Key

RANDOM SAMPLES

TERMS TO KNOW:

TERM	DEFINITION	EXAMPLE
Population	An entire group of people or objects.	All students attending CMS.
Sample	A part of the population.	7th grade students at CMS
Unbiased sample	- Representative of the population - Selected at random	Asking every 10th student who enters the building.
Biased sample	Not representative of the population or favors certain parts of the population.	Survey only 7th graders in Ms. Howell's math class.

For each survey topic, determine which set represents the <u>population</u> and which represents a <u>sample</u> of the population.

SURVEY TOPIC	SET A	SET B
dress code changes	The students in a middle school population	The seventh graders in the middle school Sample
Favorite flavors of ice cream	The customers at an ice cream shop in the town sample	The residents of a town population

Determine whether each sample is biased or unbiased. Explain.

Casey surveyed the members of his soccer team to ask them what their favorite sport is. biased - more likely to pick soccer.	An airline is conducting a survey to determine whether people prefer to check their luggage or carry it on. They ask every 10th person that walks into an airport. unbiased - random and large sample
Imani would like to approximate the number of students in her school with part-time jobs. She surveys the 28 students in her math class. biased - not representative of the whole school	An apartment complex manager wants to survey residents about the apartment maintenance service. A survey is sent to 100 randomly selected apartment members. unbiased - random and large sample

THE MEASURES OF CENTER & RANGE

mean, median, and mode are called **measures of center** because they describe the center of a set of data.

TERM	DEFINITION
Mean	the average; the sum of the data divided by the number of pieces of data
Median	the middle number; the value appearing at the center of a sorted version of the list, or the mean of the two central values, if the list contains an even number of values List the numbers **IN ORDER** and then find the **MIDDLE** number.
Mode	the number that appears most often; a data set can have NO MODE, 1 mode, or more than 1 mode.

Range	the difference between the greatest and least data values

PRACTICE: Find the mean, median, mode, and range of each set of data.

A marathon race was completed by 5 participants. These are their completion times in hours.
2.7 8.3 3.5 5.1 4.9

MEAN $\frac{\text{total}}{\#\text{ of data points}} = \frac{24.5}{5} = 4.9$ hrs	MEDIAN 2.7, 3.5, (4.9) 5.1, 8.3 4.9 hrs
MODE no mode	RANGE 8.3 - 2.7 = 5.6 hrs

Points scored in the last 8 football games: 42 35 12 20 30 18 21 30

MEAN $\frac{\text{total}}{\#\text{ of data points}} = \frac{208}{8} = 26$ points	MEDIAN 12, 18, 20, 21, 30, 30, 35, 42 25.5
MODE 30 points	RANGE 42 - 12 = 30 points

The speed in miles per hour of the last 12 cars to pass by a police officer running radar:
68 65 55 74 60 62 72 50 62 66 68 70

MEAN $\frac{772}{12} = 64.3$ mph	MEDIAN 50, 55, 60, 62, 62, (65) (66) 68, 68, 70, 72, 74 65.5 mph
MODE 62 and 68 mph	RANGE 74 - 50 = 24 mph