_____

_____ deal with collecting, organizing, and interpreting data.

A _____ is a method of collecting information.

The group being studied is the _____.

Sometimes the _____ is large. To save time and money, part

of the group, called a _____, is surveyed.

Example 1:

For each survey topic, determine which set represents the population and which represents a sample of the population. Write *population* or *sample*.

Survey Topic	Set A	Set B
1. dress code changes	the students in a middle school _____	the seventh graders in the middle school _____
2. favorite flavors of ice cream	the customers at an ice cream shop in the town _____	the residents of a town _____

Example 2:

Uriel wants to survey students in his school about their favorite and least favorite ice cream flavors. Describe a possible **sample** Uriel could survey instead of surveying the entire school

_____

Populations and Samples

1. _____: A group of people or objects.
2. _____: A part of a population.

	Population	Sample
There are 25 girls on the 7th grade girl's soccer team. There are 220 students in the 7th grade.		
There are 150 marbles in the jar. You randomly select 15 marble.		

3. A sample is considered a _____ when each member of the population has an equal chance of being selected.
4. A _____ is a question that influences an answer by making some answers seem better than other questions.
5. An _____ is a sample that accurately represents a population.
6. For a sample to be unbiased, the sample must be selected at _____ and be _____ enough to provide data that is accurate.
7. A _____ is a sample that favors one or more parts of the population.

You want to find out how many students will attend the next basketball game. You survey 50 students outside of tonight's basketball game.	**Biased** or **Unbiased**
You want to find out which game is the most popular at the school carnival. You walk around the fair and randomly ask 50 people.	**Biased** or **Unbiased**

8. You can make predications about the population based on an _____.
9. The outcome of an unbiased sample is _____ to the outcome from the population.
10. You randomly choose 50 students in your school and ask them what their favorite subject is. Of the 50 students, 20 choose math. If there are 850 students in the school, predict that number of students that would choose math.

Populations and Samples

1. Population: A group of people or objects.
2. Sample: A part of a population.

	Population	Sample
There are 25 girls on the 7th grade girl's soccer team. There are 220 students in the 7th grade.	Students in 7th grade	Girls on the soccer team
There are 150 marbles in the jar. You randomly select 15 marble.	Marbles in the jar	Marbles you select

3. A sample is considered a random sample when each member of the population has an equal chance of being selected.
4. A biased question is a question that influences an answer by making some answers seem better than other questions.
5. An unbiased sample is a sample that accurately represents a population.

6. For a sample to be unbiased, the sample must be selected at random and be large enough to provide data that is accurate.
7. A biased sample is a sample that favors one or more parts of the population.

You want to find out how many students will attend the next basketball game. You survey 50 students outside of tonight's basketball game.	**Biased** or **Unbiased**
You want to find out which game is the most popular at the school carnival. You walk around the fair and randomly ask 50 people.	Biased or **Unbiased**

8. You can make predications about the population based on an unbiased sample.
9. The outcome of an unbiased sample is proportional to the outcome from the population.
10. You randomly choose 50 students in your school and ask them what their favorite subject is. Of the 50 students, 20 choose math. If there are 850 students in the school, predict that number of students that would choose math.

$$\frac{20}{50} = \frac{x}{850}$$
X=340 students

Practice: Populations and Samples

#1 Determine if the question below is biased or unbiased. Justify your answer. *Do you prefer to eat nutritious vegetables or greasy French fries?*	#2 Determine if the sample described below is biased or unbiased. Justify your answer. *You want to find out what restaurant at the Food Court has the best food. You ask every 5th person who enters the Food Court.*
#3 Determine if the sample described below is biased or unbiased. Justify your answer. *You want to find out how many students at your school go to extra help on a regular basis. You ask 50 students who are getting on the late bus.*	#4 You want to find out if the people in your town support the new mayor. What unbiased question would you ask? How would you collect an unbiased sample?
#5 You are collecting data to find out what the most popular lunch choice is. Each lunch period, you ask 15 students who buy lunch. There are 4 lunch periods a day. 25 students choose pizza. If there are about 600 students who buy lunch each day, about how many can you predict will buy pizza?	#6 You want to find out what type of pet is most commonly adopted from the shelter. Over the course of a month, you randomly survey 40 people who have just adopted a pet. Of those 40 people, 23 adopted dogs. If about 4,500 people adopt pets each year, about how many can you predict will dogs?

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Practice: Populations and Samples

#1 Determine if the question below is biased or unbiased. Justify your answer. *Do you prefer to eat nutritious vegetables or greasy French fries?* **Biased because it uses strong adjectives to influence what the person chooses.**	#2 Determine if the sample described below is biased or unbiased. Justify your answer. *You want to find out what restaurant at the Food Court has the best food. You ask every 5th person who enters the Food Court.* **Unbiased because you are randomly selecting people outside of the food court.**
#3 Determine if the sample described below is biased or unbiased. Justify your answer. *You want to find out how many students at your school go to extra help on a regular basis. You ask 50 students who are getting on the late bus.* **Biased because you are only asking students who stayed after school.**	#4 You want to find out if the people in your town support the new mayor. What unbiased question would you ask? How would you collect an unbiased sample? **Answers will vary. Example: "Do you support our new mayor" I would randomly call people who live in the town.**
#5 You are collecting data to find out what the most popular lunch choice is. Each lunch period, you ask 15 students who buy lunch. There are 4 lunch periods a day. 25 students choose pizza. If there are about 600 students who buy lunch each day, about how many can you predict will buy pizza? $$\frac{25}{60} = \frac{x}{600}$$ **X=250 students**	#6 You want to find out what type of pet is most commonly adopted from the shelter. Over the course of a month, you randomly survey 40 people who have just adopted a pet. Of those 40 people, 23 adopted dogs. If about 4,500 people adopt pets each year, about how many can you predict will dogs? $$\frac{23}{40} = \frac{x}{4,500}$$ **X= 2,587.5 dogs** **About 2,588 people will adopt dogs this year**