Resultant forces: adding arrows

Teacher / technician

YEAR 10 / LESSON 4 / 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: 1.11, 1.15. Resultant forces along a line.

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 and rulers	1 of each per learner	30 of each
Force-arrow card sets	1 per pair	15 sets

Immediate safety

Paper and diagram activity only. No pushing pupils, stretched cords or moving trolleys are required.

Preparation and delivery

Read alongside the student method

YEAR 10 / LESSON 4 / PHYSICS + SCIENCE (DOUBLE AWARD)

1. Prepare 30 booklets/rulers and 15 arrow sets labelled with the stated forces.

2. Keep force and velocity arrows differently labelled. Probe the misconception that balanced forces always mean stationary.

Close of lesson

- Return reusable cards and keep corrected diagrams.

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 4 / PHYSICS + SCIENCE (DOUBLE AWARD)

- 5 N right.
- 7 N left.
- 0 N.
- Yes, at constant velocity.
- It slows down; acceleration is leftward.
- Only forces acting on that object are combined.

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.