

Estimation station and class survey for IGCSE and GCSE

IGCSE Math Revision · IGCSE and GCSE (Higher and Extended) · Student sheet

Name _____

Class _____

Date _____

The starter is non-calculator. A calculator is allowed in the main activity.

Starter (5 minutes)

1. Estimate 49.8×20.3 by rounding each number first.
2. Estimate $(612 + 389) \div 4.9$.
3. A student estimates that a corridor is 30 m long. It is really 24 m. By what percentage of the true length was the estimate out?

Main activity (35 minutes)

Task A: Estimation station

At each station, write your estimate first, then measure. These are one group's results.

- a. A student estimated that a desk is 90 cm long. It measured 120 cm. Find the percentage error of the estimate.
- b. Five estimates of the number of counters in a jar were 150, 210, 180, 260 and 200. There are 196. Find the mean of the estimates, and its percentage error to 1 decimal place.
- c. A book is 7.4 cm thick, measured to the nearest millimetre. Write down the error interval for its thickness T cm.

Task B: Class survey: hand spans and travel times

Made-up data from a class of 10 (hand spans in cm): 18, 20, 19, 22, 21, 17, 20, 23, 19, 21. A class of 25 recorded how long their journey to school takes:

Time, t minutes Frequency

$0 < t \leq 10$	6
$10 < t \leq 20$	9
$20 < t \leq 30$	7
$30 < t \leq 40$	3

- Find the mean, the median and the range of the hand spans.
- Estimate the mean journey time.
- Which class interval contains the median journey time?
- For a pie chart of the journey times, find the angle of the $10 < t \leq 20$ sector.

Task C: Spot the link

A line of best fit on a scatter graph of hand span (cm) against height (cm) passes through (150, 17) and (180, 23).

- Find the gradient of the line, and use the line to estimate the hand span of a student who is 165 cm tall.
- The heights in the survey were from 150 cm to 185 cm. Would the line give a reliable estimate for a height of 120 cm? Explain.

Extension

- Two more students join the hand-span survey, with spans of 16 cm and 24 cm. Find the new mean and the new range.