



Identifying statistical questions

GRADE 6 MATH

Answer keys for the exit ticket, practice worksheet, and homework, plus notes for the lesson slides. Each answer shows the steps and the most likely wrong answer (“If wrong”), so you can tell what a mistake means, not just that it is one. Questions go from **fluency** to **application** to **reasoning**.

Exit Ticket — answer key

Use: End of the opening Statistics lesson. 5–8 min, independent. Item 4 is the one that shows whether the definition has landed.

Timing: 5–8 min · independent. Watch for the ‘it has numbers so it is statistical’ reason on item 1.

1. “How tall am I?” **FLUENCY**

Answer: **Not statistical**

1. There is one person, so there is one answer.
2. No variability is expected, so it is not a statistical question.

If wrong: Said statistical because height is a number you measure. Numbers alone do not make a question statistical.

2. “How tall are the students in Grade 6?” **FLUENCY**

Answer: **Statistical**

1. Many students, and their heights differ.
2. You expect the answers to vary, so it is statistical.

If wrong: Said not statistical because there is one correct data set. The answers within it still vary.

3. “How many minutes of homework did I do last night?” **APPLICATION**

Answer: **Not statistical**

1. One person, one night — one answer.
2. Nothing varies, so it is not statistical.

If wrong: Said statistical because the answer could be any number. What matters is whether it varies ACROSS the thing being asked about, not whether you happen to know it.

4. Rewrite it as a statistical question REASONING

Answer: **e.g. “How many minutes of homework did each student in our class do last night?”**

1. The original asks about ONE person on ONE night, so it has a single answer.
2. Widen it to a GROUP — every student in the class — and the answers will differ.
3. Widening it over time also works: “How many minutes of homework did I do each night this month?”
4. Either change introduces variability, which is what makes a question statistical.

If wrong: Rewrote it as “How many minutes of homework did the class do in total?” — that is one number again, so it is still not statistical.

Quick answers for fast checking:

#	Level	Answer
1	fluency	not statistical
2	fluency	statistical
3	application	not statistical
4	reasoning	widen to a group or over time

Practice Worksheet — answer key

Use: During the lesson after the deck. Items 5 and 6 are a matched pair — same subject, one fixed in time and one not. Item 9 is the subtlest: small variability is still variability.

Timing: 15–25 min · pairs or independent · circulate on 8 and 9. Insist on a reason every time; the classification alone hides the thinking.

1. “What is my shoe size?” FLUENCY

Answer: **Not statistical**

1. One person, one answer. No variability.

If wrong: Said statistical because shoe size is data.

2. “Shoe sizes of Grade 6 students?” FLUENCY

Answer: **Statistical**

1. Many students with differing sizes, so the answers vary.

If wrong: Said not statistical because there is one correct list.

3. “How many pets does Mr Lee own?” **FLUENCY**

Answer: **Not statistical**

1. One person, one answer.

If wrong: Said statistical because the number is unknown to you.

4. “How many pets do the ProComm members own?” **APPLICATION**

Answer: **Statistical**

1. Many adults in the learning community, and their pet counts differ.
2. You expect variability, so it is statistical.

If wrong: Said not statistical because you could add them into one total. Totalling is something you do AFTER collecting varied answers.

5. “What was today’s high temperature?” **APPLICATION**

Answer: **Not statistical**

1. One place, one day — one answer.

If wrong: Said statistical because temperature changes. It changes across days, but this question fixes the day.

6. “Daily high temperatures in July?” **APPLICATION**

Answer: **Statistical**

1. Thirty-one days, each with its own high, and they differ.
2. Here the variability comes from time rather than from a group.

If wrong: Said not statistical because it is one place. A single place measured repeatedly still produces varying answers.

7. Rewrite “How many books did I read this year?” REASONING

Answer: **e.g. “How many books did each student in our class read this year?”**

1. The original is one person, one year — a single answer.
2. Widen to a group: every student in the class.
3. Or widen over time: “How many books did I read each month this year?”
4. Either way you introduce variability, which is the defining feature.

If wrong: Changed it to “How many books did our class read in total?” — still one number, still not statistical.

8. ‘Any question with a numerical answer is statistical’ — counterexample? REASONING

Answer: **e.g. “How many days are in September?” — numerical but not statistical**

1. “How many days are in September?” has the single answer 30. Numerical, but nothing varies.
2. “What is my shoe size?” works equally well.
3. The real test is not whether the answer is a number. It is whether you EXPECT the answers to VARY.
4. Some statistical questions are not even numerical — “What colours are the cars in the car park?” varies, so it is statistical.

If wrong: Offered an example that does vary, which supports the claim rather than refuting it. A counterexample must be numerical AND non-varying.

9. ‘Not statistical because Grade 6 are all about the same age’ — agree? REASONING

Answer: **Disagree — it is statistical**

1. Ages in one grade still differ: some students are 11, others 12, and birthdays fall across the year.
2. Even if they were close together, the test is whether you EXPECT variability, not whether the variability is large.
3. Small spread is itself a finding — it tells you the data is tightly clustered.
4. A question does not stop being statistical because the answers turn out to be similar.

If wrong: Agreed, reasoning that similar answers mean no variability. Little variability is not the same as none, and the amount is exactly what statistics measures.

Quick answers for fast checking:

#	Level	Answer
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1	fluency	not statistical
2	fluency	statistical
3	fluency	not statistical
4	application	statistical
5	application	not statistical
6	application	statistical
7	reasoning	widen to a group or over time
8	reasoning	e.g. days in September
9	reasoning	disagree — still statistical

Homework — answer key

Use: Parallels the practice sheet. Item 8 is the best single diagnostic in the skill — writing a matched pair requires the definition, not a memorised list.

Timing: ~15 min at home · independent · share two or three item 8 pairs as the next-day warm-up.

1. “My resting heart rate?”

FLUENCY

Answer: **Not statistical**

1. One person, one answer.

If wrong: Said statistical because it is a health measurement.

2. “Resting heart rates of our class?”

FLUENCY

Answer: **Statistical**

1. Many students, differing rates.

If wrong: Said not statistical because there is one correct list.

3. “How long is this pencil?”

FLUENCY

Answer: **Not statistical**

1. One pencil, one length.

If wrong: Said statistical because measuring is involved.

4. “How long are the pencils in the box?” APPLICATION

Answer: **Statistical**

1. Many pencils, and they have been sharpened differently, so lengths vary.

If wrong: Said not statistical because pencils start the same length. They do not stay that way, and the question is about these pencils now.

5. “What time did I wake up today?” APPLICATION

Answer: **Not statistical**

1. One person, one day — one answer.

If wrong: Said statistical because wake-up times change. They change across days, but this question fixes the day.

6. “What time do Grade 6 students wake up?” APPLICATION

Answer: **Statistical**

1. Many students, and their wake-up times differ.

If wrong: Said not statistical because school starts at a fixed time. Start time is fixed; wake-up time is not.

7. Rewrite “How many letters are in my name?” REASONING

Answer: **e.g. “How many letters are in the names of the students in our class?”**

1. The original is one name, one answer.
2. Widen it to a group and the answers vary.
3. The change that matters is going from one case to many.

If wrong: Changed it to “How many letters are in my full name?” — still one answer.

8. Write a statistical and a non-statistical question on one topic REASONING

Answer: **e.g. “How tall are the students in our class?” (statistical) and “How tall is Ana R.?” (not)**

1. Both are about height, so the topic is held constant.
2. The statistical one asks about a GROUP, so the answers vary.
3. The non-statistical one asks about ONE case, so there is a single answer.
4. What separates them is not the topic or the type of answer — it is whether variability is expected.

If wrong: Wrote two questions on different topics, which does not isolate what makes one statistical. Hold the topic fixed and change only the scope.

Quick answers for fast checking:

#	Level	Answer
1	fluency	not statistical
2	fluency	statistical
3	fluency	not statistical
4	application	statistical
5	application	not statistical
6	application	statistical
7	reasoning	widen to a group
8	reasoning	same topic, different scope

Lesson slides — teaching notes & timing

Mini-lesson deck: ~12–15 min, then the practice sheet. Opens the G6 Statistics domain — this definition underpins every skill that follows.

Slide	~Time	Note
1/8	0:00	Frame the domain: statistics is the study of things that vary. If nothing varies there is nothing to study.
2/8	1:00	Hook — show both, take a turn-and-talk. Do NOT resolve. Let them notice the group/individual difference themselves.
3/8	3:00	State the test in one sentence and have them repeat it. Everything in this domain rests on it.
4/8	5:00	WE1 — kill the ‘it has a number’ heuristic explicitly. It is the dominant wrong rule students bring.
5/8	7:00	WE2 — connect variability to the purpose of the whole domain.
6/8	9:00	CFU — all-student response. Answer: not statistical, the day is fixed. Then ask what one word would change it.

7/8	11:00	Both sources of variability. Students reliably find the group case and miss the over-time case.
8/8	13:00	Launch the in-class practice sheet.