Lesson 75 SHAPE & SPACE

Angles — what is an angle?

CURRICULUM ALIGNMENT

SHA.SHP.4b investigate and construct angles in the context of shape; and solve angle-related problems.

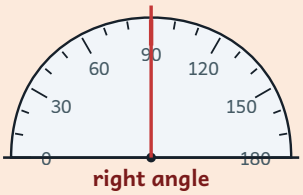
INTERACTIVES Angle Tool · challenge, display, explore

WHAT THIS LESSON TEACHES

An **angle** is the amount of turn between two lines that meet at a point. We measure angles in **degrees (°)**. A full turn is 360°.

→ **Right angle** = 90° (a quarter turn — like the corner of this page).

→ **Straight angle** = 180° (half turn). **Acute** < 90°, **obtuse** between 90° and 180°.



right angle

LESSON ARC

Open by having the whole class stand and turn from facing the front to facing the door — they feel a turn has a size before any vocabulary lands. Move to the angle-tool interactive and walk four snapshots, holding a copybook corner against the screen for the right angle. Pupils name each turn as you drag the orange ray, then mirror the turn with their bodies in place. They sketch and label the four types in their copy; the maths-talk pivots on two 60° angles drawn with different line lengths.

TEACHING MOVES

1. **Getting Started.** Stand the whole class beside their chairs and turn from front to door together, once. Take two or three hands-up answers naming the size of the turn — resist defining anything. Land the line 'you just made an angle' and move on.
2. **Watch and Notice.** Walk the four snapshots in turn on the angle-tool interactive and hold a copybook corner up beside the screen at the right-angle frame so pupils see the match. After each, point at the readout and name it. Keep saying 'amount of turn' — never let the talk drift to how long the orange line is.
3. **Try It Together.** Drag the orange ray and pause at acute, right, obtuse and straight; ask the class to call the name before the readout confirms, and bring pupils up to set the next one. Then run the body-turn sequence in place — reset to 'north' (the front) between every call. Don't worry which way pupils turn; the amount is what names the angle.
4. **Sketch the Four Angle Types in Your Copy.** Walk the room glancing for the small square at the right-angle vertex and that the obtuse is drawn visibly wider than the right angle. This is whole-class copybook practice, not marking — a quick scan, not a tick.
5. **Class Challenge.** Set the angle tool to a target, pupils name it, press Check, next pupil up — keep it brisk. Between rounds, send eyes around the room from seats for a real example (window corner, open scissors, propped laptop lid, table edge) and tick the shared board list. The almost-straight 170° find is the stretch — confirm it as 'obtuse, very close to straight', not a fifth type.
6. **What Did We Notice?.** Show the two 60° angles side by side and ask: same angle or different? Listen for 'the long one looks bigger' and revoice: the lines can be any length — what makes the angle is how far one line has turned from the other. Pick up any real example a pupil offers (short clock hand, long road) and repeat it for the class.

COMMON MISCONCEPTIONS

⚠ Pupils say the angle with the longer lines 'looks bigger' even when both show the same turn.

Put the two 60° angle-tool snapshots side by side and point at the equal readout. Trace the turn with a finger on each: 'the line went the same distance round on both — that's the angle, not how far the line keeps going.'

⚠ Pupils call a very wide angle like 170° 'nearly straight, so it's straight' — they want a fifth category.

On the angle tool, set 170° then 180° beside it so pupils see one is still a turn and one is a flat line. Name the 170° as 'an obtuse angle very close to straight' — this lesson only has the four types.

⚠ During the body turns, pupils worry they've turned the wrong way (left instead of right).

Reassure on the spot — a quarter turn to the left and a quarter turn to the right are both right angles. Have them reset to 'north' facing the front and focus on the amount, not the direction.

DIFFERENTIATION

EMERGING

- Give these pupils the copybook corner to hold against each angle-tool snapshot — anything narrower is acute, wider is obtuse, matching is right.
- In the copybook sketch, let them trace round the copybook corner for the right angle so the square mark is accurate before they free-draw the others.

DEVELOPING

- After the Class Challenge, ask them to set the angle tool to an angle the class hasn't named yet and predict the type before pressing Check.
- On the copybook page, ask them to order their four sketches from smallest turn to biggest and say where '120°' would slot in.

PROFICIENT

- Pose at the board: 'two acute angles put together at the same vertex — can they ever make an obtuse angle? Show me on the tool and explain when.' Let them investigate with the angle tool rather than telling them.

Cross-curricular: Tie to PE — call out 'quarter turn right' and 'half turn' as drill commands and have pupils name the angle each turn makes.

ANSWER KEY

W1: 135° is obtuse

W2: 45° is acute

Q1: 126° is obtuse

Q2: 47° is acute

Q3: 84° is acute

Q4: 85° is acute

EXTENSION SHEET · STRETCH ANSWERS

S1: 307° is reflex

S2: 158° is obtuse

S3: 47° is acute