

Teacher guide: Non-calculator number and algebra

Objective: Apply number and algebra methods without a calculator.

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 delayed reassessment 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 non-calculator number and algebra. Ask for a reason, not only an answer.	Independent written response, correction or verbal explanation.
Present	10 min	Use assessment evidence to select a worked-example/problem pair. Fade prompts and review a fresh independent response with the learner	Independent written response, correction or verbal explanation.
Apply	25 min	Update the error log; schedule a fresh delayed question and explain how to check the answer 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. Calculator and non-calculator as appropriate to repair.

Recall & Review: feedback and extension integration

Lesson L104: Non-calculator number and algebra

Objective: Apply number and algebra methods without a calculator.

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 selected an efficient numerical method, showed the key steps clearly and checked the sign, size or accuracy of my answer.

Even Better If (EBI)

I will make the place-value, sign or operation decision explicit and use estimation or an inverse calculation to check a fresh question.

Integrated stretch and deep challenge

Stretch: Calculate $5/8 - 1/6$ exactly and simplify.

Deep challenge: Solve $2(3x - 1) = 4x + 10$ without a calculator and check.

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. Calculator and non-calculator as appropriate to repair.