

Shape detectives: module review

CURRICULUM ALIGNMENT

SHA.SHP.2

examine, categorise and model 3-D and 2-D shapes.

SHA.TRN.2

understand that shapes and line segments can be reflected, rotated and translated.

INTERACTIVES

Pattern Blocks · display

Drag Sort · explore

Spin the Wheel (Maths) · explore

WHAT THIS LESSON TEACHES

A fact about sides, corners, faces or footprints helps us name a shape.

→ Four straight sides, all the same length – that clue names a square.

→ A cylinder stood on its end prints a circle; a sphere leaves no flat footprint.

MODEL THIS ON THE BOARD

CLASSROOM RIDDLE CARD

- 1 Read the clue from the envelope: I have 3 straight sides and 3 corners.
- 2 Check the sides: the clue gives 3 straight sides.
- 3 Check the corners: the clue gives 3 corners.
- 4 Match the clue to the shape name: it is a triangle.

LESSON ARC

Open the mystery envelope and read three shape riddles with quiet think-time — leave answers open. On the IWB, name the square from equal sides, join six triangles into a hexagon, then spin a physical triangle card halfway to show a half turn. Sort flat-shape and solid cards into name or footprint homes together. Pupils write one shape clue in their maths copy. Class Challenge spins four riddles; close by naming which detective check we use first.

TEACHING MOVES

1. **Getting Started.** Read the footprint meaning once, then each riddle once. Give five seconds of quiet think-time before hands. Take two or three answers per riddle without confirming — park the triangle and no-print solid for the sort, and the half-turn riddle for Watch and Notice.
2. **Watch and Notice.** Wait for the class to say square, then restate that the four sides and corners match. Point at the hexagon and count its six outer sides aloud; if you have triangle cards, show them meeting so the outer edge matches. For the half turn, hold a physical triangle card pointing up, spin it halfway so it points down, ask ‘is it still a triangle?’, and only then name half turn. If someone says flip, show flip-over versus spin halfway.
3. **Try It Together.** Talk the sort through together. Before each card lands, the class calls the home aloud: Square, Triangle, Circle, Prints a square, Prints a circle, or No print. Rotate about four pupils at the board. Watch the sphere — echo ‘no flat face, so no footprint’. A tilted-looking square still belongs in Square.
4. **Write a shape clue in your copy.** Write the model clue on the IWB and read it once. Quiet writing time: one clue starting ‘I have ...’. Walk the rows for sides, corners or footprints named clearly. One short sentence is enough for early writers — this is practice, not marking.
5. **Class Challenge.** Keep the wheel brisk so all four riddles get solved. Pupils take turns, check each answer, class confirms. Answers: square; cylinder; half turn; hexagon. Accept only half turn (or turn) for

the move — if flip appears, show flip-over versus spin with a card. After each answer ask ‘which clue gave it away?’ Spin again on a repeat.

6. **What Did We Notice?** Invite two or three short answers. Listen for sides and corners, flat face or curved, footprint or none, half turn. Echo a strong one as ‘so we check the clues before we name it’. Head off bare guessing with no clue named.

COMMON MISCONCEPTIONS

⚠ Pupils say the sphere ‘prints a circle’ or drop it on Prints a circle — they mix it up with the cylinder’s end face.

Hold the sort: ‘Has it a flat face to press in paint?’ Echo no flat face, so no footprint, and move the sphere to No print.

⚠ Pupils call the half turn a flip — they think turning the card over is the same as spinning it halfway. Show both with the triangle card: flip it face-down, then spin it halfway while it stays face-up. Restate: half turn spins so it points the other way and stays the same shape.

⚠ Pupils reject a square card that looks tilted and try to park it nowhere, as if a diamond isn’t a square. Rotate the card slowly until one side is flat along the bottom. ‘Same four equal sides — still Square.’

DIFFERENTIATION

EMERGING

- During the sort, offer only the three flat-shape cards first; add cube, cylinder and sphere once those three homes are secure.
- For the copy clue, leave the stem ‘I have ____ straight sides and ____ corners’ on the board so pupils fill numbers, not invent the sentence.

DEVELOPING

- After the model clue, ask them to add one extra fact to their copy clue — a footprint or a half-turn idea — before the Class Challenge.
- On a solved riddle, press ‘which clue gave it away?’ and wait for the exact side-count, footprint or move, not just the shape name.

PROFICIENT

- In Class Challenge, after half turn is named, ask what a full turn would do to the same triangle — still a triangle, pointing the same way again — without opening a new topic.
- Once their copy clue is written, have them silently test it against the cards on the board: does only one card fit?

✂ **Cross-curricular:** Link to PE — pupils stand as a triangle, make a half turn on a drumbeat, and check they still make the same shape.

ANSWER KEY

c) hexagon

Q1: square

Q2: circle

Q3: hexagon

a) **Always** : That sides-and-corners clue always names a triangle.

b) **Always** : Each face of a cube is a square so the print is square.

c) **Never** : A sphere has no flat face so it can leave no print.

d) **Sometimes** : Some shapes change look after a half turn but a square can look the same.

EXTENSION SHEET · STRETCH ANSWERS

S1: square

S2: sphere

S3: a diamond

S4: a half turn

Investigation: Write a riddle — open-ended; scan pupils’ working for valid solution paths rather than a single answer.