

Composite shapes: break it into rectangles and triangles

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

Composite shapes are made by joining rectangles and triangles. Split the shape into those simpler parts with a straight line, work out each area, then add the areas to find the total.

→ An L-shaped patio is two rectangles joined at a corner.

→ 24 cm^2 for one rectangle plus 6 cm^2 for the other gives 30 cm^2 altogether.

MODEL THIS ON THE BOARD

L-SHAPED PATIO AREA

- 1 Draw one straight split line to break the L-shape into two rectangles.
- 2 The first rectangle measures 8 cm by 5 cm so its area is $8 \times 5 = 40 \text{ cm}^2$.
- 3 The second rectangle measures 3 cm by 4 cm so its area is $3 \times 4 = 12 \text{ cm}^2$.
- 4 Add the two areas: $40 + 12 = 52 \text{ cm}^2$ for the whole patio.

LESSON ARC

Open with an L-shaped patio on the board and five seconds of quiet think-time on how to break it. Demo one straight split into two rectangles (6×4 and 3×2), total the sub-areas to 30 cm^2 , then flag the triangle half-rule. Pupils work L, T and house splits together at the board, sketch splits in copybooks, then draw, cut and measure their own paper L-shape. Class Challenge banks four shapes; wrap by comparing two different L-splits that both total 30 cm^2 .

TEACHING MOVES

1. **Getting Started.** Show the L-shaped patio and give five full seconds of silent think-time before hands up. Take two or three split ideas without confirming the best one — hold the reveal for Watch and Notice.
2. **Watch and Notice.** Sketch the L and the numbers yourself with the board pen. Ask where the split should go, draw one straight cut, then let the class compute $6 \times 4 = 24$ and $3 \times 2 = 6$ before revealing $24 + 6 = 30 \text{ cm}^2$. Finish with a quick half-rectangle sketch so $\text{base} \times \text{height} \div 2$ is visible before the house shape appears.
3. **Try It Together.** For each of L, T and house, ask ‘where should the split line go?’ before you draw it. Pupil at the board works each sub-area; class agrees or corrects out loud. On the house, hold for $\text{base} \times \text{perpendicular height} \div 2$ — stop anyone reaching for the slanting roof edge.
4. **Sketch the Split in Your Copy.** Pupils sketch each composite, draw one split line, label dimensions and total at the bottom. Walk the room glancing at split placement and cm^2 units — this is practice, not marking.
5. **Cut and Total a Paper L-Shape.** Each pupil rules an L on plain paper, draws one straight split, cuts, measures in cm and adds the two areas. Circulate for straight splits that meet a corner and for cm^2 on both sub-areas. Ask a few to show a second split that still gives the same total.

6. **Class Challenge.** Draw each shape and its split; one pupil reads the sub-areas while the class checks before you move on. Keep L (30), T (23) and house (33) as the core eight-minute set; treat the trapezium (16.5) as optional stretch. Before any triangle compute, ask 'which length is straight up from the base?'
7. **What Did We Notice?.** Put the two different L-splits side by side — both 30 cm^2 . Re-voice a strong answer: the split line is just for us; the patio stays the same size whichever way we chop it in our heads. Head off the idea of one 'correct' split.

COMMON MISCONCEPTIONS

- ⚠ Pupils add the outer side lengths (e.g. $6+4+3+2$) instead of finding and adding the two sub-areas. Cover the total and point back at the two labelled rectangles. 'We need area of A plus area of B — each is length times width first.' Recompute $24+6$ together and write cm^2 on both.
- ⚠ On the house or trapezium, pupils multiply by the slanting roof edge instead of the perpendicular height. Ask 'which length is straight up from the base?' and redraw the height as a dashed vertical. Rebuild $\text{base} \times \text{perpendicular height} \div 2$ on the half-rectangle sketch from Watch and Notice.
- ⚠ Pupils treat one split line as the only correct cut and freeze when a classmate chooses a different one. Show the side-by-side L-splits from What Did We Notice — both total 30 cm^2 . Re-voice: the shape didn't change; only how we chopped it for measuring.

DIFFERENTIATION

EMERGING

- Pre-draw the L-shape with side lengths already marked so the pupil only places the split line, multiplies and adds.
- Stay on rectangle-only composites (L and T) while the class meets the house triangle; return to the half-rectangle sketch only if ready.

DEVELOPING

- After the paper L, ask them to draw a second different split on the same outline and check both totals match.
- On the house-shape, cover the triangle area and ask them to justify why $\div 2$ appears before they compute.

PROFICIENT

- Fast finishers draw, cut and total a T-shape needing two straight cuts, still labelling every sub-area in cm^2 .
- Offer the trapezium stretch (16.5 cm^2) at the board and ask them to explain the half-number without rounding it away.

✔ **Cross-curricular:** Link to a real school-yard or garden patio plan — estimate the L-shaped paving in m^2 before ordering slabs.

ANSWER KEY

c) 70 cm^2 , 36 cm^2

Q1: 410 cm^2

Q2: 78 cm^2

Q3: 79 cm^2

Q4: 80 cm^2

Q5: 150 cm^2

a) **Always** : One straight split line always divides an L into two rectangles.

b) **Always** : After splitting you always add the sub-areas to get the whole.

c) **Never** : That is the area of the whole rectangle around it; take away the missing corner, or split the L into two rectangles.

d) **Sometimes** : A T can be split into two or three rectangles depending on where the lines are drawn.

EXTENSION SHEET · STRETCH ANSWERS

S1: 62.4 m^2

S2: 99.21 m^2

S3: 63.89 m^2

S4: 201 m^2

S5: 240 m^2