Density and pressure: different ratios

Teacher / technician

YEAR 11 / LESSON 74 / 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: 5.1, 5.3, 5.5. Density and pressure = force / area.

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
Cuboid ≤200 g	1 per group	10
Balance and ruler	1 set per group	10 sets
Booklets and calculators	1 per learner	30 of each

Immediate safety

Keep the small block on a stable bench and turn it gently. Do not stack weights, use sharp points, press blocks onto skin or stand on apparatus.

Preparation and delivery

Read alongside the student method

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1. Select cuboids with three distinguishable face areas and smooth edges.

2. Demonstrate square-unit conversion and keep the supplied practice values separate from measured dimensions.

Close of lesson

- Return blocks to trays and clear balances.

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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- Its mass and volume are unchanged.
- The normal contact force, equal to its weight in this static setup.
- It doubles.
- 0.0010 m².
- 3920 Pa.
- No; it is force per unit area.

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.