



7th  
Basic

8th  
Advanced

# Helping With Math

USA  
GRADES

*Suitable for students  
aged 11-13*

## Population vs. Sample



This pack is suitable for learners aged 11-13 years old or 7th to 8th graders (USA). The content covers fact files and relevant basic and advanced activities involving population and sample.

### Population

A population is a specific group that you will gather data from and draw conclusions about.

### Sample

A sample is a portion of the population or a subset of elements from a larger population.

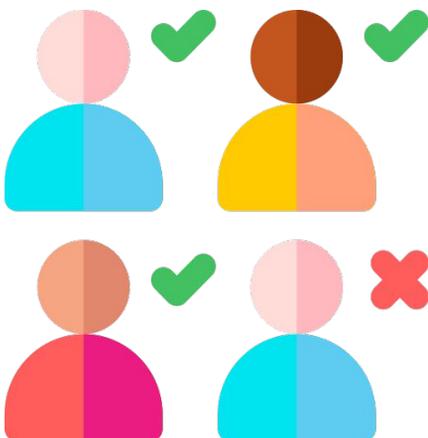


### Population

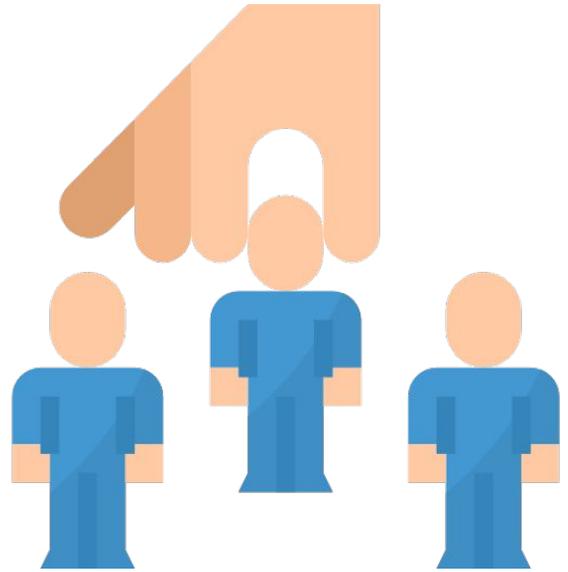
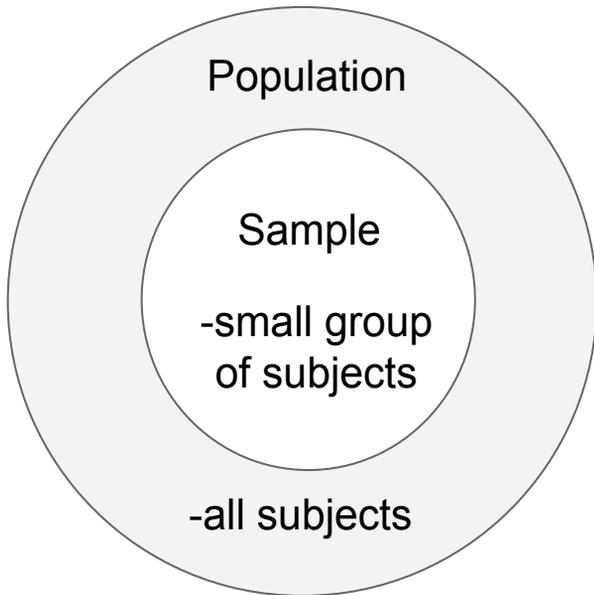
- Complete set
- Used to draw samples

### Sample

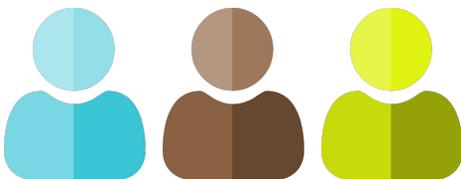
- Always greater than the population
- Doesn't always refer to people



# POPULATION VS. SAMPLE

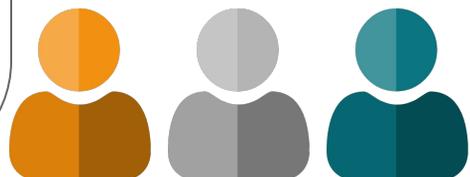


Population	Sample
It contains all members of a group.	It is a portion that represents the entire population.
Parameter	Statistic
Results are a true representation of opinion.	Results have a margin of error and confidence interval.
Deductive or descriptive	Inductive



**Parameter**  
-is a measure which describes the entire population.

**Sample**  
-is a measure which describes the sample.



## EXAMPLE

### Population

Songs from "The Voice USA"

### Population

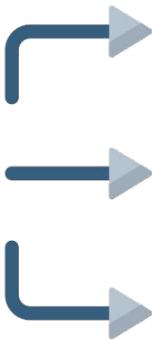
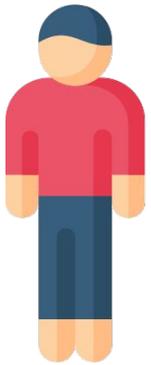
All countries in Asia.

### Sample

Winning songs from "The Voice USA" that were performed by a female.

### Sample

All first world countries in Asia.



### Population

Graduate students in the Philippines

### Sample

350 graduate students from five top 5 universities in the Philippines.

Mr. Anderson, a school principal, asked the students in his school to respond to the question: "What school motto would you suggest for the upcoming school year?" Responders were given several choices and 85% of 1 863 responses chose Motto B.

### Population

All students

### Sample

The 1 863 responses



# TABLE OF ACTIVITIES

<b>Ages 11-12</b> (Basic)		<u>7th Grade</u>
1	Kasper the Reporter	
2	Interview	
3	Big or Small?	
4	Female Journalists	
5	Media Personalities	
<b>Ages 12-13</b> (Advanced)		<u>8th Grade</u>
6	Journalist's Knowledge	
7	Reliable News Contents	
8	Kasper's Survey	
9	Fellow Reporters	
10	A Keen Reporter	



# KASPER THE REPORTER

G7  
Basic

Kasper has a news report today. To be able to get to the newscasting center he needs to identify first which of the statements are correct by writing true and replacing the underlined word/s if false.

1. The sample consists of all members of the group.

2. A population is a subset of the sample.



3. Statistics is a value which describes the sample.

4. A population is always greater than the sample.

5. A parameter is a value which describes the population.

6. In a research with selected samples, deductive method is usually utilized.



# INTERVIEW

G7  
Basic

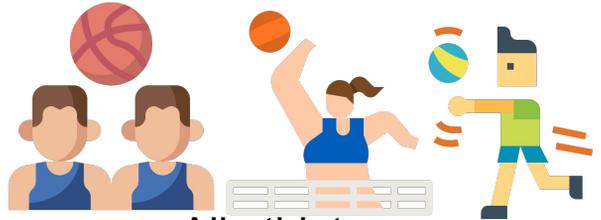
Kasper needs to interview several people for his report. Help him figure out which of the given is the sample and the population.

1.



All weightlifters

Population: \_\_\_\_\_



All athletes

Sample: \_\_\_\_\_

2.



residents of USA

Population: \_\_\_\_\_



residents of New York

Sample: \_\_\_\_\_

3.

Students  
in Ohio  
University

7th grade  
students  
in Ohio  
University



4.

All doctors  
in the  
hospital

Doctors  
who  
perform  
surgery



# BIG OR SMALL?

G7  
Basic

**Kasper is making a documentary in a certain place. However, he should identify first his respondents by identifying which represents the population and sample from each given scenario.**

1. The average height of a female who is buying in a store within 4-hour period was 165 cm.

Population:

Sample:

2. A survey of 2318 residents in Florida found that 43% of the residents own an Ipad.

Population:

Sample:

3. The average salary of employees who serve the company for at least 10 years is \$1250 per month.

Population:

Sample:

4. A survey of 2110 college students found that 11% are working.

Population:

Sample:



# FEMALE JOURNALISTS

G7  
Basic

A group of female journalists need to identify research projects for their TV reports. Help them think by suggesting top 3 interesting topics and identifying its population and sample.

Topic 1:

Population:

Sample:

Topic 2:

Population:

Sample:

Topic 3:

Population:

Sample:



# MEDIA PERSONALITIES

G7  
Basic

A reporter, journalist, or documentarist is also considered a researcher. As a researcher, he/she should know how to answer the following questions below.



When is it appropriate to use population in research? How about sample?

Why is sample used more than a population?

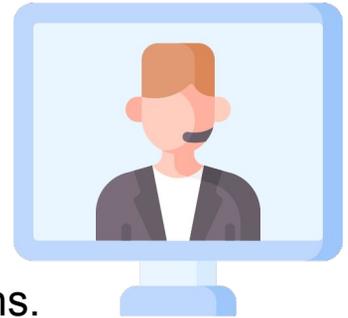


# JOURNALIST'S KNOWLEDGE

G8  
Basic

A good journalist should have a thorough knowledge of his/her reports. Part of this is identifying the best set of people he/she would interact with. Given each scenario, identify which best represents a population or a sample.

1. A clothing company wants to see if people in the Philippines liked the design of their dress. Which of the following best represents a population?  
A. A selection of designers.  
B. Every person in the Philippines.  
C. 500 adults from 45-60 years old.  
D. A selection of buyers from different regions.



2. Before the student's government election in a university, a group of students wanted to see who would win. Which of the following best represents a sample?  
A. A selection of voters from 8th grade.  
B. A selection of female voters.  
C. A selection of voters from different levels.  
D. All the administrators in the university.

3. A bookstore owner is monitoring how many times kids go to his store per month. Which of the following best represents a population?  
A. 300 kids  
B. 400 boys age 9 - 14  
C. Kids aged 11 years old  
D. All kids who go to the store.



# RELIABLE NEWS CONTENTS

G8  
Basic

Reporter's news contents can also be seen in newspapers and numbers written there are true and very important. As a reporter, you should also know how to determine if the number is from a population or sample. Tell if the numerical value is a parameter or statistic. Explain your reasoning.



1. The average score in biology for all graduates on the IT was 23.5.

Explanation:

2. Of all U.S. 8th grade teachers, 42% say that learning the four fundamental operations is important.

Explanation:

3. In the survey of the student council of a school showed that average salary of 5 000 of its 30 000 graduates was \$100 000.

Explanation:

4. The average salary of 50 out of 800 workers in an agency (month) is \$5 000.

Explanation:



# KASPER'S SURVEY

G8  
Basic

**Kasper is tasked to conduct a survey for their news report next week. Given the data of the survey below, help Kasper to identify the population, sample, parameter and statistic.**

1. Out of the U.S. senior citizen population, 28% has a hypertension. A sample of 500 randomly selected senior citizens resulted in 15% reporting a high blood pressure.

Population:

Sample:

Parameter:

Statistic:

2. In a TV News report poll, viewers voluntarily responded to the question "Do you watch TV news report everyday?" Describe each.

Population:

Sample:

Parameter:

Statistic:

3. There are 2 175 students in a university and 68% of them took the math examination. 845 students were randomly selected and found out that that 92% got a score of 85/100.

Population:

Sample:

Parameter:

Statistic:



# FELLOW REPORTERS

G8  
Basic

In the studies conducted by a few reporters, Kasper needs to identify which value represents the sample mean and which represents the claimed population mean to summarize his news report.

1. Households in England spent an average amount of £63 in 2010 on decorations for Christmas. Researchers conducted a survey in 2011 to see if this number had changed. There were 1075 households included in the survey and found that the average amount spent on decorations was £75 per household.



What is the sample mean?

What is the claimed population mean?

2. In a university in Ohio, the average grade of students in 2010 was 3.2. Meanwhile, the average grade of 310 sample surveyed students from the same university was 3.7 in a semester of 2020.

What is the sample mean?

What is the claimed population mean?



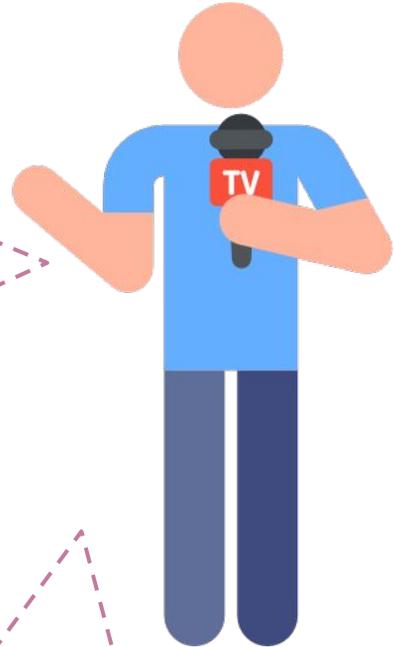
# A KEEN REPORTER

G8

Basic

One of the qualities of a reporter is being keen to find out things. One of Kasper's task is to find out answers for the questions below.

In your own words, differentiate parameter from statistic.



Explain why the parameter is fixed and the statistic varies?



# ANSWER GUIDE

## Activity 1

- |                       |              |              |
|-----------------------|--------------|--------------|
| 1. population         | 3. Statistic | 5. True      |
| 2. sample, population | 4. True      | 6. inductive |

## Activity 2

- |  |   |
|--|---|
| 1. Population: All athletes                | Sample: All weightlifters                                 |
| 2. Population: residents of USA            | Sample: residents of New York                             |
| 3. Population: Students in Ohio University | Sample: 7 <sup>th</sup> grade students in Ohio University |
| 4. Population: All doctors in the hospital | Sample: Doctors who perform surgery                       |

## Activity 3

- |   |   |
|---|---|
| 1. Population: All people buying in the store | Sample: All female who is buying in the store                 |
| 2. Population: All residents in Florida       | Sample: 2318 surveyed residents in Florida                    |
| 3. Population: All employees in the company   | Sample: Employees who serve the company for at least 10 years |
| 4. Population: All college students           | Sample: 2110 surveyed college students                        |

## Activity 4

Answers may vary.

## Activity 5

Answers may vary.



# ANSWER GUIDE

## Activity 6

- 1.) B                      2.) C                      3.) D

## Activity 7

1. Parameter                      2. Parameter                      3. Statistic                      4. Statistic  
Explanations may vary.

## Activity 8

- Population: all U.S. senior citizens  
Sample: 500 randomly selected senior citizens  
Parameter: 28%                      Statistic: 15%
- Population: all viewers of TV News report  
Sample: volunteers that responded to the survey  
Parameter: percent who watch TV News report everyday among all the viewers  
Statistic: percent who watch TV News report everyday among those who responded to the survey
- Population: 2175 students in the university  
Sample: 845 students randomly selected  
Parameter: 68%                      Statistic: 92%

## Activity 9

1. Sample mean: £75                      Claimed population mean: £63  
2. Sample mean: 3.7                      Claimed population mean: 3.2

## Activity 10

Answers may vary.



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