

Math 9 Lesson 7: Statistics

- Statistics in society
- Population versus sample, bias, ethics, sampling techniques, misleading stats
- Analyzing a given set of data (and/or its representation) and identifying potential problems related to bias, use of language, ethics, cost, time and timing, privacy, or cultural sensitivity
- Using First Peoples data on water quality, Statistics Canada data on income, health, housing, population

1. What is the mean of 2, 4, and 9?

2. What is the average of the numbers 10, 20, 80, 30.

3. 2, 5, k

Given the mean is 6, find k

4. Find the median of the following numbers:

a. 1, 2, 4, 10, 50, 1000, 999999

b. 2, 10, 20, 5000

c. -20, 0, 100, 50, -1000

5. Find the range of the numbers 10, -20, 5, 100

6. Find the average of the numbers 0.5 , $\frac{3}{2}$, -8, and 2000%

7. **YouTube: Political media's bias in a single chart**
What is the criteria that defines a "respectable" news source?

8. **YouTube: Ted X – How statistics can be misleading**
a. How can statistics be misleading?

b. What is Simpson's Paradox?

9. **YouTube: "This is How Easy it is to lie with statistics"**
How can statistics be used to deceive others?

**10. YouTube: Ted-Ed How can you spot a misleading graph?
How can graphs be misleading?**

11. When conducting a survey, why do we poll a sample instead of the entire population?

12. Give an example of unethical statistical practice.

13. Define the following sampling techniques

a. Convenience sampling

b. Simple random sampling

c. Stratified sampling

14. Explain how the following can be misleading

a. Manipulating scales

b. Cherry-picking data

c. Small samples

d. Non-representative samples

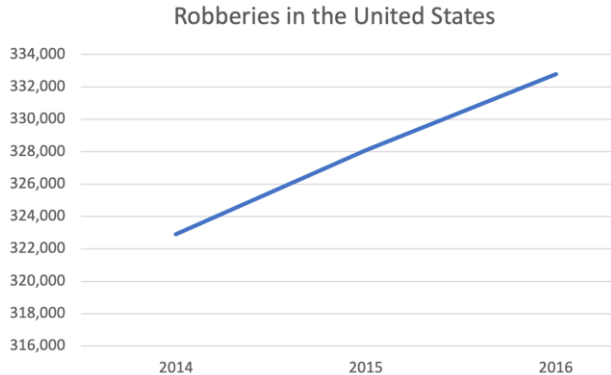
e. Selective data reporting

f. Showing averages

g. Poorly written surveys

15. Give an example of how correlation does not imply causation.

16. What is misleading about the following graph?



17. What is the median household income in BC, Canada?

18. What is the median household income in Canada in US dollars?

How does this amount compare to the median household income in the US?

19. What is the average cost of a home in BC?

20. What is the population of Canada?

21. What percent of BC students graduate with a Dogwood Diploma?

22. What percentage of Canadians (aged 25 to 64) have a post-secondary degree or diploma?

23. If the national debt were divided equally among Canadians, how much would each person owe?

24. Was the 1995 Quebec referendum question well-written?

25. What percent of First Nations communities are under long-term boil water advisories?