Planning, conducting and reporting a fair investigation

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. Write a precise question about Year 8 journeys to school. [2 marks]

Define the variable, unit and target group.

Answer: For example: “How long in minutes is the usual one-way journey for Year 8 students enrolled here this term?”

2. Choose a better frame: a complete Year 8 roll or a list from one bus stop. Explain. [2 marks]

It can include walkers, cyclists, car passengers and bus users.

Answer: The complete Year 8 roll.

3. Find mean and range for the supplied journey data. [3 marks]

Original practice data: one-way journey times for eight sampled students

Code	Minutes
A	5
B	10
C	10
D	15
E	15
F	15
G	20
H	30

$120 \div 8 = 15$.

$30 - 5 = 25$.

Answer: Mean 15 minutes; range 25 minutes.

4. Compare the mean and median in the supplied data. [2 marks]

Original practice data: one-way journey times for eight sampled students

Code	Minutes
A	5
B	10
C	10
D	15
E	15
F	15
G	20
H	30

The fourth and fifth values are 15; the mean is $120 \div 8$.

Answer: Both are 15 minutes.

5. Suggest a display for the eight times and explain. [2 marks]

Use a numerical display that retains variation.

Answer: A dot plot shows individual times, repeated values and spread.

6. Write a cautious conclusion and one improvement. [3 marks]

Original practice data: one-way journey times for eight sampled students

Code	Minutes
A	5
B	10
C	10
D	15
E	15
F	15
G	20
H	30

Separate the sample result from the whole group and address small size.

Answer: These sampled times centre near 15 minutes but vary; a larger random sample across the year group would strengthen a population estimate.