

Physical Quantities and Measurement

Chapter 1: Physical Quantities and Measurement · Topic 1

Key Concept

The seven fundamental SI units include the metre (length), kilogram (mass), and second (time), forming the basis for all measurements.

Derived quantities, like speed or area, are calculated from fundamental quantities, such as $\text{speed} = \text{distance} \div \text{time}$.

Precision instruments, like Vernier callipers, allow more accurate measurements than basic tools like a standard ruler.

Standard measurement units ensure scientists worldwide can share, compare, and replicate experimental results reliably.

Quick Revision Notes

- SI units include metre, kilogram, second.
- These are fundamental units of measurement.
- Derived quantities come from fundamental ones.
- $\text{Speed} = \text{distance} \div \text{time}$ is an example.
- Vernier callipers give precise measurements.
- They're more accurate than a standard ruler.
- Standard units enable global scientific comparison.
- Consistent measurement supports reliable experiments.

Practice Questions

- 1 List the SI units for length, mass and time.
- 2 Calculate speed given distance and time.
- 3 Research how Vernier callipers work.
- 4 Discuss why standard units matter globally.
- 5 Measure an object using two different tools.
- 6 Explain the difference between fundamental and derived quantities.