

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.

INTERACTIVES Drag Sort · challenge

WHAT THIS LESSON TEACHES

A right angle is a square corner made by a quarter turn between two straight edges.

- The corner of your maths copybook is a right angle.
- The corner of the door is a right angle.

MODEL THIS ON THE BOARD

MARKING A RIGHT ANGLE ON THE BOARD

- 1 Look at two straight lines that meet to form a corner.
- 2 Use the folded paper tester to check if the corner is square.
- 3 Draw the small square symbol snug inside the corner to show it is a right angle.

DISCUSSION STARTER

REFLECT Where in your classroom did you spot the most right angles?

LESSON ARC

Open with a quiet look around the room for square corners already in view. Every pupil folds an A4 sheet twice to make a right-angle tester, then you model the fits-or-does-not-fit rule on a square card, a rectangle, a door frame and a slanted triangle. Class sorts corners at the IWB in Try It Together and Class Challenge, testers still in hand. Copybook beat draws one right angle with the little square mark. Student Activity Book page 80 is the desk practice.

TEACHING MOVES

1. **Getting Started.** Give a few seconds of quiet looking-time before hands go up. Take three or four pointed answers only — door frame, copybook, window, whiteboard edge. Hold the phrase square corner; keep the folded-paper tester out of sight until the next step.
2. **Watch and Notice.** Real paper, not on-screen: every pupil folds A4 in half, then in half again, pressing both creases flat. Point to the sharp folded corner — this is the tester. Check folds before testing: firm creases, sharp point, no floppy layers. Run four corners slowly — square card, rectangle, door frame, slanted triangle — saying fits or gap opens each time. Pause on the triangle so the class spots the gap themselves.
3. **Try It Together.** One pupil at the board; class predicts fits-or-does-not-fit before each drag. No Check button — disagreement is settled out loud. If a corner is disputed, hand the real folded paper to the board pupil to test a matching real corner. Rotate four pupils. Revoice any side-length talk: it is the square-ness of the corner that matters, not how long the sides are.
4. **Draw a Right Angle in Your Copy.** Model once on the board: two straight lines meeting like an L, then the little square symbol snug inside the corner — not floating outside. Pupils copy the same steps and

note one matching room corner. Walk the room glancing that the mark sits inside the angle. Whole-class copybook practice, not marking.

5. **Class Challenge.** Brisk practice — pupil at the board sorts; class confirms; move on. Rounds rise in difficulty; Round 4 corners are almost-square so demand a careful look. When unsure, hand the real tester: does the gap open a little, or does it lie flat? On the tilted-book card, press that turning the book does not change the corner.
6. **What Did We Notice?.** Ask why the folded-paper corner is a fair test anywhere in the room. Listen for: the tester always makes the same square corner. Revoice: the tester never changes, so a match means that corner is square too. Head off bigger-object-means-bigger-angle thinking — the turn is the same whatever the size or orientation.

COMMON MISCONCEPTIONS

⚠ Pupils judge by how long the sides are: 'that corner looks right because the sides are long' — they ignore whether the corner itself is square.

Hold the tester against a long-sided acute corner and a short-sided right angle side by side. Revoice: it is the square-ness of the corner that matters, not how long the sides are.

⚠ Pupils say a tilted book or diamond-turned square has no right angle because it 'looks slanty'.

Turn a square card slowly on the board while holding the tester against one corner the whole time. The fit never changes — a right angle is the same square turn whatever its position.

⚠ Pupils fold loosely or stop after one fold, so the tester point is rounded and every corner 'almost fits'. Stop and refold with them before any more testing: both creases pressed flat, point sharp, no floppy layers. A soft point cannot give a fair yes-or-no.

DIFFERENTIATION

EMERGING

- Stay with the door frame, copybook and square card only — clear fits — while the class moves on to slanted and almost-square corners. Teacher table checks each fold before the pupil tests.
- On the copybook draw, pre-sketch the two arms of the L so the pupil only places the little square mark snug inside.

DEVELOPING

- After a clear fit, ask: name two more room corners that would fit the same tester without walking over to check — justify how you know.
- On Round 4's almost-square corners, insist they say gap opens a little or lies flat before the board pupil sorts.

PROFICIENT

- Challenge: find a corner in the room that looks square from your seat but fails the tester when you walk over — explain what fooled the eye.
- On the copybook page, draw the same right angle turned three different ways and mark each with the little square — prove the turn did not change.

✂ **Cross-curricular:** Link to Visual Art — pupils hunt right angles in classroom tile patterns and window mullions, then sketch one tiled corner in copybook.

ANSWER KEY

Scaffold: visual check on the page

Q1: Yes

Q2: Yes

Q3: Yes

Q4: 4

a) Always : By definition a right angle is exactly one quarter turn.

b) Sometimes : True for the corner of a door or a copybook; false for the point of a triangle card or a pair of scissors opened a little.

c) Never : A triangle can have at most one right angle and many have none.

d) Always : The folded paper tester checks if edges lie flat along the corner.

EXTENSION SHEET · STRETCH ANSWERS

S1: 47° is acute

S2: 161° is obtuse

S3: 47° is acute

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