Ventilation and pressure changes

Teacher / technician

YEAR 10 / LESSON 55 / BIOLOGY + SCIENCE (DOUBLE AWARD)

Staff preparation and answer guidance. Keep separate from student sheets. Original learning tasks; no supplied numerical example represents class measurements.

Coverage and delivery

Shared Biology / Double Award: 2.46–2.47. Thorax and ventilation.

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
Student booklets	1 per learner	30
Thorax / bell-jar diagram sets and rulers	1 set and 1 ruler per pair	15 of each

Immediate safety

Paper, modelling and written reasoning only. No chemicals or biological samples are handled.

Preparation and delivery

Read alongside the student method

YEAR 10 / LESSON 55 / BIOLOGY + SCIENCE (DOUBLE AWARD)

1. Provide 30 booklets, 15 rulers and 15 diagram sets showing thoracic anatomy and a bell-jar model. Label the model's air tube, balloon and flexible sheet; include inspiration and expiration positions.

2. Use diagrams only for this activity; no balloons are inflated by mouth. Check pupil explanations against volume and pressure changes before revealing the answer guide.

Close of lesson

• Return models and keep the corrected work.

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 55 / BIOLOGY + SCIENCE (DOUBLE AWARD)

- It contracts and flattens.
- Up and out as external intercostals contract.
- It increases.
- Pressure inside falls below atmospheric pressure.
- Relaxation and elastic recoil reduce volume and raise pressure.
- The rigid jar does not show rib movement; the rubber sheet is not a muscular dome.

References and provenance

Pearson Biology 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.