

Math 8E: unit 9.1: population vs sample

- read WB pg 275
- read MMS9 pg 432, 446
- fill in the chart below

A) Vocabulary:

word	definition
Population	
Sample	
Data	
Statistics	

B) We collect the data through various sampling Methods:

Sampling method	example	Problem or bias with this sampling method
Convenient sampling		
Voluntary response sampling		
Online survey		
Random samples		

C) Factors that can influence data collection:

Factors/influences on data collection	What it means	example
Bias		
Use of language		
Ethics		
Privacy		

Timing		
Cultural sensitivity		
Cost and time		

-do WB pg 278 #1-9: choose 3 from each

Math 8E: Unit 9.2: Probability

A) What does 'probability' mean?

Formula: $P(\quad) =$

Ex: When flipping a coin, what is the probability of getting 'tails'?

Ex: find the $P(\text{male students})$ in Mr. Chan's Math 8 class?.

Ex: When playing 'Dungeons and Dragons, Kyle uses a 6-sided die. What is the probability of him getting a '4' or a '6'?

B) What happens if there are 2 things at the same time?

-these 2 events are considered 'independent events' IF 1 event DOES NOT affect the other event.

-for example, what you get on a 6-sided die has not effect on what you will get when flipping a coin.

-ex: what is the probability of getting 'heads' on a coin toss and '4' on a 6-sided die?

Ex: On a 6-sided die, Anson needs to roll a 2 and a 6 to beat Jade at Yu-Gi-Oh. What is the probability he will roll both of these 2 numbers?

d) Takes out a red ball, and he kicks it down the field. How many balls are left in the field? He wants to pick a basketball. What is the probability of him picking these balls?

Ex: When playing 6/49, you have to get 6 correct numbers out of 49 to win the jackpot. All numbers are in a big barrel, After each number is picked, it is thrown away, and then a new number is picked from the remaining numbers. This happens until all 6 numbers are picked. (ie: 49 possible numbers, then 48, 47, etc)

i) What is the probability of picking a number(any number) each time, out of the 49 numbers and doing it 6 times?

ii) They only pick 6 numbers. The order doesn't matter, so find the probability of picking a specific number from the 6 choices.

iii) divide the number from (i) into (ii). This gives you the number of possible 6 number combinations.

....so, if probability = $\frac{\text{(what you want)}}{\text{number of outcomes}}$ then if P = 0 means something is possible (ie: what you want = 0)
if P = 1 means something is certain (ie: what you want = number of outcomes)

Pg 175 #1, 2, 7
Pg 183 #2-5, 7 8

MMS8 pg 411 #3, 5
pg 420 #4, 7, 8, 11
WB pg 303 #6, 10

Math 8E: Unit 9.3A: Measure of Central Tendency Statistics

A) What is it?

- A **measure of central tendency** is a single value that describes the way in which a group of data cluster around a **central** value. (describes the 'middle' of a set of data or numbers)

-The most common measures of central tendency are the **arithmetic mean**, the **median** and the **mode**.

B) How to calculate the mean, median and mode?

Ex: Here is a list of the Canucks player salary for 2017-2018.

Player	Salary	Position
Eriksson, Loui	\$8 million	Forward
Sedin, Daniel	\$7 million	Forward
Sedin, Henrik	\$7 million	Forward
Horvat, Bo	\$6.5 million	Forward
Edler, Alexander	\$6 million	Defenceman
Tanev, Christopher	\$5 million	Defenceman
Sutter, Brandon	\$4.25 million	Forward
Gudbranson, Erik	\$3.5 million	Defenceman
Markstrom, Jacob	\$3.4 million	Goaltender
Del Zotto, Michael	\$3 million	Defenceman
Nilsson, Anders	\$3 million	Goaltender
Hutton, Ben	\$2.8 million	Defenceman
Gagner, Sam	\$2.75 million	Forward
Dorsett, Derek	\$2.5 million	Forward
Vanek, Thomas	\$2 million	Forward
Baertschi, Sven	\$2 million	Forward
Granlund, Markus	\$0.95 million	Forward
Boeser, Brock	\$0.925 million	Forward
Stecher, Troy	\$0.925 million	Defenceman
Burmistrov, Alex	\$0.9 million	Forward
Virtanen, Jake	\$0.833 million	Forward
Pouliot, Derrick	\$0.8 million	Defenceman
Biega, Alex	\$0.8 million	Defenceman
Gaunce, Brendan	\$0.7 million	Forward

From <http://dailyhive.com/vancouver/canucks-players-salaries-2017>

Math 8E: Unit 9.4: Graphing

A) What are 5 common graphs?

Type of graph	advantage	disadvantage	example
Circle graph			
Bar graph			
Double bar graph			
Line graph			
Pictograph			

B) How to do it?

Ex: there are 28 people in our Math 8 class. Number of people who like:

-chips:

-vegetables:

-popcorn :

-fruit:

-popsicles:

-nuts:

i) Draw a circle graph

ii) draw a bar graph:

iii) line graph:

iv: draw a pictograph:

C) Can graphs be misleading?

-YES!

-how? ...common ways include:

Ex: Blue Power Ranger wants a raise. He draws a line graph showing how many criminals he has caught.
This is his graph: this is his boss' graph:

a) How are the graphs misleading?

b) How can we change them so they are NOT misleading?

Ex: Harry Potter drew a bar graph comparing the power levels of his peers:

-how is the graph misleading?

-WB pg 294 #1-6

- Math 8E: Unit 9.5: Statistics assignment

In a group of 3-4 students, you will complete the following activities:

- 1) Develop a study - determine something your group are interested in proving or inquiring about.
- 2) Develop a question that will help you gather information about your study. The question should have a NUMERICAL response, and is of interest and relevance to you and your peers.
- 3) Write a paragraph discussing how your question will inform your study.
- 4) Write a paragraph discussing the bias and ethics in your study.
-see pg _____ of workbook for ideas)
- 5) Ask a minimum of 15 people your question and keep track of their responses.
- 6) Find the mean, median and mode for the responses.
- 7) Write 2-3 sentences for each measure of central tendency and discuss why each of these could be considered useful in your situation.
- 8) Display the data you collected in two graphs - make one misleading and one that is accurate. The misleading graph should be made purposely misleading to make a point. Write 2-3 sentences explaining how you manipulated the graph to make a point (see pg _____ of your workbook).

Marking Rubric: /20

	4	3	2	1	0
Question for the study. Paragraph on how the question informs the study.	-grammatically correct	Some minor errors.	Major grammatical errors.	Incoherent sentence structure.	Incomplete
Paragraph about bias and ethics.	Grammatically correct. Informative.	Some minor errors.	Major grammatical errors. Uninformative	Incoherent.	incomplete
Found mean, median and mode.	Correctly calculated.	Some minor calculations mistakes.	Combination of minor and major errors.	Does not understand the concepts of mean, median and mode.	incomplete
Discussed why each measure of central tendency could be useful	Correct grammar.	Some minor grammar errors.	Major grammar errors.	Incoherent.	incomplete
Drew and explained graphs (1 misleading and 1 accurate).	Drew 2 graphs accurately. Detailed explanations.	Graphs may have an error. Detailed explanations.	graphs may have a a few errors. Explanations lack detail.	Graphs are incorrect. Explanations lack detail or are incorrect.	incomplete