Lesson 2-10 · Session 1

Mean or Median?

Name _____ Date _____ Period _____

Maryland Standard 6.DS.6d · Learning target — I can choose the mean or the median to describe a data set based on its shape.
Show a model, calculation, or explanation. Answer every part and label units when needed.

Exercises 1–12 earn 1 point for a correct response and 1 for supporting work. Spiral Review and Test Practice earn 1 point each.

Learn from a model

REMEMBER

- Use the MEAN when data is roughly symmetric with no big outliers.
- Use the MEDIAN when data is skewed or has outliers.
- Watch out — reporting the mean for skewed data can describe a value that almost nobody has.
- Check it — if the mean and the median are far apart, the data is skewed and the median is safer.

WORKED EXAMPLE

Choosing Between the Mean and the Median Seven ages at a family party are 8, 9, 11, 12, 13, 15, 72. Which center describes them better?

Step 1 Order the values and look for one far from the rest: 72 sits alone above the group.

Step 2 Find the median: the middle of the seven ordered ages is 12.

Step 3 Find the mean: the ages total 140, and sharing that among seven gives 20.

Step 4 The mean now sits above all but one age, so the outlier pulled it away from the group.

Answer The median, 12, describes a typical age better, because the outlier 72 skews the mean.

Practice

1. A data set of home prices includes one house that costs far more than the rest. Which measure of center should you use, mean or median? Why?

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

2. Test scores: 85, 87, 90, 88, 86 (symmetric, no outliers). Which measure of center is more appropriate? Why?

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

3. For each data set, circle the better measure of center:

a. Symmetric data -> MEAN / MEDIAN
b. Skewed data with an outlier -> MEAN / MEDIAN
Answer _____

SHOW YOUR THINKING

4. Write MEAN or MEDIAN for the better measure of center.

a. 20, 22, 24, 26, 28 _____
b. 20, 22, 24, 26, 500 _____
c. 7, 8, 9, 10, 11, 12 _____
d. 3, 4, 5, 6, 900 _____
e. 61, 63, 65, 67 _____
Answer _____

SHOW YOUR THINKING

5. Comic Book Prices. Five prices are $4, $5, $6, $7, and $53. Find the mean and the median.

Answer _____

SHOW YOUR THINKING

6. Class Heights. Seven heights in centimeters are 148, 150, 152, 154, 156, 158, 160. Find the mean and the median, then say which you would report.

Answer _____

SHOW YOUR THINKING

7. One Long Trip. Six trips took 15, 18, 20, 22, 25, 200 minutes. Find the median and explain why a travel app should post it instead of the mean.
Sentence Frame: "I know this because..."

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

8. Every Value Counts. Zola says the mean is always the best measure because it uses every value. Explain when that strength becomes a weakness, and give an example.

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

9. Ages are 7, 8, 9, 10, and 65. Which measure of center should you report? Explain.

Answer _____ measure and why

EXPLAIN WITH MATHEMATICAL EVIDENCE

10. Scores are 70, 72, 74, 76, and 78. Which measure of center should you report? Explain.

Answer _____ measure and why

EXPLAIN WITH MATHEMATICAL EVIDENCE

11. Pair Them Up. Name the spread measure that goes with the mean, and the one that goes with the median.

Answer _____ both pairs

RECORD YOUR RESPONSE

12. Find the Mistake. A report uses the mean to describe salaries when one executive earns ten times the rest. Explain the problem and name a better choice.

Answer _____ the problem and the fix

EXPLAIN WITH MATHEMATICAL EVIDENCE

Spiral review

13. From Lesson 2-9 Session 1. For 5, 5, 5, 5 what is the MAD?

Answer _____

SHOW YOUR THINKING

14. From Lesson 2-8 Session 2. Three values total 45. What fourth value gives a mean of 15?

Answer _____

SHOW YOUR THINKING

15. From Lesson 2-6 Session 2. Name the two measures that fully compare skewed data.

Answer _____

RECORD YOUR RESPONSE

Test practice

16. A large gap between the mean and the median suggests —

- □ A. no data
- □ B. symmetric data
- □ C. skewed data
- □ D. equal values

17. For data with an outlier, report the —

- □ A. mode and total
- □ B. mean and MAD
- □ C. mean and range
- □ D. median and IQR

18. For symmetric data, report the —

- □ A. mean and MAD
- □ B. median and IQR
- □ C. mode and range
- □ D. min and max

Check and revise

CHECK YOUR MATHEMATICS	HOW DID IT GO?
Explain your choice using the shape or extreme values in the data. Every part answered / Work shown / Units labeled when needed	I can do this: Independently / With a hint / With help Question to revisit: _____

One correction or question I want to discuss: _____

Check one response against the data. State which measure or feature supports your answer.