

Teacher guide: Coordinates, gradient and intercept

Lesson objective: Plot coordinates and interpret gradient and vertical intercept from tables, graphs and equations.

Running order: Connect & Check 5 min; Share 7 min; Present 10 min; Apply 25 min; Recall & Review 8 min; feedback recording 5 min.

Calculator condition: Non-calculator core. Calculator not required.

Learning Cycle delivery notes

Connect & Check

- Plot (0, 2), (1, 4), (2, 6) and describe the pattern.
- Retrieve: what does one horizontal step do to the height?

Share

- Compare two routes: coordinate table first or graph first.
- Explain how you can tell whether a gradient is positive, negative or zero.

Present

- Gradient is change in y divided by change in x.
- The vertical intercept is where the line crosses the y-axis, so $x = 0$.

Apply

- Use tables and graphs to identify gradient and intercept.
- Remove the scaffold by finding both from two coordinates only.

Recall & Review

- Given two fresh points, find the gradient and y-intercept without prompts.
- Correct one plotting or scale error.

Differentiation and route choice

- Learners choose visual, method or explanation routes but must produce the same final mathematical evidence.
- Remove prompts before the exit evidence.
- Use extension tasks only after the core method is secure.

Assessment response

- Use the mini-test, independent workbook response and exit evidence against the objective. Group shared errors for the next Connect & Check.

Recall & Review: feedback and extension integration

Lesson L041: Coordinates gradient and intercept

Objective: Plot coordinates and interpret gradient and vertical intercept.

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 read or constructed the graph accurately, used the scale and axes correctly and linked the relevant gradient, intercept, shape or trend to my conclusion.

Even Better If (EBI)

I will label units and scale clearly, show the calculation or graphical evidence I used and check that the interpretation fits the context.

Integrated stretch and deep challenge

Stretch: A line passes through $(-3, 4)$ and $(3, -2)$. Find gradient and y-intercept.

Deep challenge: Can two distinct parallel lines have different gradients? Explain using $y=mx+c$.

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.