

Location and transformation investigation

WHAT THIS LESSON TEACHES

A grid reference is a pair of numbers that names exactly where a square sits on the grid. Read across first, then up, and write it as (across, up).

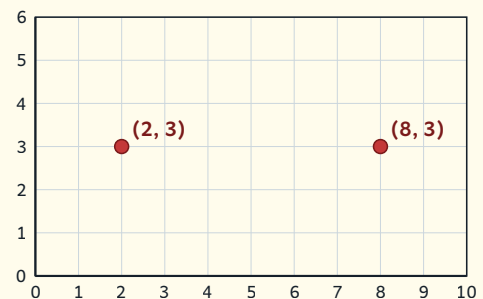
→ The point 3 across and 2 up is written (3, 2).

→ Sliding a shape 3 across and 2 up moves every corner the same amount, so (2, 3) becomes (5, 5).

MODEL THIS ON THE BOARD

REFLECTING (2, 3) ACROSS $x = 5$

- 1 The vertical mirror line sits at 5. Start at the point (2, 3).
- 2 Count the gap to the line: $5 - 2 = 3$ squares left, so land 3 squares right: $5 + 3 = 8$.
- 3 A vertical flip keeps the height the same, so the image is at (8, 3).



DISCUSSION STARTER

REFLECT Which move helped most in your design — a flip, a turn or a slide?

ANSWER KEY

b) (8,3), (7,4), (6,2)

c) (4, 3)

Q1: (6, 4)

a) Always — We always read across first, then up, so (across, up).

b) Always — A slide of 2 up always adds 2 to the up number of every corner.

c) Never — A vertical flip keeps the up number the same and only changes the across number.

d) Sometimes — They match only when the tile sits exactly on the mirror line, otherwise the across numbers differ.

EXTENSION SHEET · STRETCH ANSWERS

S1: (6, 1)

S2: (8, 1)

S3: (1, 8)

S4: (3, 7)

S5: 1 line

Investigation: Design a repeating tile — open-ended; scan pupils' working for valid solution paths rather than a single answer.