

Teacher guide: Graph problems and repair

Objective: Choose graphical methods and repair errors in interpreting axes and gradients.

Calculator condition: Calculator allowed where labelled; non-calculator reasoning remains required.

Learning Cycle plan

Stage	Time	Teacher move	Evidence to collect
Connect & Check	5 min	State the objective and timeline. Retrieve distance time and speed graphs or a prerequisite. Diagnose a common error before modelling.	Independent written response, correction or verbal explanation.
Share	7 min	Pairs compare methods or predict a result for graph problems and repair. Ask for a reason, not only an answer.	Independent written response, correction or verbal explanation.
Present	10 min	Compare two incorrect graphs; reteach scale or gradient from diagnostic evidence	Independent written response, correction or verbal explanation.
Apply	25 min	Redraw one graph and solve an unfamiliar context Use guided support, then remove it for independent working.	Independent written response, correction or verbal explanation.
Recall & Review	8 min	Revisit the objective. Learners solve a fresh item without prompts, explain a check, correct one error and record the next practice.	Independent written response, correction or verbal explanation.

Differentiation

- All learners reach the same objective; route choice changes the journey, not the standard.
- Use visual, method and explanation routes to support access.
- Remove prompts before exit evidence.
- Use stretch and deep challenge only after the core method is secure.

Assessment response

- Compare corrected responses with the original diagnostic and a fresh unprompted question. Record the misconception repaired and a delayed check. NC/C selected to purpose; label each question.

Recall & Review: feedback and extension integration

Lesson L044: Graph problems and repair

Objective: Choose graphical methods and repair errors in interpreting axes and gradients.

Timing for a 60-minute lesson

0-7 Connect & Check; 7-14 Share; 14-25 Present/model; 25-44 Apply route choice/practice; 44-52 independent exam-style check; 52-60 Recall & Review, WWW/EBI and next step.

Recall & Review evidence

At the end of the lesson, solve a fresh question without prompts, explain one check, correct one error and record the next practice step.

What Went Well (WWW)

I used my working and assessment evidence to identify the exact mathematical step that was secure and the specific misconception that needs attention.

Even Better If (EBI)

I will correct one precise step, explain why the correction works and complete a fresh delayed question without the original scaffold.

Integrated stretch and deep challenge

Stretch: A journey has two equal 30 km legs at 30 km/h and 60 km/h. Find overall average speed.

Deep challenge: Explain why the mean of 30 and 60 is not the overall speed for equal distances.

Teacher use

Use the What Went Well (WWW) and Even Better If (EBI) prompts to write mathematics-specific feedback linked to the objective. Do not accept generic praise: identify the method, representation, reasoning or checking step that improved, then set a fresh next-step question.

Assessment evidence to inspect: Compare corrected responses with the original diagnostic and a fresh unprompted question. Record the misconception repaired and a delayed check. NC/C selected to purpose; label each question.