



Warm Up:

Go to student.desmos.com

and type in:

M6KX6G - Block 1

4GY2XK - Block 3

NN4SW7 - Block 4



Announcements

- ◀ Math MAPs are next week on Monday and Tuesday
- ◀ Flashback Fridays will begin this Friday
 - ◀ 10 questions
 - ◀ On SchoolNet
 - ◀ Graded for accuracy
 - ◀ You MAY consult friends, notes, etc.



Unit Map - Statistics

- ▶ **Tuesday - Histograms and Box Plots**
- ▶ Wednesday - Measures of Central Tendency
- ▶ Thursday - Line of Best Fit
- ▶ Friday - Line of Best Fit
- ▶ Monday - Math MAP
- ▶ Tuesday - Math MAP (continued)
- ▶ Wednesday - Friday DC Trip
- ▶ Spring Break
- ▶ Monday - Statistics Review
- ▶ Tuesday - Statistics Test



A brief discussion about women in space

<https://www.npr.org/2019/03/26/706779637/nasa-scrap-first-all-female-spacewalk-for-want-of-a-medium-sized-spacesuit>

Histograms & Boxplots

4/1/2019


NC.M1.S-ID.1 Use technology to represent data with plots on the real number line (histograms, and box plots).



What do we already know?

Histograms & Boxplots





Essential Understanding There are many ways to organize and visually display data. Sometimes it is helpful to organize numerical data into intervals.

The **frequency** of an interval is the number of data values in that interval. A **frequency table** groups a set of data values into intervals and shows the frequency for each interval. Intervals in frequency tables do not overlap, do not have any gaps, and are usually of equal size.



Problem 1 Making a Frequency Table

Baseball The numbers of home runs by the batters in a local home run derby are listed below. What is a frequency table that represents the data?

7 17 14 2 7 9 5 12 3 10 4 12 7 15


The minimum data value is 2 and the maximum is 17. Intervals of 4 seem reasonable. In the first column of the table, list the intervals. Count the number of data values in each interval and list the number in the second column.




- Got It?** 1. What is a frequency table for the data in Problem 1 that uses intervals of 5?

Home Run Results

Home Runs	Frequency
2–5	4
6–9	4
10–13	3
14–17	3



A **histogram** is a graph that can display data from a frequency table. A histogram has one bar for each interval. The height of each bar shows the frequency of data in the interval it represents. There are no gaps between bars. The bars are usually of equal width.





Problem 2 Making a Histogram

Television The data below are the numbers of hours per week a group of students spent watching television. What is a histogram that represents the data?

7 10 1 5 14 22 6 8 0 11 13 3 4 14 5

Know

A set of data values

Need

A histogram of the data values

Plan

Make a frequency table. This will help you construct the histogram.

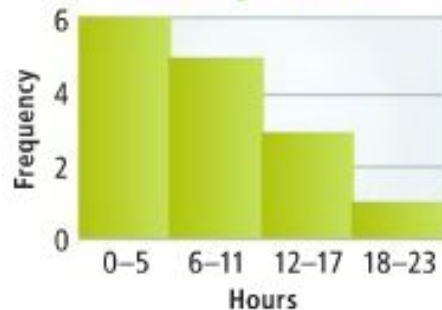
Use the intervals from the frequency table for the histogram. Draw a bar for each interval. Make the height of each bar equal to the frequency of its interval. The bars should touch but not overlap. Label each axis.



Watching Television

Hours	Frequency
0–5	6
6–11	5
12–17	3
18–23	1

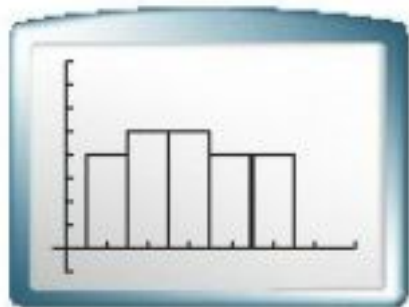
Watching Television



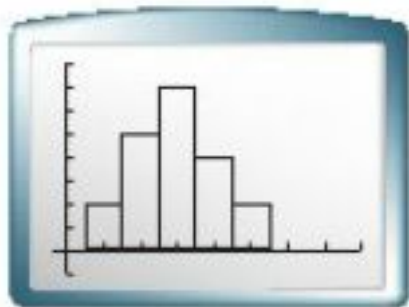
Got It? 2. The finishing times, in seconds, for a race are shown below. What is a histogram that represents the data?

95 105 83 80 93 98 102 99 82 89 90 82 89

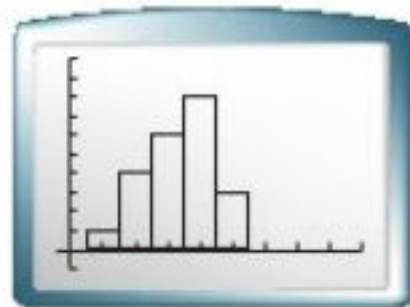
You can describe histograms in terms of their shape. Three types are shown below.



If the bars are roughly the same height, the histogram is *uniform*.



If a vertical line can divide the histogram into two parts that are close to mirror images, then the histogram is *symmetric*.

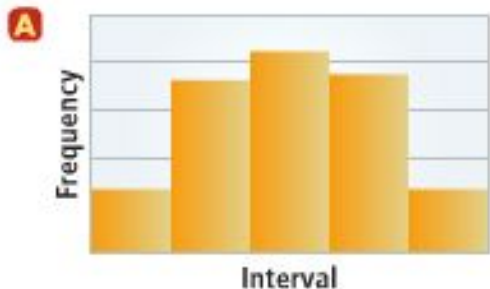


If the histogram has one peak that is not in the center, the histogram is *skewed*.

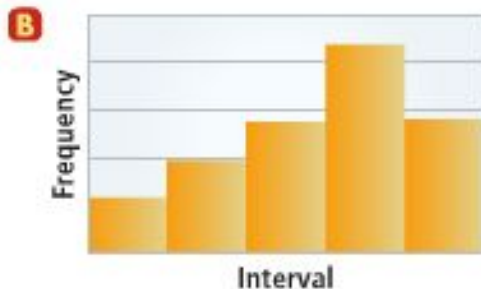


Problem 3 Interpreting Histograms

Is each histogram *uniform*, *symmetric*, or *skewed*?



This histogram is symmetric because the halves are close to mirror images.



This histogram is skewed because the peak is not in the center.



Got It? 3. a. The following set of data shows the numbers of dollars Jay spent on lunch over the last two weeks. Make a histogram of the data. Is the histogram *uniform*, *symmetric*, or *skewed*?

17 1 4 11 14 14 5 16 6 5 9 10 13 9

b. **Reasoning** How much money should Jay plan to bring for lunch next week? Explain your reasoning.



Watch this!

<https://www.youtube.com/watch?v=5IPJjUOqnoA>

When he says “Here’s one to try on your own” you should pause the video and do it.



Making histograms on your calculator

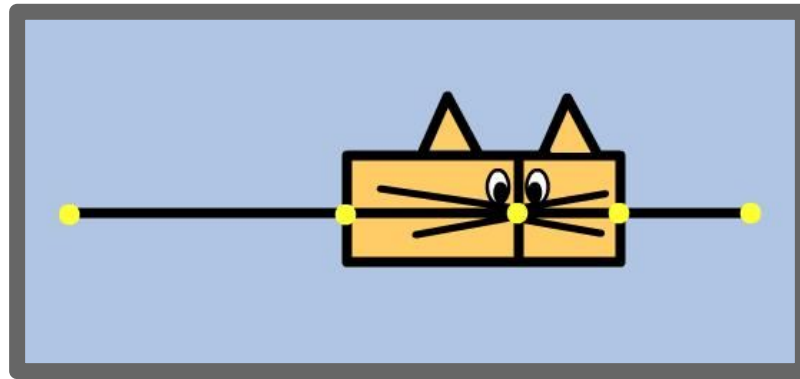
<https://www.youtube.com/watch?v=By0qU-YYBJA>

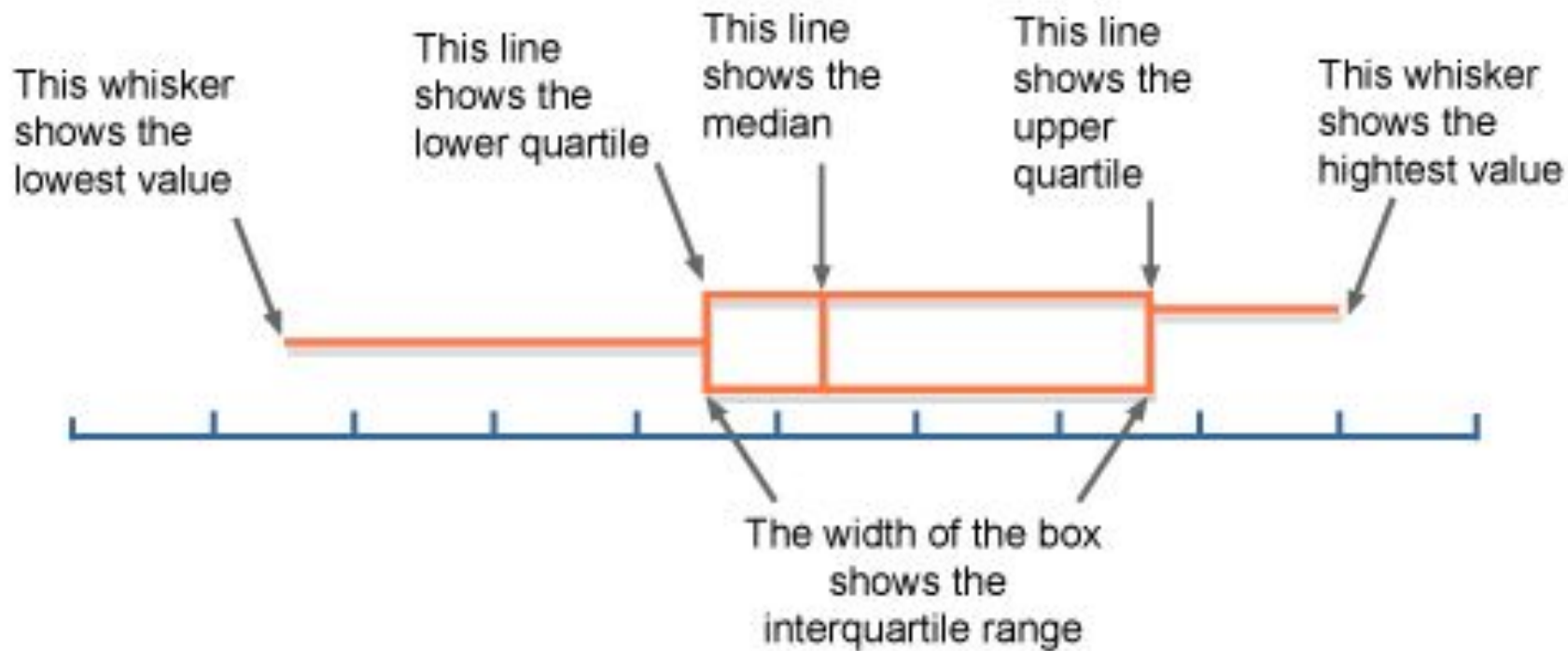


Pause here! Whole class discussion

Shape of histograms - skewed left? Skewed right? Skewed in the direction of the tail!

Box and Whisker Plots







How to make a box and whisker plot

<http://www.brainingcamp.com/lessons/box-and-whisker-plots/lesson.php>





Complete these 10 questions

<http://www.brainingcamp.com/lessons/box-and-whisker-plots/questions.php>





Complete the challenge problems

<http://www.brainingcamp.com/lessons/box-and-whisker-plots/challenge.php>





Box and Whisker Plots on your Calculator

https://www.youtube.com/watch?v=QPxCjO8_FXc

If Time Allows... Create a Poster

Once the class has completed their notes...

- 1) The class will be divided into 4 groups
- 2) Among your group, think of a topic that you would like to collect data for (example - number of snapchat's sent in a day, hours of sleep on an average night, etc...)
- 3) Collect at least 15 data points from your classmates
- 4) On a poster include:
 - a) Your group members names
 - b) Your topic
 - c) The data points you collected
 - d) A box and whisker plot that represents your data

Homework

Page 723 # 7, 10, 14, 18, 21

