Split the L-Shape to Find Area

Teacher		**Class**	Year 4
Subject	Maths	**Topic**	Area of rectilinear shapes
Date		**Room**	
Lesson length	60 minutes	**Country**	United Kingdom

Pupils learn that area is covering a shape with squares. They split L-shapes, count squares and add parts.

Curriculum links

- find the area of rectilinear shapes by counting squares [1]

Learning objectives

- Students will understand area as squares needed to cover a flat shape.
- Students will find area of rectilinear shapes by counting grid squares.
- Students will split L-shapes into rectangles, count parts and add totals.

Success criteria

- I can explain area as covering a shape with squares.
- I can tick and count every square to find area in cm².
- I can split an L-shape, count parts and add them.

What students already know

Show a 3 by 2 rectangle on a 1-cm grid. Ask: how many 1-cm squares would cover it? Take quick answers to check counting in rows.

Key words

area	amount of space taken up by a flat shape [9]
rectilinear shape	a flat outline with only straight sides and square corners [6]
square centimetre (cm²)	how much fits on a tiny 1 cm by 1 cm tile [9]
split	cut along a straight line to make smaller parts

Materials

- Squared paper with L-shapes, one set per pair
- Pencils and rulers, one per pupil
- Printed Worksheet Task C, one per pupil
- Slides 1–11 ready to display and Video clip 1 ready to play
- Mini whiteboards and pens for checking

Before the lesson

- Print Worksheet Task C, one per pupil, plus a few spare pre-split copies for support
- Print squared paper sheets with 2 large L-shapes for the main activity
- Test Video clip 1 (0:00–3:36) on Slide 6 for sound and picture
- Set up mini whiteboards, pencils, rulers and coloured pencils at tables

Lesson outline

0–8 min **Starter** 8 min · Whole class

Recall what area means and spark curiosity about tricky L-shapes.

YOU DO

1. Show the lesson title and read the three objectives together with the class.
2. Show a simple rectangle and a tricky L-shape on a 1-cm grid. Area is the amount of space taken up by a 2D shape [9].
3. Say the hook and ask partners to point where they would cut the L-shape to make it easy.
4. Explain the big idea that a rectilinear shape is a 2D, flat shape that has straight sides [6] and all sides meet at right angles [6].

STUDENTS DO

1. Listen, join in reading the objectives and look at both shapes.
2. Discuss with a partner for one minute where to cut the L-shape.
3. Share ideas and say what they already know about covering with squares.

Say: This shape looks tricky — where could we cut it to make it easy? Area is how many squares it takes to cover a flat shape. Today we will tick, count and split to find it accurately.

Ask: What does area tell us about a shape? (How many squares it takes to cover the flat shape.) · How can you tell this is a rectilinear shape? (Every side is straight and all corners are right angles.)

Check understanding: Thumbs up if you can explain area in your own words. If many are unsure, repeat the covering idea with the rectangle before moving on.

Support: Point to one row of squares at a time and count aloud together from the top row. **Stretch:** Ask what would change if one extra row of 4 squares was added to the rectangle.

Use: Slides 1–4

8–20 min **Teaching** 12 min · Whole class

Model accurate ticking, counting and splitting an L-shape to add parts.

YOU DO

1. Take a quick vote on favourite ways to count squares, then keep the top two systems.
2. Play the split and add video, pausing where the shape is split to name each part.
3. Model an L-shape live: draw one straight split, tick and count squares inside each part [3], then add.
4. Introduce key words and stress that area is recorded in square centimetres (cm²) [9].

STUDENTS DO

1. Vote, watch and say where the video splits the shape.
2. Count aloud with the teacher, ticking in the air row by row.
3. Copy the split, counts 12 and 8, and total 20 cm² on mini whiteboards.

Say: For a shape drawn on a grid you count the squares inside the shape. I will tick each square once, go row by row, then split the L into two rectangles and add the parts. Watch how I label each part so I do not miss any.

Worked example: L-shape on 1-cm grid. Step 1: draw one straight line to make top rectangle A and lower rectangle B. Step 2: tick and count A row by row: 6 + 6 = 12 squares. Step 3: tick and count B: 2 + 2 + 2 + 2 = 8 squares. Step 4: add parts 12 + 8 = 20. Total area = 20 cm².

Ask: Where should we draw the split to make two rectangles? (One straight line across the inner corner so both parts have straight sides and right angles.) · How do we know we counted every square once? (Tick each square as we count and go row by row without skipping.) · How do we get the area of the whole L-shape? (Add the two parts, 12 + 8 = 20 cm².)

Check understanding: All hold up whiteboards showing 20 cm². Re-model ticking if totals are 19 or 21, showing the missed or double-counted square.

Support: Number each square lightly in pencil as you count, starting at the top row. **Stretch:** Ask pupils to suggest which system is safest: ticking, numbering, or counting row by row, and why.

Use: Video clip 1 (0:00–3:36), Slides 5–7

Created with LessonDino.com · AI lesson planner with checkable sources

20–42 min **Main activity** 22 min · Pairs

Practise splitting L-shapes, counting squares and adding to find total area.

YOU DO

1. Give out squared paper L-shapes, rulers and Worksheet Task C and explain the pair task.
2. Remind pupils that the area of a compound shape may be found by splitting the shape into two rectangles and adding the two separate areas [3].
3. Circulate, check splits are straight and that pupils tick each counted square to support accuracy.
4. Stop halfway to show one good split and labelling of parts and total in cm².

STUDENTS DO

1. In pairs, draw the split line with a ruler to make two rectangles.
2. Tick and count squares in each part, label parts, then add for total area in cm².
3. Swap with another pair to recount and confirm the total matches.

Say: In pairs, draw one straight cut to make two rectangles. Tick each square as you count, label each part, then add to get the total. You will do three L-shapes and prove each total by recounting.

Ask: Where will you split this L-shape and why? (Across the step so we get two full rectangles that are easy to count.) · What will you do if your total does not match your partner's? (Recount each part, check ticks, then add again.)

Check understanding: Teacher collects three totals per pair on the board. Any mismatch is recounted together before continuing.

Support: Show the split line already drawn and ask pupils to count each rectangle separately before adding [3]. **Stretch:** Ask pupils to split the same shape a different way and check they get the same total.

Use: Slide 9, Worksheet Task C

42–52 min **Check and compare** 10 min · Groups

Compare answers and secure a reliable system for accurate counting.

YOU DO

1. Display the counting prompts and ask groups to place their L-shapes side by side.
2. Choose two groups with the same total but different splits to explain their method.
3. Highlight common slips such as missing the corner square or counting it twice.
4. Confirm that marking each counted square supports accuracy.

STUDENTS DO

1. Compare totals in groups and recount any shape that disagrees.
2. Explain in one sentence where a miscount happened and how ticks helped.
3. Agree the final areas and add cm² to each label.

Say: Put your shapes together. Do different cuts still give the same total? Talk through your ticks row by row. Tell us one slip to avoid next time.

Ask: Why did two different splits give the same area? (Both splits cover the same squares inside the shape, just grouped differently.) · What is the best way to avoid missing squares? (Tick or number every square once and count row by row.)

Check understanding: Hands up for agreed totals on all three shapes. Pull any unsure group for a quick guided recount.

Support: Give a small rectangle under 12 squares first and let pupils tick each square as they count. **Stretch:** Challenge groups to count in rows, for example 5 + 5 + 5, and say the addition number sentence.

Use: Slide 10

Created with LessonDino.com · AI lesson planner with checkable sources

52–60 min **Plenary** 8 min · Whole class

Return to the objectives and check each pupil can explain area.

YOU DO

1. Revisit the three objectives and ask pupils to self-rate with thumbs.
2. Show the exit ticket prompts and give quiet writing time.
3. Take two examples of clear explanations to share with the class.
4. Link forward by saying next time they will compare areas of different plans.

STUDENTS DO

1. Reflect on objectives and complete the exit ticket sentences on paper.
2. Share one explanation with a partner, then two pupils share with the class.
3. Hand in exit tickets as they line up.

Say: Think back to our tricky shape. Write what you learnt, the area of your L-shape and why, and one question you still have. Use cm² and mention splitting if it helped you.

Ask: What is area in your own words? (The number of squares needed to cover the inside of a flat shape.) · How did splitting help with an L-shape? (It made two easy rectangles to count, then we added the parts.)

Check understanding: Read exit tickets for correct totals with cm² and clear because statements. Reteach ticking to any pupil with large miscounts tomorrow.

Support: Allow pupils to copy the sentence starters and give their L-shape total orally if writing is slow.
Stretch: Ask pupils to add which other split would also work for their L-shape.

Use: Slide 11

Common mistakes

Mistake	How to spot it	How to fix it
Double-counting or missing squares, especially at the join or corner	Total is one or two out and ticks show a square with no tick or two ticks	Recount row by row from the top, ticking each square inside the shape once [3]
Forgetting to add both parts after splitting the L-shape	Pupil writes two separate counts like 12 and 8 but no total	Label part A and part B, then write the addition, for example 12 + 8 = 20 cm² [3]
Writing the area without cm² or mixing area with perimeter	Answer says 20 or 20 cm, or pupil adds side lengths	Remind that area is the squares covering the shape and is measured in square centimetres (cm²) [9]

Support

- Show the split line already drawn and ask pupils to count each rectangle separately before adding
- Give shapes up to 10 squares with rows lined up on the grid and tick each square as you count

Stretch

- Ask pupils to split the same L-shape a different way and check they get the same total
- Challenge pupils to design two different rectilinear shapes that both have an area of 20 squares

For the LSE or teaching assistant

Stay with the main pairs. Prompt straight splits with a ruler, point to unticked squares, and ask pupils to say each row total aloud before adding.

Created with LessonDino.com · AI lesson planner with checkable sources

Check for understanding

Question	Answer
What is the area of this L-shape made of 12 squares and 8 squares?	20 cm²
How do you count squares accurately?	Tick each square once, go row by row, then add.
Why can two different L-shapes both have an area of 16 cm²?	Area counts covering squares, so different outlines can hold the same number.

Homework

Draw one L-shape on squared paper, split it, and write each part and the total area in cm².

Sources

1. National curriculum in England: mathematics programmes of ... · gov.uk · https://www.gov.uk/government/publications/national-curriculum-in-england-mathematics-programmes-of-study/national-curriculum-in-england-mathematics-programmes-of-study
2. Year 4 mathematics new curriculum on a page · holtsmerejm.herts.sch.uk · https://www.holtsmerejm.herts.sch.uk/wp-content/uploads/2020/07/Yr-4-Maths-Curriculum.pdf
3. Area of squares, rectangles and compound shapes - BBC · bbc.co.uk · https://www.bbc.co.uk/bitesize/articles/zqwxnk7
4. Area of Rectilinear Shapes (Year 4) | CGP+ Primary Online · cgpplus.co.uk · https://www.cgpplus.co.uk/primary/ks2/maths/m2wac991-area-of-rectilinear-shapes-year-4
5. Find the area of rectilinear shapes by counting - Mathsframe · mathsframe.co.uk · https://mathsframe.co.uk/en/resources/category/480/find-the-area-of-rectilinear-shapes-by-counting
6. Rectilinear shapes: how to find their area and perimeter · doodlelearning.com · https://doodlelearning.com/maths/skills/shapes/rectilinear-shapes
7. Area of rectilinear shapes by counting squares Higher | Teaching Resources · tes.com · https://tes.com/teaching-resource/area-of-rectilinear-shapes-by-counting-squares-higher-13150969
8. Maths KS2 Year 4 Area by counting squares. Engaging activities for area of rectilinear shapes | Teaching Resources · tes.com · https://www.tes.com/en-au/teaching-resource/maths-ks2-year-4-area-by-counting-squares-engaging-activities-for-area-of-rectilinear-shapes-11324216
9. How to work out an area - BBC Bitesize · bbc.co.uk · https://www.bbc.co.uk/bitesize/articles/zwqt6fr

Created with LessonDino.com · AI lesson planner with checkable sources