

1.6 Collect and Analyse Data

Make Sure you know these definitions:

Word	Description
Primary Source	A person who collects data for their own use.
Secondary Source	A database or research collected by someone else.
Survey	Asking questions to a sample of a population.
Sample	A smaller group that represents the population.
Population	All of the individuals or items that belong to a group being studied.
Bias	An intentional or unintentional distortion of the data collected in a survey.

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👉 A bias sample does not truly reflect the population

Causes:

- misrepresentative sample (size, location, demographics...)
- wording of the survey (leading question)
- interpretation or presentation(is the question clear and concise)

Ex 1: [What is Canada's favourite hockey team?](#)

Biased sample: Only people who live in Ottawa were surveyed



Unbiased sample: Random sample of all Canadians who are interested in Hockey were sampled



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Ways to Avoid Bias

To avoid distorting the truth, it is necessary to carefully avoid bias when collecting your data.

Examples of Bias:

- asking students about denture cream
 ☆ Wrong population, most students do not wear dentures
- surveying all grades about location of this year's prom
 ☆ Wrong population, only grade 12 students go to prom

Sampling Techniques that can lead to Bias:

- give surveys out and asking that they fill out and return.
 ☆ Most people will not bother handing back the survey.

Leading Question or Loaded Question...

- What is your favorite dessert? Chocolate icecream, chocolate cake, chocolate brownies, other?
 ☆ Leading question
- Do you wish to separate from Canada and lose all rights as a Canadian citizen
 ☆ Loaded question

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Example 1:

Class Discussion Read each scenario, determine the bias and suggest a way to fix it.

- a) To determine if ticket prices are too high, the Senators poll season ticket holders with the question, "Are ticket prices too high?"
 - Wrong population
 - How to fix...
 - They should ask people in Ottawa who are interested in attending Hockey games
- b) WCSJ tries to choose it's athlete of the year by using this question: Who is the best athlete at West?
 - Leading
 - In Which Sport?
 - How to fix...
 - "overall athlete"
- c) A survey says, "Having a gym facility near their home improves the fitness level of teenagers. Do you support the building of a new fitness facility?"
 - Loaded
 - Need Location
 - How to fix...include location(s) that are being considered as building sites
- d) A group of students conduct a survey on what people in Kanata like to read by surveying people leaving the AMC as The Hunger Games ends.
 - Wrong location for survey
 - How to fix...They should ask people leaving Chapters, libraries or other book stores

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Example 2:

Choose **one** of these scenarios. Write **both** an unbiased and a biased survey question and **determine** how to conduct the survey.

- a) You want to find out what kind of music the DJ should play at the next dance.
- b) A city budget committee wants to know if residents would support a tax increase to build new arenas.
- c) Mr. Lavergne wants to know how many students would select COOP next year if only full-day COOP was available.

Is your question leading? loaded?

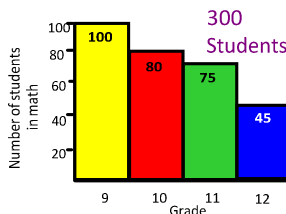
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MATH PRACTICE!

There are 300 students taking math at West
We want to survey 60 math students

1. Calculate the percent of the population that each grade represents

Grade 9:	Grade 10:	Grade 11:	Grade 12:
$\frac{100}{300}$	$\frac{80}{300}$	$\frac{75}{300}$	$\frac{45}{300}$
$\approx 33\%$	$\approx 27\%$	$\approx 25\%$	$\approx 15\%$



2. Calculate the number of students that should be chosen to represent each grade

Grade 9:	Grade 10:	Grade 11:	Grade 12:
$= 60(0.33)$	$60(0.27)$	$60(0.25)$	$60(0.15)$
≈ 19.8	$= 16.2$	$= 15$	$= 9$
≈ 20	≈ 16		

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Homework:
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