

Perimeter: the distance all the way around

CURRICULUM ALIGNMENT

SHA.SHP.3b

represent shapes with drawings and models, and calculate dimensions of shapes.

NUM.OPS.3

understand and apply flexibly the four operations; and the relationships between operations.

INTERACTIVES

Shape Measurer · challenge, display

WHAT THIS LESSON TEACHES

The perimeter is the distance all the way around the edge of a flat shape. You find it by adding the length of every side once.

→ A square with each side 4 cm has perimeter $4 + 4 + 4 + 4 = 16$ cm.

→ A triangle with sides 3 cm, 4 cm and 5 cm has perimeter $3 + 4 + 5 = 12$ cm.

MODEL THIS ON THE BOARD

PERIMETER OF A BUILT RECTANGLE

- 1 A builder makes a rectangular frame with sides 5 cm, 3 cm, 5 cm and 3 cm.
- 2 Touch and add the first side: 5
- 3 Add the next side: $5 + 3 = 8$
- 4 Add the third side: $8 + 5 = 13$
- 5 Add the last side: $13 + 3 = 16$
- 6 The perimeter is 16 cm all the way around.

LESSON ARC

Trace a finger right around the edge of a maths book so pupils see the round trip start and finish at the same corner. Introduce 'perimeter' and work four shapes live on the IWB — touch each side, add as you go — with the L-shape as the deliberate slow-down. Pupils copy the triangle and square into their copies with full addition sentences, then measure real cards with string and ruler in the Class Challenge.

TEACHING MOVES

1. **Getting Started.** Trace your finger right around your maths book, starting and ending on the same corner so the round trip is visible. Take two or three hands-up answers only — you're fishing for 'add up the edges', not the word perimeter yet.
2. **Watch and Notice.** Work each shape live — touch the first side, say its length, then keep a running total aloud with the class. On the square, link the four equal sides to the 4-times table; on the rectangle, ask which sides are equal before adding. For the L-shape, count the six sides first and touch each one deliberately as you add to 16.
3. **Try It Together.** The perimeter readout is hidden, so pupils must add the sides themselves. Have each pupil at the board trace every side with a finger as the class counts along. Slow right down on the L-shape's six sides — a skipped or doubled side is where this beat earns its time.
4. **Write the perimeter in your copy.** Walk the room glancing for a length on every side and the full addition sentence written out — no marking. Catch the pupil who writes only the total: 'show me the sum that got you there.'

5. **Class Challenge.** Keep the pass-on rhythm brisk as cards circulate; the class confirms each reading aloud at the end. Circulate to catch string sagging or cutting across a corner instead of hugging the edge — that's the one measuring slip. Before the final compare, ask pupils to predict from the longest side which card's way-around is bigger.
6. **What Did We Notice?.** Revoice a strong answer: 'we add every side because the ant walks along all of them, and count each once because it only walks each edge one time.' If a pupil counts a rectangle's long side twice, draw the trip round the edge to show each side is walked exactly once.

COMMON MISCONCEPTIONS

⚠ On the L-shape a pupil skips the little step side or counts one of the 2 cm sides twice, so their total lands on 14 or 18 instead of 16.

Stop and trace the ant's trip round the L-shape on the IWB, touching each of the six sides once and counting aloud. 'Did the ant walk this bit? Did it walk it twice?' Rebuild the $4 + 2 + 2 + 2 + 2 + 4$ as you go.

⚠ Measuring the card, a pupil pulls the string straight across a corner or lets it sag, so their straightened length reads short.

Kneel at the group and re-lay the string yourself, pressing it into each corner so it hugs every edge. 'The ant can't cut the corner — it walks right into it.' Then have the pupil re-read against the ruler.

DIFFERENTIATION

EMERGING

- Give these pupils the triangle and square only in the copybook step — three or four sides, no step to trip on — while the class also tackles the L-shape.
- Pre-mark the string's start corner with a piece of tape so pupils know exactly where the trip finishes when they lay it round the card.

DEVELOPING

- After the copybook triangle and square, ask them to invent a rectangle with a perimeter of exactly 20 cm and write the sum that proves it.
- For the string measuring, ask them to predict the card's perimeter from its side lengths first, then check by measuring — how close was the guess?

PROFICIENT

- Narrate a harder variant at the board: give an L-shape with one side length missing and ask them to work out the missing side from the others before finding the perimeter, explaining aloud how they knew.
- Pull them ahead into the Student Activity Book while the class finishes the string round.

✓ **Cross-curricular:** Tie to Geography — pupils walk the perimeter of the school yard or a marked plot, pacing each side and adding the paces for the whole way round.

ANSWER KEY

a) 16 cm

b) 16 cm

c) 12 cm

Q1: 28 cm

Q2: 12 cm

Q3: 8 cm

Q4: 16 cm

Q5: 15 cm

Q6: 14 cm

a) **Always** : Perimeter means the total distance all the way around so every side is added once.

b) **Always** : Four equal sides of 4 cm give $4 + 4 + 4 + 4 = 16$ cm.

c) **Sometimes** : This works only for regular shapes where all sides are equal.

d) **Never** : Missing any side makes the total too small so it is never correct.

EXTENSION SHEET · STRETCH ANSWERS

S1: 44 m

S2: 36 cm

S3: 106 m

S4: 84 m

S5: 76 m