

GRADE 8 | 2024

Data Handling & Probability

Mathematics

CAPS ALIGNED

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1. Data Collection and Organisation

Data can be collected through surveys, experiments or observation. Data must be organised before it can be analysed.

- Tally table: quick way to count frequencies
- Frequency table: shows how many times each value occurs
- Stem-and-leaf plot: organises data to show distribution
- Bar graph, histogram, pie chart: visual displays of data

2. Measures of Central Tendency

FORMULA: Mean (average) = sum of all values / number of values

Median = middle value when data is arranged in order

Mode = the value that occurs most often

EXAMPLE: Find mean, median, mode

Data: 3, 5, 7, 5, 9, 5, 11

Mean = $(3+5+7+5+9+5+11)/7 = 45/7 = 6.4$

Median (arrange): 3, 5, 5, 5, 7, 9, 11 → middle = 5

Mode = 5 (appears 3 times)

3. Measures of Spread

FORMULA: Range = Maximum value - Minimum value

The range tells us how spread out the data is.

4. Probability

FORMULA: $P(\text{event}) = \text{number of favourable outcomes} / \text{total number of outcomes}$

Probability is always between 0 (impossible) and 1 (certain).

EXAMPLE: Probability

A bag has 3 red, 5 blue, 2 green balls.

$P(\text{red}) = 3/10$

$P(\text{not green}) = 8/10 = 4/5$

KEY POINT: Complementary probability: $P(A) + P(\text{not } A) = 1$