

Right angles: finding them in shapes and the room

CURRICULUM ALIGNMENT

SHA.SAL.3b

compare and classify angles, recognising them as a property of a shape and as a description of a turn.

SHA.SHP.3a

investigate and analyse the properties of 3-D and 2-D shapes and identify classes of shapes based on these properties.

INTERACTIVES **Drag Sort · challenge, display**

WHAT THIS LESSON TEACHES

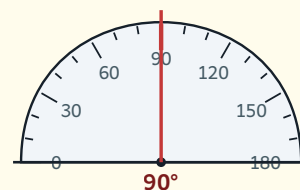
A right angle is a square corner. It is exactly a quarter of a full turn, so it is neither wide open nor pinched shut. Fold a scrap of paper in half, then in half again the other way, and the folded corner is your checker for testing corners.

- The corner of your copybook is a right angle.
- A door frame has a square corner where the top meets the side.

MODEL THIS ON THE BOARD

IS THIS A RIGHT ANGLE?

- 1 A right angle is a square corner: exactly a quarter turn of **90°**.
- 2 The angle on the protractor opens exactly to the **90** mark.
- 3 Both arms line up with no gap, so this is a **right angle**.



DISCUSSION STARTER

REFLECT Where did you spot the most right angles around the classroom?

LESSON ARC

Fold a scrap of paper twice in front of the class to make a right-angle checker, then test four board corners — page, window, flag point, open book — asking pupils to predict fit before each reveal. Pupils sort corner cards together, then trace two right angles in their copybook using the copybook corner as a guide. In the Class Challenge each pupil folds their own checker and hunts real corners at their desk; the maths-talk pivots on why a rectangle has exactly four square corners.

TEACHING MOVES

1. **Getting Started.** Point to three real corners — copybook, window, door — and give five seconds of silent think-time before hands go up. Take three hands-up answers only; accept both 'right angle' and 'square corner'.
2. **Watch and Notice.** Fold the checker live — once, then again the other way — and hold it against your book corner so pupils see it fits before you test anything trickier. For the flag point and open book, hold out for a prediction ('too small, too big, or exact?') before the answer shows.
3. **Try It Together.** Pupils take turns dropping corner cards into 'Right angle' / 'Not a right angle', but ask 'would the paper checker fit that corner exactly?' before each drop. Revoice a good answer: 'so a right angle is neither pinched nor wide open.'

4. **Draw Right Angles in Your Copy.** Walk the room glancing for the small square mark in each corner and for edges that actually meet. Catch pupils tracing too fast — the lines drift apart at the corner if they rush the lift-away.
5. **Class Challenge.** Every pupil folds a checker and hunts at their own desk — keep it brisk, circulate prompting 'does it fit exactly?' Watch for the eyeballed 'looks square' call and send those pupils back to the checker. In the last minute take two or three finds for the class to confirm.
6. **What Did We Notice?.** Ask why a rectangle has exactly four square corners and listen for 'one at each corner'. If a pupil claims a pushed-over rectangle is still a rectangle, use it — its corners are no longer square, so it's a different shape.

COMMON MISCONCEPTIONS

⚠ Pupils call a corner a right angle because it 'looks square' — they eyeball it instead of testing. Hand them the folded checker and make them hold it against the corner. If a gap shows or the checker overlaps, it isn't square. 'Your eyes guess; the checker knows.'

⚠ Pupils think a wide-open corner and a pinched-point corner are the same 'not right' — they don't distinguish bigger-than from smaller-than. Put the flag point and the open book side by side on the IWB with the checker on each. Show the checker is too big for the point (corner too small) but too small for the open book (corner too big). Name both against the square corner.

DIFFERENTIATION

EMERGING

- For the copybook step, let pupils trace all four corners of the copybook itself rather than drawing two free-standing right angles — the guide does the work.
- In the hunt, narrow the task to just 'find three right angles on your desk' and set the bigger/smaller corners aside until they're confident with the fit.

DEVELOPING

- During the hunt, ask pupils to sort their finds into 'exact / too big / too small' groups instead of just listing them.
- After the copybook step, challenge them to draw a right-angled triangle using the copybook corner for its one square corner.

PROFICIENT

- Take the Class Challenge stretch further: hand a strong pupil a square, a rectangle and a right-angled triangle and ask them to check every corner with the checker and report how many right angles each has — no assuming from one corner.
- Pose at the board: 'Can a triangle have two right angles? Try to draw one and explain what goes wrong.'

✂ **Cross-curricular:** Link to Geography — pupils spot right angles in the street grid or building corners of a local town map.

ANSWER KEY

Scaffold: visual check on the page

Q1: 2

Q2: 4

Q3: 4

a) **Always** : A right angle is exactly a square corner every time.

b) **Always** : One right angle is always exactly a quarter turn.

c) **Sometimes** : Some corners are square, but some are too open or too pinched.

d) **Never** : A right angle is exactly a square corner, never wider.

EXTENSION SHEET · STRETCH ANSWERS

S1: 81° is acute

S2: 64° is acute

S3: 158° is obtuse

S4: 109° is obtuse

S5: 132° is obtuse

Investigation: Right-angle hunt — open-ended; scan pupils' working for valid solution paths rather than a single answer.