Year 9 | Statistics

Survey methods and bias

Learn and practise | Free preview

A sample from this topic. The complete topic collection contains three different resources and worked solutions.

Read the explanation and worked example. Show your working; use a calculator only where asked.

What you will practise

• Evaluate how survey design influences estimates and reported conclusions.

• Explain a method and check the reasonableness of a result.

Useful starting skills: Use the prerequisite operations and representations shown in the worked example.

A survey conclusion depends on how participants were selected, how questions were worded and who did not respond. Reported sample means or medians estimate a defined population, not every possible group.

Graphs can emphasise a viewpoint through scales, selected categories or omitted context. Compare the displayed evidence with the claim being made.

Worked example

A study of all students surveys only volunteers from the chess club. Identify the limitation.

The sample excludes many students and is self-selected.

Club membership may relate to the measured variable.

Answer: The results cannot confidently represent the whole school.

Try it yourself

Name: _____ Date: _____

1. A survey asks age group and weekly study minutes. Classify the variables.

2. Which sampling method is less biased: random student IDs or first 20 cafeteria arrivals?

Answers and explanations

Check the method as well as the final answer. An alternative correct method is also valid.

1. Age group categorical; minutes numerical

Categories label groups; minutes measure a quantity.

2. Random IDs, assuming coverage and response

Arrival time may relate to student characteristics.

Curriculum reference: VC2M9ST01; VC2M9ST02

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