

Area of rectangles

CURRICULUM ALIGNMENT

MEA.MSR.4a

determine and calculate units of measurement in fractional and/or decimal form to solve practical problems.

INTERACTIVES [Shape Measurer · display, explore](#)

WHAT THIS LESSON TEACHES

The area of a rectangle is the flat space it covers, found by multiplying length by width. Area is counted in square units such as cm^2 .

→ A 6 cm by 4 cm rectangle covers 24 cm^2 .

→ 12 cm by 7 cm gives $12 \times 7 = 84 \text{ cm}^2$.

MODEL THIS ON THE BOARD

AREA OF A DESK MAT

- 1 The mat is 6 cm long and 4 cm wide.
- 2 Multiply the sides: 6×4 .
- 3 $6 \times 4 = 24$.
- 4 So the area is 24 cm^2 .

LESSON ARC

Open on the IWB grid rectangle — six across, four down — and fish for the idea of counting a row then multiplying by the rows. Walk four rectangles on the shape-measurer interactive, tying each area reading back to length $\times$ width, including a same-area pair (6×4 and 8×3). Pupils set three more rectangles together at the board, then sketch and label them in copybook with cm^2 . Class Challenge uses the squared-sheet printable: count sides, multiply, record. Close on why area needs the raised 2.

TEACHING MOVES

1. **Getting Started.** Take three hands-up answers only — no open call-outs. Listen for “six lots of four” or “count a row, then times the rows” and hold that idea up as the seed of the rule you’ll return to.
2. **Watch and Notice.** Run the four rectangles on the shape-measurer in order. On 6×4 , tie the reading straight back to the hook grid so count and multiply match. On 8×3 pause: “how can two different rectangles cover the same space?” On 12×7 ask why multiplying is the sensible move once the squares are too many to count.
3. **Try It Together.** Three different pupils set 7×2 , 4×4 and 9×6 by dragging corners. Before each area reveals, the class calls out length $\times$ width aloud. On 4×4 hold it against the earlier 8×3 — same idea, very different area. On 9×6 hold out for 54 before the screen; revoice: “six rows of nine, and nine sixes is fifty-four.”
4. **Sketch and Label in Your Copy.** Pupils sketch each of the three rectangles with length and width labelled on the correct sides, then write $l \times w = \text{area cm}^2$ underneath. Circulate for the raised 2 and for cm written instead of cm^2 — this is whole-class practice, not marking.
5. **Class Challenge.** Hand out the Area rectangles on squared paper sheet. Pupils count along each side, multiply, and record $l \times w = \text{area cm}^2$ in copy. Circulate for two slips: counting grid lines instead of squares, and missing the raised 2. Confirm the four areas aloud at the end: 15, 28, 36 and 84 cm^2 .

6. What Did We Notice?. Ask why area needs the little raised 2 when length is plain cm. Revoice a strong answer: “length is one direction, so plain cm; area covers space in two directions, so square cm.” Head off “cm² means centimetre twice” — it means one square that is 1 cm on each side.

COMMON MISCONCEPTIONS

⚠ Pupils count the grid lines along a side instead of the unit squares, so a 5-square side becomes “6” because they counted the ticks.

Point at the squared sheet: “lines are the fences; squares are the fields.” Have the pupil put a finger in each square along one side and count the fingers — one fewer than the lines.

⚠ Pupils write the area as 24 cm instead of 24 cm² — they treat area like a length.

Sketch one 1 cm square beside their answer. “That single square is 1 cm². Twenty-four of them still need the raised 2, because we’re counting squares, not a straight line.”

⚠ Pupils add length and width (or double-add all four sides) and call that the area — they reach for perimeter by habit.

Return to the hook grid. “Adding 6 and 4 only walks the edge. Area fills the inside — six squares in a row, four rows, so we multiply.” Rewrite their sum as the product beside it.

DIFFERENTIATION

EMERGING

- Stay with the 5×3 and 6×6 rectangles on the squared sheet first; pre-count one side together so they only multiply.
- Accept a sketched array of tally marks inside the rectangle before the $l \times w$ sentence — the product can come second.

DEVELOPING

- After the four areas, ask: the 6×4 and the sheet’s 12×7 — how many of the small ones fit inside the big one, and how do you know without redrawing?
- Give a missing-side prompt in copy: area 36 cm², width 6 cm — what is the length? Write $l \times 6 = 36$.

PROFICIENT

- On the early-finish stretch (find the 36 cm² rectangle’s distance all the way round), push: of all rectangles with area 36 cm², which has the shortest distance round — and why does closer-to-a-square win?
- Pose in copy: two rectangles both 48 cm²; give one side of each and ask which is longer and thinner — justify without drawing every square.

✚ **Cross-curricular:** Tie to a classroom floor plan — measure a table top in cm, multiply length by width, and compare the cm² reading to a carpet-tile sample.

ANSWER KEY

a) 14 cm²

b) 16 cm²

c) 54 cm²

Q1: 30 cm²

Q2: 25 cm²

Q3: 33 cm²

Q4: 65 cm²

Q5: 84 cm²

Q6: 120 cm²

a) **Always** : This is the rule for finding the area of any rectangle.

b) **Always** : 6 multiplied by 4 is exactly 24 square centimetres.

c) **Never** : Area needs square units such as cm² because it counts unit squares.

d) **Sometimes** : True for 6 by 4 and 8 by 3 (both 24 cm²); false for 6 by 4 and 5 by 3.

EXTENSION SHEET · STRETCH ANSWERS

S1: 24.09 m²

S2: 34.71 m²

S3: 30.69 m²

S4: 189 m²

S5: 425 m²