

**Westlake High School**  
**Mathematics Department**  
**IB Math Y2**  
**Topic 4**  
**Descriptive Statistics**



**2025 Summer Packet**  
**Due the First Day of School**

**DIRECTIONS**

Solve all problems. Show all necessary and complete work in PENCIL.  
Write legibly and as neatly as possible.

**Cheating is prohibited!!!**

Name: \_\_\_\_\_ Signature: \_\_\_\_\_

# Topic 4 Part 1 Descriptive Statistics

## Summer Assignment

*Please print this packet using both sides of the paper.*

Name: \_\_\_\_\_

Hello IB Math, Y2! This is part 2 of your summer assignment to accelerate your learning for the upcoming Topic 4 part 1, Descriptive Statistics.

Going into Topic 4, Statistics, you will find that the most challenging parts are not the calculations. This topic is not just about finding numbers but using them and understanding them which may require you to think about math in a different way than you are used to. Topic 4 is also challenging because it introduces you to college level statistics, so you will have to have a college level work ethic.

This packet is due the first week of school in August. It will be graded. You need to get off to a good start so spend some quality time on this packet this summer.

It is a mistake to decide to do this now. Let it go until mid-summer. I want these vocabulary words and some techniques to be relatively fresh in your mind in the fall. Also, do not wait to them at the very last minute. This takes time.

After reading all the material above you should be able to complete the questions in the remaining pages of the packet. You should do so in the spaces provided. For the links that I will provide to assist in understanding, I suggest taking notes from them. Referring to the notes will help you with the questions.

If you have questions about any of these problems, contact me at [burchj3@fultonschools.org](mailto:burchj3@fultonschools.org). Have a good summer and see you in the fall!

Be safe...be motivated...and do the right thing!

Mrs. Burch

# Topic 4, Part 1, Descriptive Statistics Summer Assignment

Dear students,

Welcome to year 2 of IB Math Approaches and Analysis! This summer assignment is your first assignment for year 2. It will be collected via canvas the first week of school, August 2025. There will be a quick check quiz at the end of the first week of school on the topics presented in this summer packet.

The summer assignment is composed of three parts:

1. Reading and vocabulary
2. Practice Problems
3. Quick check quiz (administered upon our return to school; date TBD)

## Part One: **Reading and Vocabulary**

You will use a free online statistical tutoring site that will give you information on variables and data displays. In addition to the free tutoring site, you will also watch two summer assignment videos linked below. While reviewing the information on the tutoring site and videos, you will be completing a vocabulary list (see pages 5-9). You may use other online resources.

### **Summer assignment videos:**

SUMMER VIDEO ONE:

[https://www.youtube.com/watch?feature=player\\_detailpage&v=XPmTISOdPJs](https://www.youtube.com/watch?feature=player_detailpage&v=XPmTISOdPJs)

SUMMER VIDEO TWO:

[https://www.youtube.com/watch?feature=player\\_detailpage&v=j\\_Y\\_0eh-FCQ](https://www.youtube.com/watch?feature=player_detailpage&v=j_Y_0eh-FCQ)

### **Follow the steps below:**

- Go to <https://www.stattrek.com/>
- Click on “Tutorials” then click on “AP Stats”
- Click on “Table of Contents”
- You will complete all the expanded lessons under: The Basics, Charts and Graphs, Regression, and Categorical Data
- You must take notes from each lesson

You will read the following subtopics to help you complete the vocabulary list and work the Practice Problems. If you use any additional sources to define your vocabulary, **you must cite the sources.**

\*\* Some subtopic titles may change, but you should be able to recognize the connections.

**Part Two:** Practice Problems

After reading all of the material above, you should be able to complete the questions in the remaining pages of this summer packet. You should do so in the space provided or use additional paper if needed. You are expected to complete each part of each problem and to construct all data displays neatly and properly.

**Part Three:** Quick Check Quiz (administered upon your return)

\*\* This assignment will be graded and will count as a major grade in the first grading cycle of the school year. If you have any questions during the summer about the assignment, please contact me via my email as I will check this communication once a week. [Burchj3@fultonschools.org](mailto:Burchj3@fultonschools.org)

See you in August!

# AP Statistics Summer Assignment

## Part One Vocabulary List

Please define each of the following terms from the information provided on the stattrek website. When asked for an example, please use an original example not the one from the reading.

1. categorical variables

Example:

2. quantitative variables

Example:

3. discrete variables

4. continuous

5. univariate data

6. bivariate data

7. population

Example:

8. sample

Example:

## AP Statistics Summer Assignment

9. mean

Formula:

10. median

11. mode

12. unimodal vs bimodal

Sketch of each:

13. parameter

14. statistic

15. range

Formula:

16. interquartile range

Formula:

## AP Statistics Summer Assignment

17. outlier

18. descriptive statistics

19. center

20. spread

21. variance

Formula:

22. standard deviation

Formula:

23. symmetry

Sketch:

24. skewness

Sketch Skewed Left:

Sketch Skewed Right:

## AP Statistics Summer Assignment

25. uniform

Sketch:

26. gaps vs outliers

Sketch of each:

27. data displays

**For 28-35 be able to recognize the type of display given a visual and calculate the data attributes.**

28. dot plot

29. bar chart

30. histogram

31. stemplot

## AP Statistics Summer Assignment

32. boxplot

33. pie chart

34. scatterplot

35. frequency table

# AP Statistics Summer Assignment

## Part 2: Practice Problems

### 1. Categorical or Quantitative:

Determine if the variables listed below are quantitative/numerical or categorical/qualitative.

- a. Amount of money earned last week: \_\_\_\_\_
- b. Arm span: \_\_\_\_\_
- c. Birthdate: \_\_\_\_\_
- d. Dominant hand reaction time: \_\_\_\_\_
- e. Favorite sport: \_\_\_\_\_
- f. Height: \_\_\_\_\_
- g. Hours slept per night: \_\_\_\_\_
- h. Language spoken at home: \_\_\_\_\_
- i. Foot length: \_\_\_\_\_
- j. Zip code: \_\_\_\_\_
- k. State of residence: \_\_\_\_\_
- l. Travel method to school: \_\_\_\_\_
- m. Travel time to school: \_\_\_\_\_
- n. Grade: \_\_\_\_\_

### 2. Summary Statistics

#### 2. Summary Statistics

- a. Determine the given statistics from the data below on the number of homeruns that Mark McGuire hit in each season from 1982-2001.

70	52	22	49	3	32	58	39
39	65	42	29	9	32	9	33

Mean	_____
Standard Deviation	_____
Minimum	_____
Maximum	_____
Median	_____
Q1	_____
Q3	_____
Range	_____
IQR	_____

- b. Using the 1.5 IQR Rule, determine if there are any outliers in this data

## AP Statistics Summer Assignment

### 3. Where do older people live?

This table gives the percentage of residents aged 65 or older in each of the 50 states.

State	Percent	State	Percent	State	Percent
Alabama	13.1	Louisiana	11.5	Ohio	13.4
Alaska	5.5	Maine	14.1	Oklahoma	13.4
Arizona	13.2	Maryland	11.5	Oregon	13.2
Arkansas	14.3	Massachusetts	14.0	Pennsylvania	15.9
California	11.1	Michigan	12.5	Rhode Island	15.6
Colorado	10.1	Minnesota	12.3	South Carolina	12.2
Connecticut	14.3	Mississippi	12.2	South Dakota	14.3
Delaware	13.0	Missouri	13.7	Tennessee	12.5
Florida	18.3	Montana	13.3	Texas	10.1
Georgia	9.9	Nebraska	13.8	Utah	8.8
Hawaii	13.3	Nevada	11.5	Vermont	12.3
Idaho	11.3	New Hampshire	12.0	Virginia	11.3
Illinois	12.4	New Jersey	13.6	Washington	11.5
Indiana	12.5	New Mexico	11.4	West Virginia	15.2
Iowa	15.1	New York	13.3	Wisconsin	13.2
Kansas	13.5	North Carolina	12.5	Wyoming	11.5
Kentucky	12.5	North Dakota	14.4		

Finish the chart of bin widths, then fill in the frequency, relative frequency, and cumulative frequency table columns.

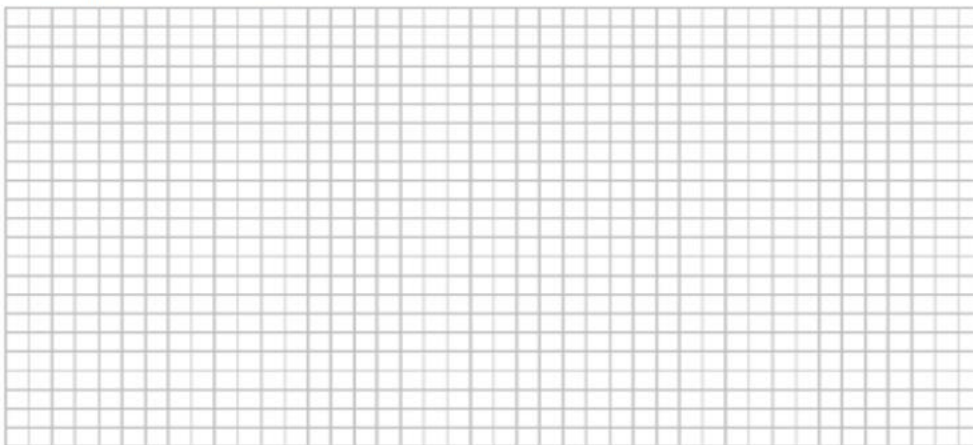
Bin Widths	Frequency	Relative Frequency	Cumulative Frequency
4 to <6			
6 to <8			
8 to <10			

## AP Statistics Summer Assignment

### ACCIDENTAL DEATHS

In 1997 there were 92,353 deaths from accidents in the United States. Among these were 42,340 deaths from motor vehicle accidents, 11,858 from falls, 10,163 from poisoning, 4051 from drowning, and 3601 from fires. The rest were listed as "other" causes.

- Find the percent of accidental deaths from each of these causes, rounded to the nearest percent.
- What percent of accidental deaths were from "other" causes?
- NEATLY create a well-labeled **bar graph** of the distribution of causes of accidental deaths. Be sure to include an "other causes" bar.



- A pie chart is another graphical display used to show all the categories in a categorical variable relative to each other. Create a pie chart for the accidental death percentages. You may try using a software or internet source to make one and paste in the space below. (*Microsoft Excel works well*)

## AP Statistics Summer Assignment

### SHOPPING SPREE!

A marketing consultant observed 50 consecutive shoppers at a supermarket. One variable of interest was how much each shopper spent in the store. Here are the data (round to the nearest dollar), arranged in increasing order:

3	9	9	11	13	14	15	16	17	17
18	18	19	20	20	20	21	22	23	24
25	25	26	26	28	28	28	28	32	35
36	39	39	41	43	44	45	45	47	49
50	53	55	59	61	70	83	86	86	93

a. Make a stemplot using tens of dollars as the stem and dollars as the leaves. Make sure you include appropriate labels, title and key.

### SSHA SCORES

Here are the scores on the Survey of Study Habits and Attitudes (SSHA) for 18 first-year college women:

154 109 137 115 152 140 154 178 101 103 126 126 137 165 165  
129 200 148

and for 20 first-year college men:

108 140 114 91 180 115 126 92 169 146 109 132 75 88 113  
151 70 115 187 104

a. Put the data values in order for each gender. Compute numeral summaries for each gender.

<b>Women</b>		<b>Men</b>	
Mean		Mean	
Minimum		Minimum	
Q1		Q1	
Median		Median	
Q3		Q3	
Maximum		Maximum	
Range		Range	
IQR		IQR	

b. Make parallel boxplots to compare the distributions.