

Rubric – Favorite Activity

Solution

- What is your favorite activity? Circle one: Kickball Tennis Yoga Dance
- Number the list of all students at the school from 1 to the total number of students (N), with one number beside each name. Then use a random number generator to select 100 distinct integers between 1 and N. The students with names next to these 100 integers on the list will be in the random sample.
- A table with two columns, one for type of activity and one for the count, would be formed to summarize the votes. For example, here is one possible solution:

Favorite Activity	Count
Kickball	48
Tennis	6
Yoga	28
Dance	18

- The student council should recommend the most popular choice, kickball, with 48 votes.

Scoring

Part (a) is scored Essentially Correct (E), Partially Correct (P), or Incorrect.

Essentially correct if the survey question is understandable and will provide appropriate data for addressing the statistical question of interest.

Partially correct if the survey question is incomplete or unclear.

Incorrect if the survey question will not provide appropriate data for addressing the statistical question of interest (e.g., contains bias towards a particular activity).

Note: Survey questions should be appropriate for a formal setting. For example, texting abbreviations are not appropriate and should be scored partially correct.

Part (b) is scored Essentially Correct (E), Partially Correct (P), or Incorrect.

Essentially correct if the process described provides a random sample of 100 students from the entire school and can be implemented by the reader.

Partially correct if the process described provides a random sample but the description of the sampling process cannot be implemented after a careful reading OR a random

sampling process is described thoroughly but the sample is drawn from a subset of the population.

Incorrect if the process described provides a convenience sample or does not use randomization in any way (e.g., the first 100 students who arrive to lunch).

Notes:

1. A response that mentions sample size but doesn't explicitly reference the population may be scored partially correct. For example, "randomly select 100 students" would be scored partially correct, but "randomly select" would be scored incorrect.
2. It is not necessary to stratify the population (e.g., by grade or gender) but it is acceptable.

Parts (c) and (d) are scored Essentially Correct (E), Partially Correct (P), or Incorrect.

Essentially correct if the response includes: (1) a clear description of a frequency table OR a bar chart with scale, variables, and labels added OR a pie chart with a title and labels and (2) a student council recommendation that is consistent with and clearly linked to the table or graph in part (b).

Partially correct if one of the two parts is essentially correct. For example, if the table/graph does not include labels or scales OR no justification is provided for the student council recommendation OR the student council recommendation is inconsistent with the table/graph OR the table/graph is reasonable but no recommendation is given OR the table/graph is unreasonable but the recommendation given is consistent with table/graph.

Incorrect if neither of the two parts is correct.

Note: If frequencies are provided, their total should be 100. For scoring purposes, accept totals within 10 of 100.

The overall score is based on the performance for each of the three parts.

4 Complete Response

All three parts essentially correct

3 Substantial Response

Two parts essentially correct and one part partially correct

2 Developing Response

Two parts essentially correct and one part incorrect

OR

One part essentially correct and one or two parts partially correct

OR

Three parts partially correct

1 Minimal Response

One part essentially correct and two parts incorrect

OR

Two parts partially correct and one part incorrect