Lesson 55 MEASURES

Area by counting square units

CURRICULUM ALIGNMENT

MEA.MSR.3a compare, estimate and measure length, weight, capacity, area and volume using appropriate instruments and record and communicate appropriately.

NUM.FRC.3a compare and express in equivalent terms; and order fractions.

INTERACTIVES Shape Measurer · 2d

LESSON ARC

Slide square tiles into a rectangle on the IWB grid one at a time, asking pupils to spot any gap or overlap before the word 'area' appears. The worked examples pivot on the triangle: two matching half-squares along a sloped edge join to make one whole unit. Pupils draw an 8 cm^2 shape in their copy, then cover and count outlines together in the Class Challenge on pre-drawn squared paper, always writing 'area = ___ cm^2'.

TEACHING MOVES

1. **Getting Started.** Slide the tiles into the rectangle one per second so pupils watch the fit. Trace a finger around the outside edge for the around-the-edge measuring they already know, then sweep a flat hand across the middle for inside. Take two or three answers but hold the word 'area' back.
2. **Watch and Notice.** Count each example in unison, pointing at every square. Slow right down on the triangle — point to two matching half-squares along the slope and say 'two halves make one whole' before counting on. End every total aloud as 'square centimetres' and write cm^2 each time.
3. **Try It Together.** Call three different pupils up to count the same 5-by-3 patch in turn, so several get a board turn on one shape. Watch for the two slips — skipping a middle square, double-counting a boundary square. Revoice a careful counter: 'see how she touched every square once.'
4. **Draw an 8 cm^2 Shape in Your Copy.** Walk the room glancing for shapes covering exactly eight whole squares with cm^2 written beside each. If a pupil's shape leaves half-squares, point them back to whole squares for this task — no marking, this is practice.
5. **Class Challenge.** Keep the board work brisk — pupils take turns covering and counting each pre-drawn outline, class confirms the total, move on. Slow only on the triangle to confirm the two half-squares join. When a pupil makes two different 10-square shapes, name the insight aloud.
6. **What Did We Notice?.** Display the prompt and listen for pupils separating 'look' from 'area'. Revoice a strong answer: 'so area is how many squares cover it, not the shape it makes.' Point any disagreement back to the counted squares.

COMMON MISCONCEPTIONS

⚠ A pupil insists a tall, thin shape must have more area than a square block because it 'looks bigger', even when both cover the same number of squares.

Put both outlines up on the grid and count the squares of each aloud as a class — same total. 'The area is the squares it covers, not how stretched it looks.'

⚠ Pupils count the squares but answer '12' or '12 cm' — they drop the square-unit name or use cm instead of cm^2.

Stop and ask 'twelve what?' Make every pupil end the count in 'square centimetres' and write cm^2 beside their answer. Tie cm to the edge they measured before, cm^2 to the squares covering the inside.

⚠ When a sloped edge cuts a square, pupils either count each half-square as a whole one or ignore the cut squares entirely.

On the triangle, point to two matching half-squares either side of the slope and shade them the same colour. 'These two halves join to make one whole square.' Count the joined pair as one before moving on.

DIFFERENTIATION

EMERGING

- Stay with rectangles only on the squared paper while the rest move to the L-shape and triangle; whole squares only, no slopes yet.
- Have these pupils place a square tile onto each grid square as they count, so they physically touch each square once and can't skip one.

DEVELOPING

- After the Class Challenge, give an outline with three pairs of half-squares and ask for the total — do they join all three pairs?
- Ask pupils to draw a shape with an area of exactly 7 cm^2 that is NOT a rectangle, then count back to check.

PROFICIENT

- During the stretch, ask: how many genuinely different shapes can you make that all cover 10 squares? Have them justify why two of them have equal area even though they look nothing alike.
- Pull fast finishers ahead into the rows-by-columns idea — can they find a quicker count than touching every square in a 4-by-5 patch?

↗ **Cross-curricular:** Tie to Geography — pupils trace an Irish county outline onto squared paper and estimate its area by counting and joining squares.

ANSWER KEY

a) Perimeter = distance all the way around.

b) Add all four sides for a rectangle.

c) Area = number of unit squares covered (rows × columns).

Q1: 189 m^2

Q2: 119 m^2

Q3: 36 cm^2

Q4: 75 cm^3