Lesson 50 NUMBER

Area of rectangles

CURRICULUM ALIGNMENT

MEA.MSR.4a determine and calculate units of measurement in fractional and/or decimal form to solve practical problems.

NUM.OPS.4 build upon, select and make use of a range of operation strategies.

INTERACTIVES Shape Measurer · 2d

WHAT THIS LESSON TEACHES

Area is the space inside a shape. For a rectangle, multiply the **length** by the **width**: Area = l × w.

→ A 5 cm by 3 cm rectangle has area 5 × 3 = **15 cm²**.

→ A 2.5 m by 4 m rectangle has area 2.5 × 4 = **10 m²**.

MODEL THIS ON THE BOARD

FIND THE AREA OF A 5 CM BY 3 CM RECTANGLE

1. Area = length × width.
2. Area = 5 × 3 = 15.
3. Don't forget the units: cm × cm = **cm²** (square centimetres).
4. Answer: **15 cm²**.

LESSON ARC

Open with the 6×4 rectangle on the IWB and bank the three counting strategies pupils volunteer. Walk through three modelled examples on the shape-measurer interactive, pausing on the 6×4 vs 8×3 surprise — same area, different shape. The 12×7 reveal forces the formula because counting is now unreasonable. Pupils sketch the four modelled rectangles in copybook labelling l × w = area with cm². Class Challenge runs five climbing targets at the board, finishing with the 36 cm² smallest-perimeter stretch.

TEACHING MOVES

1. **Getting Started.** Five seconds of silent think-time before any hands go up. Take three answers and bank all three on the board without grading — 'count one at a time', 'count the rows', 'multiply six by four'. Don't reveal yet that the third is where we're heading.
2. **Watch and Notice.** Slow right down on the unit after each multiplication — say 'twenty-four square centimetres', not just 'twenty-four'. The pivot beat is Example 3 (8 × 3): pause and ask 'how can two different rectangles have the same area?' Listen for the rearranging-the-same-squares idea before moving on.
3. **A faster way: 12 × 7.** Sell the formula as a labour-saver, not a rule: 'we don't want to count eighty-four squares one at a time'. Name the length, name the width, multiply, attach cm². Have the class read 'area equals length times width' aloud once before moving on.
4. **Try It Together.** Three pupils take turns at the board with the shape-measurer interactive. Before each pupil reads the readout, ask the class to predict the area in their heads. On 9 × 5 specifically, pause after the answer and ask 'what does the cm² on the readout tell us?' — keep dragging thinking back to unit squares, not just the multiplication.

5. **Sketch the Rectangles in Your Copy.** Circulate and glance only at the units — cm^2 is the most common omission. Prompt quietly: 'what's missing on that line?' Don't mark; this is practising the layout for when they meet it in the Student Activity Book.
6. **Class Challenge.** Call each target aloud, a pupil drags the corners, the class confirms before moving on — keep it brisk. The $15 \times 12 = 180$ cm^2 is the deliberate moment where the readout isn't enough; pupils have to actually do the multiplication. For the 36 cm^2 stretch, let pupils suggest rectangles for a minute or two before handing them 'closest to square wins' if it doesn't surface.
7. **What Did We Notice?.** Display-only — nothing typed. Listen for either 'because we multiply centimetres by centimetres' or 'because the small squares ARE square centimetres'. Re-voice whichever comes first into the other so both ideas land before you close.

COMMON MISCONCEPTIONS

⚠ Pupils write '6 × 4 = 24 cm' — they drop the squared and report area in centimetres.

Stop and zoom in on a single 1 cm square on the shape-measurer interactive. 'This little square — what are its sides?' One centimetre by one centimetre. 'So what's inside it?' One square centimetre. The cm^2 is the small square itself, not just a label.

⚠ Pupils confuse area and perimeter at the stretch — they start adding the sides of the 36 cm^2 rectangles together when asked for the area, or vice versa.

Trace the perimeter with your finger around the rectangle on the IWB — 'this is the fence, the walk around the outside'. Then shade across the inside — 'this is the area, the floor inside the fence'. Different jobs, different answers. Re-state the stretch question.

⚠ On the 36 cm^2 stretch, pupils think bigger numbers in the multiplication means bigger perimeter, so they try 36 × 1 and stop there.

Put 36 × 1 and 6 × 6 side by side on the IWB shape-measurer. Same area — count the perimeter of each one with the class. The long thin one has a much bigger fence. 'When does the fence get shorter?' Let them notice the shape goes more square.

DIFFERENTIATION

EMERGING

- Stay on the squared-paper grid lines for the copybook sketches — pupils count the rows and columns of unit squares before writing l × w, so the formula stays tied to the count of squares.
- Pair these pupils with the simpler Try It Together targets (4 × 7) and let them call out predictions for the bigger ones without being put on the spot at the board.

DEVELOPING

- After the Class Challenge, ask: 'a rectangle has area 48 cm^2 — give me three different rectangles it could be'. Pupils list factor pairs in their copybook.
- Pose the inverse: 'the area is 30 cm^2 and the length is 6 cm — what's the width?' Pupils work out the missing dimension.

PROFICIENT

- Direct fast finishers to the extension bank on their device while you run the rest of the Class Challenge.
- Pose the open question: 'find a rectangle with area 100 cm^2 and a perimeter less than 45 cm — how many can you find?' Pupils justify which one has the smallest perimeter and why.

Cross-curricular: Tie to Geography — pupils estimate the area of their classroom floor in m^2 by pacing length and width, then check against the school's floor plan.

ANSWER KEY

a) $6 \times 4 = **24\ cm^{2}**$.

b) $5 \times 8 = **40\ cm^{2}**$.

c) $10 \times 7 = **70\ cm^{2}**$.

d) $3.5 \times 4 = **14\ cm^{2}**$.

Q1: $168\ m^2$

Q2: $425\ m^2$

Q3: $24.09\ m^2$

Q4: $34.71\ m^2$

S1: 30.69 m^2

S2: 119 m^2

S3: 189 m^2