Statistical Questions

Name: _____	Date: _____	Score: _____ / 24

Quick Review

A **statistical question** is one that you expect to have a **variety of answers** — the data will *vary*. "How tall are the students in my class?" is statistical, because different students have different heights. A **non-statistical question** has just one sure answer: "How tall is the teacher?" has only one value. The key idea is **variability** — if the answers spread out, the question is statistical. Good statistical questions also describe a clear **group** (the students in my class) and one clear **measurement** (height).

◇ **Example:** Is "How many minutes did each student in Grade 6 sleep last night?" a statistical question? Explain.
⇒ Let's think about what answers we would collect. We would ask many Grade 6 students, and each one would probably give a different number of minutes — some slept 480, some 540, some 420. Because the answers *vary* from student to student, this question is statistical. It also names a clear group (Grade 6 students) and one clear measurement (minutes of sleep), which are both signs of a well-built statistical question.

Answer: Yes — statistical (answers vary across students)

PRACTICE

Decide if each question is statistical or non-statistical.

1. How old am I today? _____
2. How old are the students in my class? _____
3. What is the height of the Eiffel Tower? _____
4. How tall are the trees in the school yard? _____
5. How many pets does my best friend own? _____
6. How many pets do the families on my street own? _____
7. What time does the sun rise tomorrow? _____
8. What time do students in Grade 6 wake up on school days? _____
9. How much does this bag of apples weigh? _____
10. How much do the backpacks in my class weigh? _____
11. What is the population of my hometown? _____
12. How many books did each Grade 6 student read this year? _____
13. How many letters are in my first name? _____
14. How many letters are in the first names of my classmates? _____
15. What is today's date? _____
16. How far do students travel to get to school? _____
17. What is the boiling point of water at sea level? _____
18. How many minutes do Grade 6 students spend on homework? _____
19. How many siblings do I have? _____
20. What are the shoe sizes of the players on the team? _____

Word Problems

21. Maria wants to learn about reading habits in her class. She asks, "How many minutes did each classmate read yesterday?" Is this a good statistical question? Explain. _____
22. A coach asks, "How tall is the tallest player on our team?" He thinks this is a statistical question. Is he right? _____
23. Devon surveys his neighborhood and records the number of cars each household owns: $1, 2, 0, 3, 2, 1$. What statistical question could have produced this data? _____
24. Lena wants to rewrite the non-statistical question "How long is my pencil?" so that it becomes statistical. Write one possible statistical question for her. _____

Answer Keys

1. non-statistical
2. statistical
3. non-statistical
4. statistical
5. non-statistical
6. statistical
7. non-statistical
8. statistical
9. non-statistical
10. statistical
11. non-statistical
12. statistical
13. non-statistical
14. statistical
15. non-statistical
16. statistical
17. non-statistical
18. statistical
19. non-statistical
20. statistical
21. Yes — it is statistical
22. No — it is non-statistical
23. “How many cars does each household on my street own?”
24. “How long are the pencils in my classroom?”

Step-by-Step Explanations

1. This has just one sure answer — your own age — so the data does not vary.
2. Different students are different ages, so the answers vary — that makes it statistical.
3. The Eiffel Tower has one fixed height, so there is only one answer.
4. Trees come in many heights, so you expect a variety of answers.
5. One friend has one count of pets — a single answer, so it is not statistical.
6. Each family may own a different number of pets, so the data varies.
7. There is one sunrise time tomorrow, so the answer does not vary.
8. Students wake up at many different times, so you expect a variety of answers.
9. One bag has one weight — a single, fixed answer.
10. Backpacks have different weights, so the data will vary across students.
11. At a given moment a town has one population count, so there is one answer.
12. Different students read different numbers of books, so the answers vary.
13. Your name has a fixed number of letters — just one answer.
14. Classmates’ names have different lengths, so you collect a variety of values.
15. There is exactly one date today, so the answer does not vary.
16. Students live different distances away, so the travel data varies.
17. This is a fixed scientific value — one answer for everyone.
18. Homework time differs from student to student, so the data varies.
19. You have one fixed number of siblings, so there is a single answer.
20. Players wear many different shoe sizes, so the answers spread out.
21. Different classmates read for different amounts of time, so the answers vary. The question also names a clear group (her classmates) and one clear measurement (minutes read), so it is a strong statistical question.
22. There is only one tallest player and one height, so the question has a single answer with no variability. A statistical version would be “How tall are the players on our team?”
23. The data is a list of varying counts collected from a clear group (households on the street) about one measurement (number of cars), so a matching statistical question asks about that group and measurement.
24. To make it statistical, change it from one object to a group of objects. Asking about all the pencils in the classroom gives many different lengths, so the answers vary.

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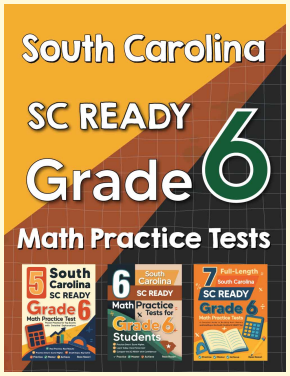

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