LESSON MAKER PRO

Data Detective Notes

Find the center, spread, and story in a data set.

GRADE 6 · 6.SP.B.5c

CCSS.Math.Content.6.SP.B.5c "Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations from the overall pattern with reference..."

NAME _____ DATE _____

DESCRIBE THE DATA

Put data in order before finding the median. If there is an odd number of values, the median is the middle value. If there is an even number, average the two middle values. To find the IQR, split the ordered data into lower and upper halves, leaving out the overall median when there is one, find each half's median, averaging two middle values when needed, and subtract Q1 from Q3. MAD is the average distance of the data values from the mean, and center and spread can help you describe clusters and unusually high or low values.

WORKED EXAMPLE

Find the median and IQR of 3, 5, 8, 9, 12, 15, 18, 20.

1. The data are already ordered: 3, 5, 8, 9, 12, 15, 18, 20.
2. Median = (9 + 12) / 2 = 10.5.
3. Q1 = (5 + 8) / 2 = 6.5, and Q3 = (15 + 18) / 2 = 16.5.
4. IQR = 16.5 - 6.5 = 10.

Answer: Median: 10.5; IQR: 10

PRACTICE 6 problems

1 Find the median of 13, 4, 11, 7, 6.

ANSWER _____

2 Find the median of 1, 4, 10, 16, 22, 26.

ANSWER _____

3 Find the IQR of 2, 4, 6, 10, 14, 16, 22, 26.

ANSWER _____

4 Find the IQR of 1, 2, 4, 6, 10, 14, 16.

ANSWER _____

5 Find the mean and MAD of 2, 4, 6, 10.

ANSWER _____

6 The ordered data are 30, 31, 32, 32, 33, 34, 50. Describe the overall pattern and one striking deviation.

ANSWER _____

APPLY IT Show your work

1 A student recorded points earned in seven rounds of a puzzle game: 11, 13, 17, 19, 21, 23, 25. Find the median and IQR. Then describe what the data show about the player's typical score and spread.

WORK SPACE

ANSWER _____

2 Seven students reported the number of minutes they spent editing a video: 24, 27, 29, 31, 33, 35, 60. Find the median and IQR. Then describe the overall pattern and any striking deviation in context.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Two players recorded six practice-session scores. Player A: 40, 42, 44, 46, 48, 50. Player B: 39, 45, 45, 45, 45, 51. Find each player's mean and MAD. Which player had more consistent scores? Explain using the MADs.

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_____

ANSWER KEY

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find the median of 13, 4, 11, 7, 6.	**7**
2	Find the median of 1, 4, 10, 16, 22, 26.	**13**
3	Find the IQR of 2, 4, 6, 10, 14, 16, 22, 26.	**14**
4	Find the IQR of 1, 2, 4, 6, 10, 14, 16.	**12**
5	Find the mean and MAD of 2, 4, 6, 10.	**Mean: 5.5; MAD: 2.5**
6	The ordered data are 30, 31, 32, 32, 33, 34, 50. Describe the overall pattern and one striking deviation.	**Most values cluster from 30 to 34. The value 50 is a striking high value.**

PART 2 · APPLY IT

1. **Median: 19; IQR: 10. A typical score is 19 points, and the middle half of the scores runs from 13 to 23 points. There are no striking deviations.** The middle score is 19. The lower-half median is 13 and the upper-half median is 23, so the IQR is 10.
2. **Median: 31; IQR: 8. Most students spent 24 to 35 minutes editing, and 60 minutes is a striking high time.** The median is 31, Q1 is 27, and Q3 is 35, so the IQR is 8. The value 60 is much higher than the cluster of editing times from 24 to 35.

CHALLENGE

Player A: mean 45, MAD 3. Player B: mean 45, MAD 2. Player B had more consistent scores because Player B's scores have the smaller MAD, so they are typically closer to the mean.

Accept equivalent wording for data descriptions when it correctly identifies the cluster, typical value, spread, and striking high value. For MAD, accept a correct decimal or equivalent fraction.