Questions With Many Possible Answers

Tell when a question expects different data values

Name: _____ Date: _____

Part 1: Sort the question cards

A statistical question expects data that may vary from person to person or item to item. Read each card. Then sort its letter in the table. The groups and time periods are already stated so you can focus on whether the answers may vary.

Card A
How many letters are in the first name of each student in Ms. Rivera's period 2 class on October 6?

Card B
How many letters are in Jordan Lee's first name?

Card C
On Tuesday, how many minutes did each of the 12 students in the chess club spend reading during lunch?

Card D
What was the outdoor temperature at the school entrance at 8:00 a.m. on Tuesday?

Card E
How many pets does each student in Room 214 have on September 1?

Card F
How many library books did each of the 10 students on the school news team check out during September?

Statistical: answers may vary	Nonstatistical: one definite answer

Check: For a statistical question about people, the data should give a value for *each* person, not only one group total.

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Part 2: Explain and revise

1. Choose two statistical cards from Part 1. For each one, name the card and explain what could vary in the data. Use words such as *some, other, different,* or *may.*

First card: _____

Second card: _____

2. Choose Card B or Card D, a nonstatistical question. Rewrite it so it becomes a statistical question. State a group and ask for each person's or item's value.

3. Why will your revised question have more than one possible answer?

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Answer key and teaching notes

Materials and setup: Print and supply all student pages, keeping teacher-key pages separate. Supply pencils. No cutting is needed: the six bounded question cards are printed in Part 1. If students work in pairs, each student should still write an individual sort and explanations.

Teaching script: Say: “A statistical question is not just a question with numbers. It expects a set of data values that can vary. Look for wording such as ‘each student.’ A question about one named person or one measurement at one stated time has one definite answer.” Read Card A aloud. Ask: “Would every student necessarily have the same number of letters?” Do not state the classification yet. Say: “Sort every card, then use two cards as evidence.”

Observe: While students work, check whether they place one letter in exactly one column and whether they distinguish each person's value from a group total. Ask a student who misclassifies a card: “How many data values would you collect?” Record whether the student independently identifies variable values and writes a revision with a defined group.

1. Sort: Statistical: A, C, E, F. Nonstatistical: B, D. A, C, E, and F request a value for each member of a stated group and those values may differ. B asks about one named person. D asks for one measurement at one place and exact time.

2. Explanation rubric: Each response earns credit when it names a statistical card and explains likely variation across the requested individual values. Sample for A: “Students may have different numbers of letters in their first names. One student might have four letters and another might have seven.” Sample for F: “The news team members may have checked out different numbers of books during September.” C and E have equivalent valid explanations.

3. Revision and reason: Answers vary. Sample revision of B: “How many letters are in the first name of each student in Ms. Rivera's period 2 class on October 6?” Sample reason: “Different students may have first names with different numbers of letters.” Sample revision of D: “What was the outdoor temperature at 8:00 a.m. on Tuesday at each of the five school entrances?” Sample reason: “The temperatures at different entrances may not be the same.”

Acceptance criteria: A complete response correctly sorts all six cards, gives two explanations that mention possible differences in individual values, and revises B or D into a question that names a group or multiple items and anticipates varying values. Do not require students to predict exact values.

Source credit: Original classroom instructional content aligned to NY-6.SP.1.a, “Develop understanding of statistical variability.” Standard supplied at https://lessonmakerpro.com/standards/ny-nextgen-math/ny-6-sp-1-a