

First quadrant of the co-ordinate plane

CURRICULUM ALIGNMENT

SHA.SAL.4a describe location on the full co-ordinate plane.

INTERACTIVES Coordinate Grid · challenge, display, explore

WHAT THIS LESSON TEACHES

Two numbers in brackets pin down one exact spot on the first-quadrant grid: the first number tells how far right from (0, 0) and the second tells how far up.

→ (3, 4) means 3 across, then 4 up.

→ A point on the x-axis has 0 as its second number, e.g. (4, 0).

MODEL THIS ON THE BOARD

PLOTTING THE POINT (2, 5)

- 1 Begin at the origin corner marked (0, 0).
- 2 Count 2 squares right along the bottom axis.
- 3 From there count 5 squares straight up.
- 4 Mark the spot and write the label (2, 5) beside it.

LESSON ARC

Open on the IWB with a grid over a school plan and one room shaded — pupils try to describe its exact square in words. Introduce the co-ordinate interactive, tracing right-then-up from the origin for three points, holding out for the (1,6) vs (6,1) contrast. Pupils sketch a 0–6 grid in their copies and plot four labelled points. Try It Together and the Class Challenge bank consolidate at the board; the maths-talk pins down why order matters.

TEACHING MOVES

1. **Getting Started.** Put the school-plan grid up and take two or three hands-up answers only — no open call-outs. Listen for anyone reaching for two numbers or 'across then up'; that's your bridge. Don't name co-ordinates or correct yet, just bank the guesses.
2. **Watch and Notice.** Trace right-then-up with your finger on the co-ordinate interactive — never let pupils read the answer off the label before you've counted the path. On (1,6) versus (6,1), stop and ask 'same two numbers — what changed?' rather than telling them. Keep repeating 'first across, then up'.
3. **Sketch the Grid in Your Copy.** Pupils rule a 0–6 grid and plot the four points, labelling each pair beside the dot. Walk the room glancing for a clearly ruled origin and correct right-then-up order — no marking. Watch specifically for anyone dropping (1,6) and (6,1) on the same spot.
4. **Try It Together.** Call each pair and get a whole-class prediction before a pupil plots it at the board, then check. Revoice a strong answer: 'so we went 2 across and 5 up, not 5 across and 2 up.' Rotate four or five pupils through; keep it brisk.
5. **Class Challenge.** Brisk practice round — pupils take turns at the board, press Check on each answer, class confirms, move on. On the (4,3)/(3,4) pair and the final swap of (2,7), ask 'which one goes higher up?' before checking so the order rule does the work. Don't re-teach each point.

6. What Did We Notice?. Ask why (3,4) and (4,3) land in different places with the same numbers. Listen for pupils naming the order rule in their own words. If anyone says 'they're the same', ask them to trace both paths from the corner — display-only, no writing.

COMMON MISCONCEPTIONS

⚠ Pupils plot (1, 6) and (6, 1) on the same spot — they read the pair as an unordered set of numbers rather than 'across then up'.

Freeze on the interactive and trace both paths from the origin side by side: (1, 6) climbs high near the left, (6, 1) runs low along the bottom. Ask the pupil which number told them how far right — the first, every time.

⚠ Pupils count up first, then across — they plot (2, 5) as if it were (5, 2), reversing the rule.

Go back to the origin and physically move your finger right along the x-axis before lifting it up. Chant 'first across, then up' in unison as the class re-plots the point.

⚠ On axis points pupils stall at the 0 — they don't know where (4, 0) or (0, 3) sits because 'you can't go zero up'.

Show that 0 up means you stay on the x-axis line itself — you've gone across but not climbed. Trace (0, 3) as 'no steps across, so you stay on the side line, then 3 up'.

DIFFERENTIATION

EMERGING

- Draw a large right-pointing arrow along the x-axis and an up-arrow on the y-axis of the copy grid so the counting direction is always visible.
- Stay with points that don't share numbers (like (3, 4)) before attempting the (1, 6)/(6, 1) swap pair, so the order rule isn't tested under pressure yet.

DEVELOPING

- After the copy grid, give a point by clue only — 'I'm 5 across and on the x-axis, what's my pair?' — so pupils reason back to (5, 0).
- Ask them to find three different points that all sit the same distance across as up, like (6, 6), and describe what's true about their pairs.

PROFICIENT

- At the board, narrate a harder variant: 'plot (2, 5), then plot the point you'd reach by swapping the numbers and going one more up' — pupils track two moves in order.
- Pose: 'if I only tell you a point is on the y-axis, what do you already know about its pair before I say anything else?' — pupils generalise the 0-across rule and explain how they know.

➤ **Cross-curricular:** Tie to Geography — pupils use the grid-reference squares on an OS map of their county to locate a town, reading the eastings-then-northings order the same way.

ANSWER KEY

Scaffold: visual check on the page

Q1: (0, 3)

Q2: (3, 4) is further up; (4, 3) is further right

a) Always : By definition the x-value is the across distance.

b) Always : Zero height means the point lies on the bottom axis.

c) Never : (2, 5) is 2 across and 5 up; (5, 2) is 5 across and 2 up.

d) Sometimes : Points like (2, 2) or (6, 6) do, but only when the two values match.

EXTENSION SHEET · STRETCH ANSWERS

S1: (8, -4) → Q4

S2: 6 units

S3: (-6, 9) → Q2

S4: 3 units

S5: (-6, 4) → Q2