TEACHER RESOURCE BOOK · MATHS · 3RD CLASS

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.

INTERACTIVES Shape Measurer · 2d

LESSON ARC

Open with two square-tiled shapes side by side on the IWB and steer pupils off eyeballing towards counting the squares. Model the rule on a 6-square rectangle, then the make-or-break L-shape, lightly shading each square as you count so no square is missed or doubled. Pupils draw and prove a 7-square shape in their squared copy. The Class Challenge has groups cover printed outlines with identical tiles, landing on same-area-different-shape.

TEACHING MOVES

1. **Getting Started.** Display the two tiled shapes as pupils settle and ask which covers more space. Take two or three hands only, then push past 'it looks bigger' — 'how could we be sure without guessing?' — so counting is already in the room before you model it.
2. **Watch and Notice.** Count the 6-square rectangle aloud, touching each square exactly once. Then slow right down for the L-shape and shade each square as you count round the bend — say aloud 'I shade it, then I say its number' so the class sees how shading stops a missed or double count. Stress every square must be the same size or the count is not fair.
3. **Try It Together.** Bring a pupil to the IWB to shade the 4-by-2 rectangle while the whole class says the running count with them. Watch for the pupil jumping ahead of the count; revoice a careful one — 'you shaded it before you said the number — that's how we know none is missed.'
4. **Build a 7-Square Shape in Your Copy.** Pupils draw any shape covering exactly 7 whole squares in their squared copy, edges along the grid lines, then shade and count to prove it. Walk the room glancing at counts — watch for part-squares where an edge cuts across a grid line, and counts that drop a square at a bend. No marking, just a glance.
5. **Class Challenge.** Open with a quick board reveal — two different shapes both taking 6 tiles, counted together — then send groups to the printed outlines with tiles. Circulate briskly, check each group's counts before they move on, and lean on the callout 'are all your squares the same size, and have you counted each once?' at the L-shape, where the bend gets double-counted.
6. **What Did We Notice?.** Ask what would go wrong if some squares were big and some small. Listen for pupils naming the unfairness, then revoice: 'so the count only tells us the area if every square is the same size — that's what makes it a fair measure.'

COMMON MISCONCEPTIONS

⚠ Counting the L-shape, a pupil counts the corner square twice — once going across, once going down — and reports one too many.

Stop and recount that L-shape on the IWB, shading each square the instant it's counted. The corner square is already shaded when you reach it going down, so the class sees it can't be counted again.

⚠ A pupil draws their 7-square shape with an edge slicing through the middle of squares, so part-squares get counted as whole ones.

Hold the shape up against the grid and trace where the edge crosses a square. 'We can only count whole squares — your edge needs to follow the grid lines.' Have them redraw with edges on the lines.

⚠ A pupil insists the longer, thinner shape must have more area than the short fat one because it 'looks bigger', even after both count to the same number of tiles.

Lay both tiled outlines side by side and count each aloud together. Same tile count means same area — the shape can change while the area stays put. This is exactly the same-area-different-shape idea from the challenge.

DIFFERENTIATION

EMERGING

- Pair these pupils with the rectangle outlines only (4 and 8 tiles) — straight edges, no bend to double-count — before they attempt the L-shape.
- Have them shade-and-say in unison with you on the IWB count before drawing anything in their own copy.

DEVELOPING

- Once their 7-square shape is proved, ask them to draw a second, completely different 7-square shape — same area, new outline.
- On the printed outlines, ask them to predict the tile count by eye, then count to check, and say whether they were over or under.

PROFICIENT

- Pose at the board: 'how many different shapes can you make that all cover exactly 5 squares?' Let them generate several in their copy and convince you each one really covers 5.
- Ask them to explain to you, as if to a younger pupil, why a long thin shape and a square shape can have the very same area.

↗ **Cross-curricular:** Tie to Geography — pupils count the same-size grid squares over a simple map outline of a county or schoolyard to estimate which area is larger.

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