

The rubric on this exam awards components, not sentences. Almost every lost point is a component that was nearly satisfied – a condition unverified, a conclusion without context, a parameter not defined. Everything below is a rule the readers actually apply. “,”:

How the rubric reads your answer

- ✗ Writing ‘yes’ or ‘no’ as the answer to a choice question.

✓ **Name the choice and give the statistical reason for it.**

The guidelines state a bare yes or no is not sufficient to indicate a choice.

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SG2019 Q5
- ✗ Showing the final number of a calculation with nothing behind it.

✓ **Show the formula with the numbers substituted, or at least two terms of the sum.**

The readers require actual numbers, or a formula with numbers plugged in, to satisfy the component.

SG 4 years
- ✗ Panicking over an arithmetic slip and starting again.

✓ **Keep going. An arithmetic or transcription error is ignored WHEN the correct work is shown.**

Stated explicitly in the additional notes of several years’ guidelines.

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SG 3 years
- ✗ Rounding a slope of 3.7455 to 4.

✓ **Keep enough figures to be recognisable: 3.746, 3.75 or 3.7 are accepted, 3 and 4 are not.**

The guidelines give exactly this list – over-rounding destroys the numerical requirement.

SG2022 Q1
- Answer in the units the question uses. A response about a population PERCENTAGE must use per-centages; one about a PROPORTION must use proportions.

SG2021 Q4

3 · Collecting Data

- ✗ Saying a sampling method is ‘biased’ and stopping.

✓ **Name the direction: ‘richer people are more likely to respond, so income will be overesti-mated.’**

The readers accept either direction, but it must be stated and must be consistent with the bias identified.

SG2018 Q3
- ✗ Describing a random selection without saying numbers are not reused.

✓ **State it: ‘ignore repeats’ or ‘select without replacement’.**

The guidelines state a response that does not indicate selection without replacement does not satisfy the component.

SG2016 Q2
- ✗ Describing a randomisation with slips of paper and not saying what is written on them.

✓ **Say how many slips carry each treatment label.**

To satisfy the component some slips must be labelled or assigned to represent each treatment.

SG2019 Q3
- ✗ Claiming an advantage of a matched-pairs design that a completely randomised design also has.

✓ **Name something only pairing gives: it removes the variability between subjects.**

The guidelines require the stated advantage to be true for matched pairs and NOT true for a completely randomised design.

SG2017 Q4
- ✗ Explaining a result by ‘a confounding variable’ with no variable named.

✓ **Name a plausible one and say how it would affect both variables.**

The readers note a response may or may not identify a specific confounding variable – naming one is what makes the explanation complete.

SG2015 Q5
- 1 · Exploring One-Variable Data

✗ Describing a distribution with one feature.

✓ **Shape, centre, spread – and any outliers – in context.**

The rubric awards each separately, so a response naming only the shape scores one component of several.

CED 1.6

✗ Giving a standard deviation with no units or an implausible magnitude.

✓ **Check it against the data range: for that context the value had to lie between 25 and 100 square feet.**

The guidelines set an acceptable interval – a value outside it fails the component even if the method was right.

SG2020 Q1

2 · Exploring Two-Variable Data

✗ Interpreting a slope as ‘when x goes up, y goes up’.

✓ **Give the number, the units and the word ‘predicted’: each extra hour predicts an increase of 3.75 points.**

The rubric requires the numerical value with a clear interpretation in context.

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SG2022 Q1

✗ Naming the response variable so loosely that it could mean something else.

✓ **Be specific: ‘the number of insects alive in the treated plot’, not ‘the number of insects alive’.**

The readers reject the vaguer wording because it could refer to the total number of insects.

SG2019 Q1

✗ Reversing the numerator of a z -score.

✓ $z = \frac{x - \mu}{\sigma}$ – **observed minus expected, in that order.**

The guidelines call this out as an error that, alone, is treated leniently but is poor communication when the response is scored holistically.

z

SG2021 Q1

5 · Sampling Distributions

✗ Writing ‘the sample is large enough’ as the condition check.

✓ **Verify it with numbers: $np = 40 \geq 10$ and $n(1 - p) = 60 \geq 10$.**

The guidelines state that stating the large-sample condition without verification is not sufficient.

SG2019 Q4

✗ Checking a condition that does not apply to the procedure.

✓ **Check the conditions of the test you are running, and no others.**

The readers treat an inappropriate check as a fault, not as harmless extra work.

SG2019 Q4

✗ Asserting independence because the sample is random.

✓ **State the 10% condition: the population must be at least ten times the sample.**

The guidelines require the population to be extremely large relative to the sample for the independence condition to be satisfied.

10%

SG2021 Q5

6 · Inference for Categorical Data: Proportions

✗ Writing H_0 and H_a with no words and no context.

✓ **Define the parameter first: ‘ p = the proportion of ALL students at this school who...’**

The components may be satisfied without a symbol, but the parameter and its population have to be identifiable.

SG2023 Q4

✗ Stating one alternative hypothesis and computing a p -value for a different one.

✓ **Keep them consistent – a one-sided H_a takes a one-sided p -value.**

The guidelines state that where an incorrect alternative is given, the p -value must still be consistent with it.

p

SG 4 years

✗ Comparing a two-sided confidence interval with a one-sided test.

✓ **Match them: a one-sided test at 5% corresponds to a 90% two-sided interval.**

The readers set out exactly which interval is accepted for which test.

SG2021 Q4

✗ Naming the test but also writing a formula that belongs to another one.

✓ **Name it and write its own formula, or write neither.**

The guidelines state that a correct name with an incorrect formula does not satisfy the component.

SG2020 Q5

7 · Inference for Quantitative Data: Means

✗ Ending a test with ‘reject H_0 ’.

✓ **Add the conclusion in context: ‘there is convincing evidence that the mean drying time is less than 30 minutes.’**

The decision and the contextual conclusion are separate components, and an inconsistent pair fails both.

SG 4 years

✗ Writing that the test ‘proves’ the claim.

✓ **Say there is, or is not, convincing evidence.**

A test provides evidence; the rubric’s wording is what the reader looks for.

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CED 7.2

✗ Discussing the accuracy or validity of the test where an inference was asked for.

✓ **Make the inference about the POPULATION, and say so.**

The guidelines state such a response does not satisfy the component unless it is clear the inference is about the population.

SG2018 Q4

8 · Inference for Categorical Data: Chi-Square

✗ Reporting relative frequencies to one decimal place, or as vague fractions.

✓ **Report them accurately, and to at least the precision the rubric expects – 0.7 and 0.6, stated as such.**

The guidelines require numerical values for relative frequencies to be accurately reported to satisfy the component.

SG2022 Q1

- ✗ Calling counts ‘proportions’ without giving proportion values.
 - ✓ **Use the word that matches the numbers you are giving.**
The readers require the values to match the term used – proportions need proportion values.
- SG2022 Q1

4 · Probability, Random Variables, and Probability Distributions

- ✗ Writing an expected value as a single final number.
 - ✓ **Show the pattern:** $1(0.68) + 5(0.2) + \dots$, **with at least two terms visible.**
The guidelines require at least two terms of the sum to show the pattern.
- SG 3 years
- ✗ Using calculator shorthand with no boundaries stated.
 - ✓ **‘normalcdf’ is accepted as the distribution, but the lower and upper bounds must be stated.**
The guidelines accept the notation and still require the boundary values.
- SG2019 Q3
- A sketch of the distribution with the region shaded is worth the seconds it takes. It shows the reader the boundary and the direction you intended.
- CED 4.9