06 / STUDENT ACTIVITY

Can an average hide the story?

Suggested MYP Years 2-4 | 30 minutes | Statistics

Name: _____ Class: _____ Date: _____

Inquiry question

Which average best describes a typical journey when one result is unusually large?

These are fictional journey times in minutes for seven students: 8, 9, 10, 10, 11, 12, 45. Use only the supplied data; you do not need to collect personal information.

You need: Calculator; paper

1. Calculate the mean and median. Decide which better communicates a typical journey and justify your choice.

2. Represent the data on a number line and explain why the two averages differ.

3. Replace 45 with 15, then with 90. Track which statistics change.

4. Write an honest two-sentence summary that includes both typicality and the unusual journey.

Record your investigation

Use the space below and extra paper for diagrams, tables, calculations and your conclusion.

Exit response: What did you revise, and what evidence changed your mind?

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Teaching purpose

Students must make and defend a statistical choice, rather than treat every average as an interchangeable calculation.

Expected findings / checked solution

The original total is 105, so the mean is 15 minutes and the median is 10. Replacing 45 with 15 gives a mean of 75/7, about 10.71; replacing it with 90 gives 150/7, about 21.43. In both cases the median remains 10. The median describes the centre of this skewed sample usefully, but the long journey is relevant and should not simply be deleted.

Neutral teacher prompt

What question does your chosen average answer, and what information does it conceal?

Support

Order the data physically using number cards.

Extension

Investigate the effect on mean and median of adding the same value to every observation.

Suggested lesson rhythm

Launch for 5 minutes; explore for 15 minutes; compare approaches for 7 minutes; finish with a 3-minute exit response.

Formative evidence

Look for chosen methods, defined variables, independent checks and explanations. These are teaching activities, not IB-issued assessments or automatic criterion scores. Use current school assessment guidance for summative work.

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