

Teacher guide: Mixed modelling and checking

Objective: Form a mathematical model, solve it and interpret its limitations.

Calculator condition: Non-calculator core; calculator optional only for checking where labelled.

Learning Cycle plan

Stage	Time	Teacher move	Evidence to collect
Connect & Check	5 min	State the objective and timeline. Retrieve proof and algebraic structure 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 mixed modelling and checking. Ask for a reason, not only an answer.	Independent written response, correction or verbal explanation.
Present	10 min	Compare models for a situation; identify assumptions and check reasonableness	Independent written response, correction or verbal explanation.
Apply	25 min	Solve an unfamiliar mixed problem and explain the limitations 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

- Check the formative mini-test and independent workbook response against the objective. Use the teacher answers or mark guidance; group errors for reteaching. NC/C selected to purpose; label each question.

Recall & Review: feedback and extension integration

Lesson L092: Mixed modelling and checking

Objective: Form a mathematical model, solve it and interpret its limitations.

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 phone plan costs £12 plus 8p per text. Write a formula and find the cost for 125 texts.

Deep challenge: A rectangle has perimeter 40 cm. Express area in terms of width x and find width for length 12 cm.

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: Check the formative mini-test and independent workbook response against the objective. Use the teacher answers or mark guidance; group errors for reteaching. NC/C selected to purpose; label each question.