



COLLECT & ANALYZE DATA

Now that we know how to choose an **unbiased sample**, we now need to go out and collect the data.

Sampling techniques: Simple Random Sample Cluster Sample Stratified Random Sample
 Convenience Sample Systematic Sample Voluntary-Response Sample

WHERE DOES DATA COME FROM?

Primary Source: someone who collects data for their own use

Secondary Source: data that is collected by someone else (i.e., Statistics Canada)
 → database of information

HOW DO YOU CREATE GOOD SURVEY QUESTIONS?

Just like an unrepresentative sample, the wording of questions can also introduce bias into a survey. A survey should be as free from bias as possible.

TYPES OF BIAS

Loaded Questions	<u>contains wording or information to influence a response</u>
Leading Questions	<u>When suggested answers are provided. Can make tally easier.</u>
Sampling Bias	<u>When people you survey have something in common, which may make one response appear more popular</u>
Response Bias	<u>When people deliberately give the wrong answer / lie.</u>
Non-response Bias	<u>When people do not complete the survey - leave questions blank.</u>

Do these questions have bias?

1. "You don't like skinny jeans, do you?"

Type of Bias: Loaded Question Source: Primary

Revised Question: "Do you like skinny jeans?"

Sample Technique: Convenience (answers may vary)

2. "What do you think of the new driving law, 0.5% alcohol or less?"

Type of Bias: (Possibly) Response Bias ?? Source: Primary

Revised Question: "What do you think the BAC should be for driving?"

Sample Technique: Convenience / Simple Random / Voluntary

3. "What is the best video game series of all time? Legend of Zelda, Super Mario, or Other?"

Type of Bias: *Leading Questions* Source: *Primary*

Revised Question: *Do not provide multiple-choice answers.*

Sample Technique: *convenience / Simple Random / Voluntary*

4. "Are you upset about the construction on Woodbine?" (ask people stuck in traffic on Woodbine)

Type of Bias: *Sampling Bias* Source: *Primary*

Revised Question: *Broaden the sample to include those NOT on Woodbine*

Sample Technique: *Simple Random / Systematic*

5. "You do not have to show me, but did you do your homework?"

Type of Bias: *Response Bias* Source: *Primary*

Revised Question: *"Did you do your homework?"*

Sample Technique: *Cluster Sample (only those in the 11 college math class)*

6. "What will the weather be like in Jamaica for the October break?"

Type of Bias: *N/A* Source: *Secondary*

Revised Question: *N/A*

Sample Technique: *Weather Network / Statistics Canada*

MORE EXAMPLES

1. The members of an elite golf course are asked if they will approve the construction of a subsidized housing complex on the land adjacent to their golf course.

Sampling bias - elite golfers would likely NOT approve of subsidized housing.

2. A group of professional football players are asked if they have ever taken banned performance enhancing substances.

Response bias as professional athletes would not likely admit to taking a banned substance

3. Melissa asks five of her friends about their favourite type of movie. Four say their favourite is comedy. She reports that 80% of teenagers prefer comedies over all other movie types. Explain two flaws in her survey.

i) Her sample size is too small

ii) Her sample is made up of her friends who are likely to share tastes in movies.

