Pressure in fluids: depth and collisions

Teacher / technician

YEAR 11 / LESSON 75 / 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: 5.6, 5.7, 5.15. Fluid pressure, $\Delta p = \rho g h$ and gas collisions.

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
Booklets	1 each	30
Diagram cards, ruler and calculator	1 set per pair	15 sets

Immediate safety

Paper modelling only. No pressurised vessels, needles, mercury manometers or pierced water bottles are used.

Preparation and delivery

Read alongside the student method

YEAR 11 / LESSON 75 / PHYSICS + SCIENCE (DOUBLE AWARD)

1. Prepare original diagrams with depth marked vertically from the same free surface.

2. Distinguish pressure at a point, pressure difference and force on a surface. Use varied particle velocity arrows rather than a single shared speed.

Close of lesson

- Return cards and retain corrected calculations.

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 11 / LESSON 75 / PHYSICS + SCIENCE (DOUBLE AWARD)

- It increases with vertical depth.
- No; it is equal in all directions at that point.
- 1960 Pa.
- No; it is the increase relative to the surface pressure.
- Momentum changes in molecular collisions produce force on the wall.
- Vertical depth.

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.