Lesson 2-1 · Session 1

Statistical Questions

Name _____ Date _____ Period _____

Maryland Standard 6.DS.1 · Learning target — I can tell whether a question is statistical by deciding if the answers will vary.
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

- A statistical question expects different answers when asked to different people or at different times.
- A non-statistical question does not anticipate variability in data.
- Watch out — one measurement of one person or object at one time has one fixed answer. Measurements across people, objects, or times may vary.
- Check it — if you can picture a list of different answers, the question is statistical.

WORKED EXAMPLE

Testing a Question for Variability Is "How many minutes did you spend on homework last night?" a statistical question?

Step 1 Ask: would different people give different answers to this question?

Step 2 Picture real answers: 22 minutes, 47 minutes, 61 minutes. They are not all the same.

Step 3 Answers that vary can be collected as data, so the question is statistical.

Answer Yes. It is a statistical question because the answers vary from person to person.

Practice

1. Write S if the question is statistical or N if it is non-statistical.

a. How many hours did each classmate sleep last night? _____
b. How many hours are in one day? _____
c. How many pets does each student in your class own? _____
Answer _____

RECORD YOUR RESPONSE

2. Explain in one full sentence why question 1b is non-statistical.

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

3. Write your own statistical question about something you could survey your family about. Explain why the answers would vary.
Sentence Frame: "I know this because..."

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

4. Label each question below S for statistical or N for non-statistical.

a. How many minutes does each student spend on chores? _____
b. How many centimeters are in one meter? _____
c. How many books did each sixth grader finish in June? _____
d. How many players may one team have on the field at the start of a standard 11-a-side soccer match? _____

Answer _____

RECORD YOUR RESPONSE

5. Lunch Line. Mr. Okonkwo asks every student in line, “How many minutes did you wait today?” Four students answered 2, 6, 3, and 9 minutes. Is the question statistical? Use these answers to explain.

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

6. Shoe Sizes. Keisha wants to survey her class about shoe size. Write a statistical question she could ask, and explain why the answers would vary.
Sentence Frame: "I know this because..."

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

7. Art Room Supplies. A teacher asks, “How many paintbrushes are in the supply bin?” Decide whether the question is statistical, then rewrite it so it collects answers that vary.

Answer _____

RECORD YOUR RESPONSE

8. Number Answers. Hector says any question with a number for an answer is statistical. Explain his mistake and give one example that proves him wrong.

Answer _____

EXPLAIN WITH MATHEMATICAL EVIDENCE

9. “How many minutes did each sixth grader spend on homework last night?” Is this statistical? Explain.

Answer _____ statistical or not, and why

EXPLAIN WITH MATHEMATICAL EVIDENCE

10. “What is the length of our classroom?” Is this statistical? Explain.

Answer _____ statistical or not, and why

EXPLAIN WITH MATHEMATICAL EVIDENCE

11. Your Turn. Write a statistical question you could ask the students in your math class, and name the data you would collect.

Answer _____ question and data

RECORD YOUR RESPONSE

12. Find the Mistake. Riley asks “What is my height?” and says it is statistical because heights vary. Explain Riley’s mistake and fix the question.

Answer _____ the mistake and a better question

EXPLAIN WITH MATHEMATICAL EVIDENCE

Spiral review

13. Grade 5. Find 7.2 × 4.

Answer _____

SHOW YOUR THINKING

14. Grade 5. Write 0.35 as a fraction in lowest terms.

Answer _____

SHOW YOUR THINKING

15. Grade 5. Find the perimeter of a square with side 9 in.

Answer _____

SHOW YOUR THINKING

Test practice

16. Which is a statistical question?

- □ A. What is my age?
- □ B. What is 5 + 5?
- □ C. Is today Monday?
- □ D. How old is each player?

17. Answers to a statistical question —

- □ A. vary
- □ B. always match
- □ C. are letters
- □ D. are always 1

18. Which data set shows variability?

□ A. 7, 7, 7, 7	□ B. 4, 9, 2, 8
□ C. 5, 5, 5, 5	□ D. 0, 0, 0, 0

Check and revise

CHECK YOUR MATHEMATICS	HOW DID IT GO?
Check that your explanation addresses expected variation. 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.