Centre of gravity: suspended shapes

Teacher / technician

YEAR 10 / LESSON 9 / PHYSICS ONLY

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

Coverage and delivery

Physics only: 1.31P. Weight and centre of gravity.

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

Requisition • class of 30, ten groups of three

Item	Per pair / setup	Class total
Lamina/stand/support/plumb-line/tray set	1 per group	10 sets
Washable markers and rulers	1 of each per group	10 of each
Booklets	1 per learner	30

Immediate safety

Use pre-drilled shapes and blunt supports; pupils do not pierce or cut them. Clamp stands securely, keep the 10 g bob low above a padded tray and do not swing it. Keep faces away from projecting rods.

Preparation and delivery

Read alongside the student method

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1. Prepare ten groups of three with three pre-drilled holes per lamina. Check it turns freely and the string is secure.

2. Use a 10 g bob, not an unverified large mass from old notes. Position rods inward over the bench. Provide a photograph or tracing route where handling is unsuitable.

Close of lesson

- Remove the bob first, then return shapes and stands; wipe reusable markings.

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

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- It marks the vertical direction of gravity.
- Each line constrains the position; their intersection locates it.
- Motion makes the vertical alignment uncertain.
- Measurement uncertainty, not three different centres of gravity.
- Otherwise weight has a turning effect about the pivot.
- Yes, for example for a ring.

References and provenance

Pearson Physics specification

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.