



# Helping With Math

USA  
GRADES

## Statistical Questions

*Suitable for students  
aged 10-12*



This pack is suitable for learners aged 10-12 years old or 6th to 7th graders (USA). The content covers fact files and relevant basic and advanced activities involving statistical questions.

- Statistics is a form of mathematical analysis that utilizes quantified models, representations and synopses for a given set of experimental data or real-life studies.
- It studies methodologies to gather, review, analyze and draw conclusions from data.



### The Two Areas of Statistics

#### Descriptive Statistics

- It deals with methods for collecting, organizing, and describing data by using tables, graphs, and summary measures.

#### Inferential Statistics

- It deals with methods that use sample results, to help in estimation or make decisions about the population.



## BASIC CONCEPTS

# STATISTICS

A branch of mathematics that involves....



*COLLECTING*

The process of obtaining data from a given set of sample/population.

*ORGANIZING*

The process of arranging data through charts, tables, etc.

*SUMMARIZING*

It means contextualizing the data into meaningful information for public.

*ANALYZING*

This refers to examining the relationship, patterns, trends, etc of the given data.

*DECISION-MAKING*

It means being able to draw conclusions, generalizations, prediction, etc.

Statistics is used to explore phenomenon, existing event, or even future events. All questions have answers but not all of them can be called as statistical question.

## Statistical Questions

A question is considered statistical if that requires various answers. The answer can be in a form of percentage, range, interval or average. On the other hand, it is non-statistical if it seeks for exact answer.



## APPLICATION OF STATISTICAL QUESTIONS

Examples of Statistical Questions	Examples of Non- Statistical Questions
<ul style="list-style-type: none"><li>• What do 7th graders prefer for afternoon snacks?</li><li>• What is the usual number of dogs your neighbors have?</li></ul>	<ul style="list-style-type: none"><li>• How old is your dog?</li><li>• What is the name of your classmate on the fifth row?</li></ul>



Create your own example of statistical questions. Write them here:

- 1.
- 2.

To understand more about statistics, you need to familiarize yourself with the following basic statistical terms:

1. **Population** - is the set of all elements (observations), items, or objects that share common characteristic/s and at least one that will be studied their properties for a particular goal.
2. **Sample** - is a subset of the population selected for study.
3. **Element** - (or member of a sample or population) is a specific subject or object about which the information is collected.
4. **Variable** - is a characteristic under study that takes different values for different elements.



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# PRE-RESEARCH TASK

G6  
Basic

Derek and Meredith are research buddies. Before digging in to their research paper, their teacher asked them to complete the task below.

**Task 1:** Create your own concept map that will show the important steps of doing a research using the basic concepts of Statistics.



# IDENTIFYING THE AREA

G6  
Basic

In doing a research, it is important to know which area of Statistics you are targeting. Read and analyze each situation below. Classify them as Descriptive Statistics or Inferential.

1. Alex would like to know the preferred CoVid-19 vaccines of his neighborhood.

2. George wants to determine how many 6th graders are there in the nearby school.

3. Izzie predicts that based on the data, 12% of the active viral cases will decrease net week.

4. Miranda told George that based on the collected data, flu cases will increase next year.

5. Alex and Izzie tell George that the neighborhood is dominated by Hispanic people.

6. Richard reported that there are 450 new cases of CoVid-19 today.

7. Alex told George that based on the data gathered, a one-week lockdown is needed.



# STEP-BY-STEP

G6  
Basic

Using your understanding of Statistics, classify the following scenario if they show the process of collecting, organizing, summarizing, analyzing data, and decision making.

1. Using a table and graphs, she presented the result of her survey to her classmates

2. She was able to create a tally of responses of the people who answered her survey.

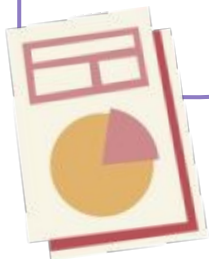
3. She then found out that female respondents spend less sleeping time than the males.

4. Hannah created a survey questionnaire for his research study about the number of sleeping hours of 6th graders.

5. She then told the class that the survey garnered more male respondents than the female ones.

Answer sheet:

- 1.
- 2.
- 3.
- 4.
- 5.



As Derek and Meredith start doing their research paper, they need to formulate first their statement of the problem. Analyze each question carefully. Is it a statistical question? Why or why not?



1. What are the top 3 favorite ice cream flavors of 6th graders in St. John Academy?



2. Do you like cookies and cream ice cream or pistachio ice cream?



3. Are you in favor of building a new ice cream parlor in the nearby park?





# RESEARCH BUDDIES

G6  
Basic

Derek and Meredith want to check each other whether they already know how to make a statistical question. Tell if they are doing it right or wrong.

	1. When is your mother's birthday?
	2. What is your favorite NBA team?
	3. How many hours do you spend in reading books?
	4. How old are you on your next birthday?
	5. How will you rate the following ice cream flavors: mint chocolate, vanilla, strawberry?
	6. What is philosophy?
	7. What apple product do you like the most?
	8. How many cookies can you eat during break?



# REWRITING

G7  
Advanced

The following are non-statistical questions in a research study. Rewrite them as statistical questions.

1. Do you like studying mathematics?



2. How old is your youngest cousin?



3. What is the new Netflix movie?



# IDENTIFYING VARIABLES

G7  
Advanced

Let's take the next step to our research paper. Underline the variable/s being considered in each scenario.

Red is conducting a research about the relationship of age to the hours of screen time among Americans.

1

Mark is interested to conduct a research about the number of Co-Vid 19 survivors in each city of Colorado.

2

Mary is curious about the preferred vaccine brands of the 150 senior citizens in her place.

3

A group of students want to know the average age of their teachers.

4

A couple of Biology students would like to test the effect of newly-invented fertilizer on the plants' growth.

5

Red is conducting a research about the relationship of age to the blood pressure of Americans.

6



# CREATING SURVEY FORMS

G7  
Advanced

It's time to formulate your own statistical questions in order to create a draft for your survey form. Kindly refer to the following research titles.

1. The Preferred Vaccine Brands of the Americans



2. The Relationship of Age to the hours of Screen Time among 7th graders

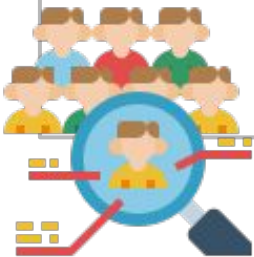


# RESEARCH OUTLINE

G7  
Advanced

**Construct your own research outline. Using the guide below, formulate your research outline.**

1. What are the variables that you will consider on your research?
2. What are your statistical questions? Cite at most three.
3. How will you obtain your data?
4. Who are your respondents?
5. What type of tables/charts will you use to show your findings?



# RESEARCH REFLECTION

G7  
Advanced

Answer the following essay questions briefly and comprehensively.

1. Why is Statistics important in doing a research? Cite at least 3 reasons.

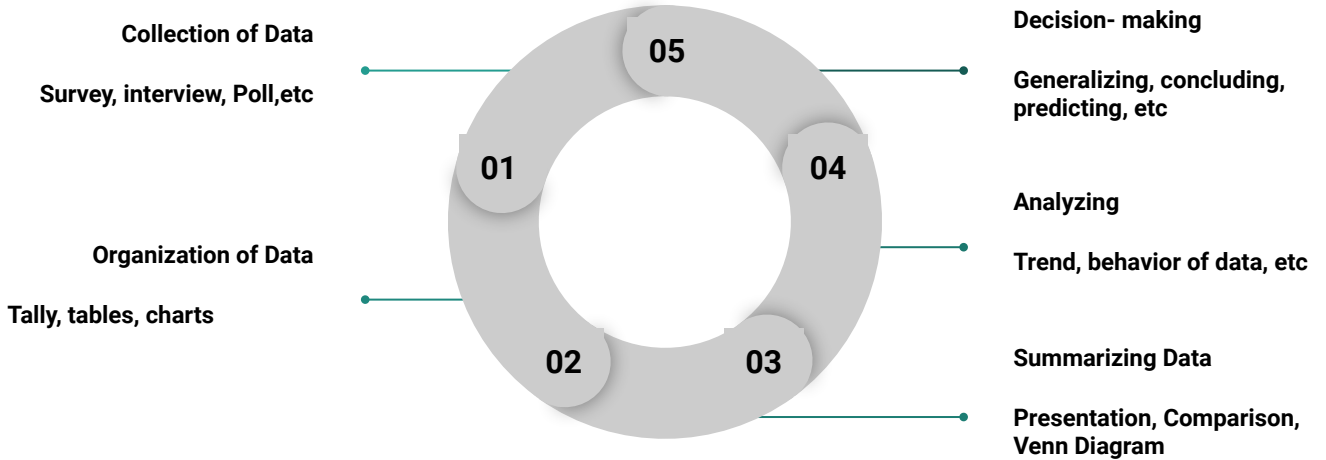
2. Why is Statistics important in doing a research? Cite at least 3 reasons.

3. Why is Statistics important in doing a research? Cite at least 3 reasons.



# ANSWER GUIDE

## Activity 1



## Activity 2

- |                |                |                |
|----------------|----------------|----------------|
| 1. Descriptive | 2. Descriptive | 3. Inferential |
| 4. Inferential | 5. Descriptive | 6. Descriptive |
| 7. Inferential |                |                |

## Activity 3

- |                |               |                    |
|----------------|---------------|--------------------|
| 1. Summarizing | 2. Organizing | 3. Decision-making |
| 4. Collecting  | 5. Analyzing  |                    |

## Activity 4

1. Yes, because it requires various answers per respondent.
2. No, it is a close-ended question.
3. No, it is another close-ended question.



# ANSWER GUIDE

## Activity 5

- |          |          |          |          |
|----------|----------|----------|----------|
| 1. Wrong | 2. Wrong | 3. Right | 4. Wrong |
| 5. Right | 6. Wrong | 7. Right | 8. Right |

## Activity 6

1. In a scale of 1-5, 1 being the lowest and 5 being the highest, how motivated are you in studying mathematics?
2. What is the average age of the first cousins in each family?
3. What are the top three Netflix movies that you preferred the most?

## Activity 7

- |                                     |                                 |
|-------------------------------------|---------------------------------|
| 1. Age, screen time                 | 2. Number of covid 19 survivors |
| 3. Preferred vaccines               | 4. Average age of the teachers  |
| 5. Effectiveness of the new product | 6. Age, blood pressure          |

## Activity 8, 9, & 10

Answers may vary.  
You can check their answers based on its accuracy, relatedness, and coherence.





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