

Circles and semicircles

CURRICULUM ALIGNMENT

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

INTERACTIVES [Pizza Slicer · display](#) [Drag Sort · challenge, explore](#)

WHAT THIS LESSON TEACHES

A circle is a perfectly round flat shape with no straight sides and no corners. A semicircle is a fair half of a circle, curved on one side and straight on the other.

→ A whole pizza or a coin is a circle.

→ A half orange or a paper plate folded once is a semicircle.

MODEL THIS ON THE BOARD

WHOLE PIZZA TO HALVES

- 1 Look at the whole pizza on the counter. It is round all the way with no straight sides, so it is a **circle**.
- 2 Cut the pizza into two equal pieces that match. Each piece has one curved edge and one straight cut.
- 3 Each fair half is a **semicircle**. The two semicircles join to make the full circle again.

LESSON ARC

Open by folding a paper plate (or showing a photo) so pupils see a whole circle become a half-moon. On the pizza interactive, name the whole pizza a circle, then the two matching halves as semicircles, tracing the curved edge and the straight cut. Sort four picture cards together—circle or semicircle—before pupils draw both shapes in their copybooks. Class Challenge adds a Neither group. Close by naming one same feature and one difference.

TEACHING MOVES

1. **Getting Started.** Fold a paper plate once at the visualiser as pupils settle, or hold up a whole-plate photo beside a folded one. Ask where they have seen the half-moon shape—rainbow, orange slice, moon—take three quick answers, then move on.
2. **Watch and Notice.** On the first pizza snapshot, point and name it a circle: round all the way, no straight sides, no corners. On the second, show both matching halves and name each a semicircle. On the third, trace the curved edge then the straight edge. Ask: how many straight sides on each? Circle: none. Semicircle: one. Keep the talk short—the pictures teach.
3. **Try It Together.** All four cards start in the tray. Point to one, read its label, then ask: curved and straight, or round all the way? Bring a different pupil up for each card. If someone hesitates on the rainbow, revoice: curved top and flat bottom make it a semicircle shape. Class agrees out loud before the next card.
4. **Draw circle and semicircle.** Pupils draw a circle, then a semicircle beside it, in their maths copy. Walk the room glancing for a closed round shape and a half-moon with one straight edge. No individual marking—whole-class copybook practice.
5. **Class Challenge.** Brisk board turns: pupils sort into circle, semicircle, or neither; class confirms each answer before moving on. Before the first Neither item, revoice the two checks once. Watch for the egg—

curved but not fair circle or semicircle. If a semicircle sits on its curve, revoice: turning it does not change its name.

6. **What Did We Notice?** Ask: what is the same about a circle and a semicircle? What is different? Listen for both curved/round; circle has no straight side; semicircle is a fair half with one straight side. Revoice: so a semicircle is half a circle, cut fairly. If anyone says any two pieces are halves, return gently to equal parts.

COMMON MISCONCEPTIONS

⚠ Pupils put the egg (or another oval) in Circle because 'it is curved all the way'.

Pause on the egg card. Trace its outline slowly and ask: is every part the same distance from the middle, like a coin? Name it Neither—curved, but not a fair circle.

⚠ Pupils think turning a semicircle onto its curved side makes it a different shape or 'not a semicircle any more'.

Rotate the semicircle on the board and revoice: it still has one curved side and one straight side—turning does not change its name.

⚠ Pupils call any cut piece a semicircle, even when the two parts are not equal.

Return to the pizza halves that match. 'Fair half means the two pieces are the same size.' Unequal wedges go in Neither.

DIFFERENTIATION

EMERGING

- Stay with the coin and the clear half-plate first; name curved vs straight for the pupil before they choose the group.
- On the copybook draw, sketch a faint circle guide so they only need to complete the round line, then add one straight diameter for the semicircle.

DEVELOPING

- After a correct sort, ask them to point to the one straight side on the semicircle and say why the circle has none.
- Give one extra Neither look-alike (a curved wedge that is not half) and ask them to justify the bin out loud.

PROFICIENT

- Ask: find two things in the classroom that are circles and one that looks curved but is Neither—be ready to say why.
- On the copybook page, draw a semicircle on its curved side and write one sentence: turning does not change the name.

✂ **Cross-curricular:** Link to Art: fold a paper plate once and paint a rainbow on the semicircle half.

ANSWER KEY

Scaffold: visual check on the page

Q1: circle

Q2: semicircle

Q3: 4

a) Always : That is the rule for a circle.

b) Always : A fair half of a circle always shows that pair of edges.

c) Never : A coin is round all the way so it is a circle.

d) Never : A circle has no straight sides at all.

EXTENSION SHEET · STRETCH ANSWERS

S1: semicircle

S2: circle

S3: semicircle

S4: 0 and 1

Investigation: Halves of a circle — open-ended; scan pupils' working for valid solution paths rather than a single answer.