

6.SP.1 Identifying Statistical Questions

Task

Which of the following are statistical questions? (A statistical question is one that can be answered by collecting data and where there will be variability in that data.)

- a. How many days are in March?
- b. How old is your dog?
- c. How old are the dogs on this street?
- d. What percent of people like watermelons?
- e. Do you like watermelons?
- f. How many bricks are in this wall?
- g. What was the highest temperature today in town?

IM Commentary

Statistics is the study of variability. Students need to be able to identify and pose questions that can be answered by data that vary. The purpose of this task is to help students learn to distinguish between statistical questions and questions that are not statistical.

A statistical question is one that can be answered by collecting data and where there will be variability in that data. This is different from a question that anticipates a deterministic answer. For example, "How many minutes do 6th grade students typically

spend on homework each week?" is a statistical question. We would answer this question by collecting data from 6th graders, and we expect that not all 6th grade students spend the same amount of time on homework (meaning there will be variability in the data). On the other hand, "How much time did Juana spend on homework last night?" is not a statistical question--it has a deterministic answer and is not answered by collecting data that vary.

(a) through (e) are straightforward enough to be used in an assessment.

(f) and (g) are subject to interpretation and are too ambiguous for an assessment. They are designed for classroom discussion to develop understanding of the nuances of what constitutes a statistical question.

Solution

a. Not statistical. This question is answered by counting the number of days in March. This produces a single number. This question is not answered by collecting data that vary.

b. Not statistical. This question is answered by a single number. It is not answered by collecting data that vary.

c. Statistical. This question would be answered by collecting data, and there would be variability in that data.

d. Statistical. This question would be answered by collecting data, and there would be variability in that data.

e. Not statistical. This question is answered by a single response. It is not answered by collecting data that vary.

f. Not statistical. This question would be answered by counting the bricks. This produces a single number. This question is not answered by collecting data that vary. However, in practice the question might be answered statistically using random sampling but this is not built in the premise.

g. Technically non-statistical (there is one highest temperature), although in practice

the question might be based on measurements from multiple thermometers in different locations, and in this case could be viewed as a statistical question.



6.SP.1 Identifying Statistical Questions
is licensed by Illustrative Mathematics under a
Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License