Stopping distance and reaction-time evidence

Teacher / technician

YEAR 10 / LESSON 17 / PHYSICS + SCIENCE (DOUBLE AWARD)

Staff preparation and answer guidance. Keep separate from student sheets. Record actual measurements separately from labelled practice examples.

Coverage and delivery

Shared Physics / Double Award: 1.19–1.20. Thinking distance and braking distance.

Allow about 60 minutes. Follow the student sequence and use the answers to check reasoning.

Requisition • class of 30, working in 15 pairs

Item	Per pair / setup	Class total
Lightweight rulers	1 per pair	15
Booklets	1 per learner	30
Calculators	1 per pair	15

Immediate safety

Remain seated; keep the ruler away from faces and use a lightweight smooth-edged ruler. No caffeine, medication, sleep deprivation, road tests or startling stimuli are part of this activity. Participation is optional and results remain private.

Preparation and delivery

Read alongside the student method

YEAR 10 / LESSON 17 / PHYSICS + SCIENCE (DOUBLE AWARD)

1. Prepare 15 rulers and 30 booklets. Demonstrate release and the fixed reading edge; offer observing/calculation roles without requiring a reason.

2. Provide the stated practice example for nonparticipants. Use g = 9.8 m s^{-2}, convert centimetres to metres and average times rather than converting the mean distance without explanation.

3. Discuss stopping factors conceptually. Do not assume mass always changes stopping distance by a fixed factor: braking force, grip and conditions matter.

Close of lesson

• Return rulers and keep individual records private.

Check before teaching

Check the cards, reference data and quantities against this requisition. Keep the staff answer guide separate until the checking stage. Supplied numerical practice datasets are labelled examples; they are not class measurements.

Answers and teaching notes

Expected explanations • do not give as experimental observations

YEAR 10 / LESSON 17 / PHYSICS + SCIENCE (DOUBLE AWARD)

- Thinking distance and braking distance.
- 12 m.
- 30 m.
- It doubles.
- No; the stimulus, decision and response differ.
- Zero would falsely indicate an instantaneous response.

References and provenance

Pearson Physics specification

Hong Kong EDB: ruler-drop inquiry

Prepared 22 November 2026. Original wording, tables and questions. Sources inform the concepts and technique; the lesson scope and classroom quantities are explicitly described here. No laboratory trial or final school risk approval is claimed.