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

UNIT 10 LESSON 2

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| AIM: | SWBAT analyze dot plots  |

**THINK ABOUT IT!**

Mia, a 6th grader at Hartford Middle School, was thinking about joining the middle school track team. She read that Olympic athletes have lower resting heart rates than most people. She wondered about her own heart rate and how it 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?”

Mia collected data on the resting heart rates (in beats per minute (bpm)) of 22 students in her class and recorded them in the dot plot below.





1. Where do the heart rates tend to center? Pick a single value and explain your thinking.

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1. Describe how the data are spread out. Explain your thinking.

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Key Point

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| A dot plot can help you describe data in terms of \_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_. |

**Interaction with New Material**

*Ex. 1)* Karin was interested in learning more about the girls’ basketball team at her school. She posed the statistical question – “What are the heights of the girls on the basketball team?” – and asked the 12 girls on the team. Here are the heights, in inches, of the 12 players: 64, 66, 61, 58, 60, 64, 61, 60, 66, 64, 73, 64

1. Create a dot plot to represent the data above.
2. What amount of water best describes the center of the data? What does the center mean in the context of the problem?

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1. What is the spread of the amount of water drank? What does the spread mean in the context of the problem?

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1. Are there any gaps, clusters, outliers, or peaks in the data? If so, identify each.
	1. Gaps: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Clusters: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	3. Outliners: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	4. Peaks: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Turn to next page ->**

1. Is the data set symmetrical? How do you know?

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**CFS for top quality work**

* + Problem is annotated
	+ Line plot has appropriate **title**, **labels**, **intervals**, and **number of dots**
	+ **Center**, **spread**, **gaps**, **outliers**, **clusters**, and **peaks** are identified

**PARTNER PRACTICE**

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| *Bachelor Level* |

1. Monica created the statistical question “How many hours do 6th graders in our class watch TV on a school night?” She asked the question to every student in her class and created the dot plot below to represent the data.



 Number of hours watched

1. What value best describes the center of the data? Explain.

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1. What is the spread of the data? What does the spread represent in the context of the problem?

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| *Master Level* |

1. At a local hospital, babies in the intensive care unit are given 24-hour attention from doctors and nurses. The staff records the amount of milk babies drink each hour in order to ensure that they are eating properly. The amount of milk consumed by the babies is recorded:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 ½ oz. | 3 ¾ oz. | 2 ¾ oz. | 2 oz. | 3.5 oz. | 3 oz. | 4 ¼ oz. | 3.75 oz. | 3 ½ oz. | 2 ¾ oz. |

1. Create the dot plot below:
2. Are there any clusters in the data set? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Are there any peaks in the data set? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Is the data symmetrical? How do you know? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Are there any gaps in the data set? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. What is the spread of the values in the data set? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What value best represents the center? What does the value mean in the context of the problem?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**INDEPENDENT PRACTICE**

**CFS for top quality work**

* + Problem is annotated
	+ Line plot has appropriate **title**, **labels**, **intervals**, and **number of dots**
	+ **Center**, **spread**, **gaps**, **outliers**, **clusters**, and **peaks** are identified

|  |
| --- |
| *Bachelor Level* |

1. Describe the data below using the vocabulary terms: **cluster, gap, spread, peak, symmetry**

 0 ½ 1 1 ½ 2 2 ½ 3 3 ½ 4 4 ½ 5

Identify clusters in the data set: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Gaps in the data exist at: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The spread of the data is from \_\_\_\_\_\_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. A peak exists at \_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_. The graph \_\_\_\_\_\_\_\_\_\_\_ (is/is not) symmetrical.

1. The dot plot below shows the number of pounds of chocolate Ms. Bloom ate each day.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |

 0 $\frac{1}{10}$ $\frac{2}{10}$ $\frac{3}{10} \frac{4}{10} \frac{5}{10} \frac{6}{10} \frac{7}{10} \frac{8}{10} \frac{9}{10} $ 1

1. Lakyia says that $\frac{5}{10}$ best represents the center of the data because it is right in between 0 and 1. Do you agree or disagree with her claim?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. Which expression(s) represent the spread of the data? Select all that apply.

a) 1 – 0

b) $1-\frac{1}{10}$

c) $\frac{4}{10}$

d) $\frac{9}{10}$

|  |
| --- |
| *Master Level* |

1. Students at AFENYMS participate in a track meet. The frequency table below shows the distance students sprinted in a relay race.

|  |  |
| --- | --- |
| **Distance** | **Frequency** |
| $\frac{1}{5}$ mile | III |
| $\frac{2}{5}$ mile | II |
| $\frac{3}{5}$ mile | I |
| $\frac{4}{5}$ mile | IIII III |
| $1$ mile |  |
| $1\frac{1}{5}$ mile | II |
| $1\frac{2}{5}$ mile | IIII |

1. What statistical question could have been asked?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Create a line plot to represent the data.
2. What kind of data were collected? Numerical or categorical? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What value best represents the center of the data? Explain.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. What is the spread of the data? What does it represent?

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| *PhD Level* |

1. Student scores on a recent test are shown below:

10.5 ft

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **10 out of 12** | **3 out of 4** | **1 out of 12** | **5 out of 6** | **1 out of 2** | **1 out of 4** | **6 out of 8** | **3 out of 12** | **11 out of 12** | **2 out of 3** |

1. What statistical question could have been asked?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Create a line plot to represent the data.
2. What kind of data were collected? Numerical or categorical? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Analyze the data in terms of center, spread, symmetry, gaps, outliers, clusters, and peaks.

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1. Two more test scores were added to the data set – 47 out of 48 and 35 out of 36. What impact do the additional two test scores have on your analysis in part D? Explain.

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**CFS for top quality work**

* + Problem is annotated
	+ Line plot has appropriate **title**, **labels**, **intervals**, and **number of dots**
	+ **Center**, **spread**, **gaps**, **outliers**, **clusters**, and **peaks** are identified

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

**Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**EXIT TICKET**

|  |  |  |  |
| --- | --- | --- | --- |
| Self-assessment | I mastered the learning objective today. | I am almost there.  | Need more practice and feedback. |
| Teacher feedback | You mastered the learning objective today. | You are almost there.  | You need more practice and feedback. |

1. Students recorded how much water they drank during lunch.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| $^{3}/\_{4}$ Liter | $1^{1}/\_{4}$ Liter | $^{5}/\_{8}$ Liter | $^{1}/\_{8}$ Liter | $^{5}/\_{8}$ Liter |
| $1^{1}/\_{4}$ Liter | $^{3}/\_{4}$ Liter | $^{7}/\_{8}$ Liter | $^{5}/\_{8}$ Liter | $^{1}/\_{8}$ Liter |

1. Create a dot plot to represent the data above.
2. What amount of water best describes the center of the data? What does the center mean in the context of the problem?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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1. What is the spread of the amount of water drank? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Are there any gaps, clusters, outliers, or peaks in the data? If so, identify each.
	* Gaps: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	* Clusters: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	* Outliers: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	* Peaks: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Is the data set symmetrical? How do you know?