

Day 2: Making Sense of Data on a Dot Plot

Example 1: Heart Rate

Mia, a 6th grader at Pine Middle School, wanted to join the track team. She read that Olympic athletes have lower resting heart rates than most people. She wondered about how her own heart rate would compare to other students. Mia was interested in investigating the statistical question: "What are the heart rates of the students in my 6th grade class?"

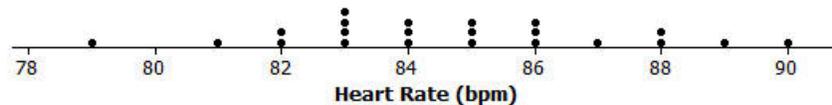
Heart rates are expressed as bpm (beats per minute). Mia knew her resting heart rate was 80 bpm. She collected the heart rates of the other students in her class. The following are the heart rates (in beats per minute) for the 22 other students in Mia's class:

89 87 85 84 90 79 83 85 86 88 84 81 88 85 83 83 86 82 83 86 82 84

To learn about the heart rates, a good place to start is to make a graph of the data.

Mia noticed that there were many different heart rates. She decided to make a *dot plot* to show the different rates. She drew a number line and started numbering from 78 to 90. She then placed a dot above the number on the number line for each heart rate. If there was already a dot above a number she added another dot above the one already there. She continued until she had added one dot for each heart rate in the data list.

Dot Plot of Heart Rate



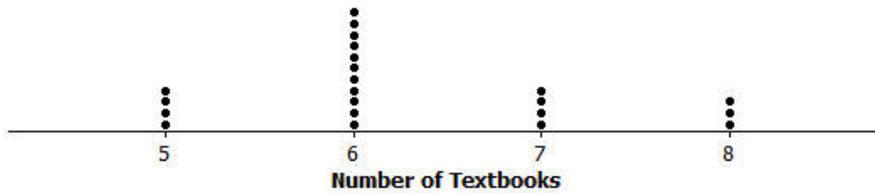
Exercises 1-9. Base your answers to the questions on the dot plot above.

1. What was the heart rate for the student with the lowest heart rate? _____
2. What was the heart rate for the student with the highest heart rate? _____
3. How many students had a heart rate **greater than** 86? _____
4. What **fraction of the students** had a heart rate **less than** 82? _____
5. What is the most common heart rate? _____
6. **What heart rate describes the center of the data?** _____
7. **If Mia's teacher asked what the typical heart rate is for 6th graders in the class, what would you tell Mia's teacher?** _____
8. On the dot plot add a dot for Mia's heart rate.
9. How does Mia's heart rate compare with the heart rates of the other students in the class? _____

Example 2: Seeing the Spread in Dot Plots

Here is a dot plot showing the data collected to answer the question: "How many textbooks are in the desks of 6th graders?"

Dot Plot of Number of Textbooks



When the students thought about this question, many said that they all had about the same number of books in their desk since they all take the same subjects in school.

The class noticed that the graph was **not very spread out** since there were only four different answers that students gave, with most of the students answering that they had 6 books in their desk.

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Another student wanted to ask the question: "How tall are the 6<sup>th</sup> graders in our class?" When students thought about this question, they thought that the heights **would be spread out** since there were some shorter students and some very tall students in class. Here is a dot plot of the students' heights:

**Heights of 6<sup>th</sup> graders**



### Exercises 10-13

Below are four statistical questions and four different dot plots of data collected to answer these 4 questions.

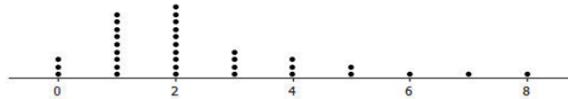
Match each statistical question with the most appropriate dot plot. Explain verbally each of your choices.

10. What are the ages of 4<sup>th</sup> graders in the elementary school? \_\_\_\_\_
11. What are the heights of the players on the 8<sup>th</sup> grade boys' basketball team? \_\_\_\_\_
12. How many hours do 6<sup>th</sup> graders exercise on the weekends? \_\_\_\_\_
13. How many different languages do students in our class speak? \_\_\_\_\_

Dot plot A



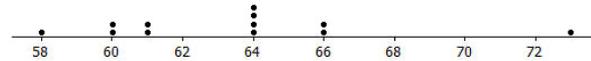
Dot plot B



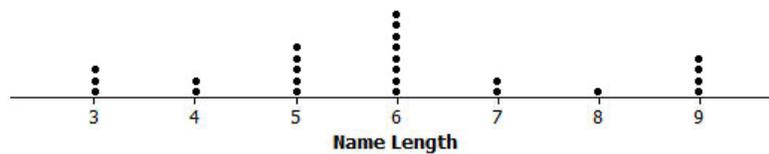
Dot plot C



Dot plot D



A 6<sup>th</sup> grade class collected data on the # of letters in the first names of all the students in class. Here is the dot plot of the data.



14. How many students are in the class? \_\_\_\_\_
15. What is the shortest name length? \_\_\_\_\_
16. What is the longest name length? \_\_\_\_\_
17. What is the most common name length? \_\_\_\_\_
18. What name length describes the **center** of the data? \_\_\_\_\_ letters

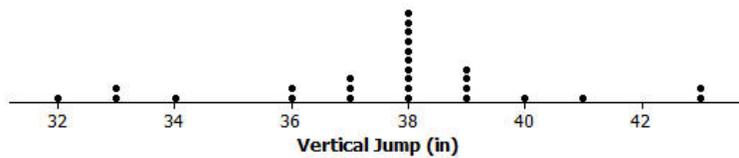
Name: \_\_\_\_\_ Mr. Hoffman grade 6 math

### HOMEWORK for Day 2 Statistics, Making Sense of Data on a Dot Plot

Today the data used to answer the statistical questions were shown in a graph called a \_\_\_\_\_. In this type of graph, a data value is represented by a dot over a number line. The number of \_\_\_\_\_ over the number line at a particular value tells how many of the data points have that value. A dot plot can help you find the smallest and largest values, see how s\_\_\_\_\_ out the data are, and see where the center of the data is.

Q1) The dot plot below shows the vertical jump of some NBA players. A vertical jump is how high a player jumps from a standstill.

Dot Plot of Vertical Jump



- What statistical question do you think could be answered using these data? \_\_\_\_\_
- What was the highest vertical jump by a player? \_\_\_\_\_
- What was the lowest vertical jump by a player? \_\_\_\_\_
- What is the most common vertical jump? \_\_\_\_\_
- How many players jumped that high? \_\_\_\_\_
- How many players jumped higher than 40 inches? \_\_\_\_\_
- Another NBA player jumped 33 inches. Add a dot for this player on the dot plot. How does this player compare with the other players? \_\_\_\_\_

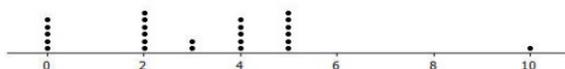
Q2) Listed are two statistical questions and two different dot plots of data collected to answer these questions.

Match each statistical question with its dot plot.

Statistical questions:

- What is the number of fish (if any) that students in class have in an aquarium at their home? \_\_\_\_\_
- How many pockets do the 6<sup>th</sup> graders have in the pants that they are wearing at school on a particular day? \_\_\_\_\_

Dot Plot A



Dot Plot B

