampling

Selecting members of the population randomly in stages



Systematic Sampling

Selecting members that are in sequence at regular intervals

$$interval = \frac{population\ size}{sample\ size}$$

Stratified Sampling

Selecting members randomly from a population that may be divided into groups (strata) that share a common characteristic (such as gender, grade, education) such that the proportional representation of a strata in the sample is the same as the proportional representation in the population

Ex: survey 25% of the drivers in nearby 4 cities

Cities	Number of drivers	Sample size
Markham	4088 x 25%	1022
Richmond Hill	5409	1352
North York	2459	615
Scarborough	3236	+ 809
Total	**15 192** x 25%	3798

Practice for Sampling Techniques:

Identify the population and sampling techniques for each of the following scenarios.

Example1. For each of the following scenarios, identify the population and the type of sampling used.

a. A grade 12 class wants to determine the average height of the students in the class. The names of all students in the class are placed in a hat and then names are drawn.

population: the grade 12 class Technique: simple random

b. A Canadian publisher wants to know which type of book high school students like best. The publisher chooses ten high schools at random and then surveys every student in each school.

population: all Canadian high school students Technique: cluster

c. You want to collect data about which TV shows teenagers like best. You ask your friends and teenage cousins which shows are their favourites.

population: teenagers technique: convenience

d. The student council wants to know how much money students are willing to pay for a yearbook. They choose five boys and five girls from each period 1 class, from each grade, and survey them.

Population: all students in the school technique: multi-stage

e. Police want to know the speed motorists drive along Bayview Avenue. They set up radar and measure the speed of every 10^{th} vehicle for a day.

population: drivers on Bayview technique: systematic

Example 2. Before booking bands for the school dances, the Student Council at Bayview Secondary School wants to survey the music preferences of the entire student body. The following table shows the enrollment at the school.

Grade	Number of Students	Sample
9	455	91
10	432	86
11	409	82
12	384	77
Total	1680	336

a. Design a stratified sample for 20% of the student body

b. You have been given an alpha list of students and due to time-constraint, a sample size of about 50 students is deemed to be sufficient. Suggest a method for selecting a systematic sample.

$\frac{1680}{50} = 33.6$

I would suggest a random student to begin, then for every 34th student after the 1st selected will be selected until 50 participant are chosen for the sample.