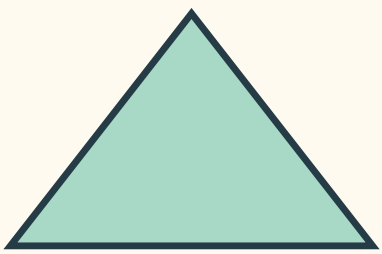
MATHS FIELD GUIDE · GRADE 1

Know a shape by its sides

OPENING PROBLEM

Where does a side end?



3 sides

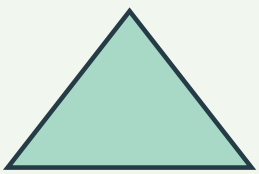
02 Sort by the boundary
03 Rules and worked cases
04 Make a shape sign
05 Match a solid to its flat print
06 Check your reasoning

ILLUSTRATED PROBLEM SHEET

Sort by the boundary

Trace once around the outside. Count corners and straight sides.

1

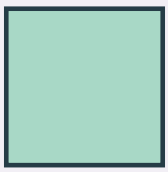


3 sides

Where does a side end?

At a corner. Three sides meet at three corners.

2

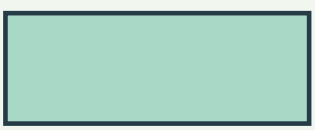


4 sides

What stays true if the page turns?

Four equal straight sides and four square corners.

3

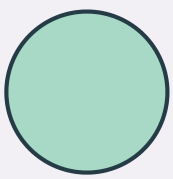


4 corners

How does this compare with the square?

Both have four square corners. This rectangle has long and short sides.

4



curved

Where are its corners?

There are none. The boundary curves all the way round.

A triangle on its side
still three corners.

An open three-segment path
no closed triangle.

CHAPTER PROBLEM

A shape has three straight sides. What is it?

A triangle.

MATHS REFERENCE · GRADE 1

Know a shape by its sides

A flat shape has an outline we can draw on paper.

Straight sides and corners help us tell shapes apart.

Four cases to recognise

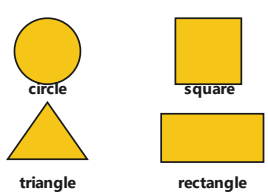
Situation	What to do and why
A triangle pointing down	Trace three straight sides and three corners. Turning it keeps it a triangle.
A long thin rectangle	Find four square corners. Its long and short sides need not match.
A loop made from four curved pieces	Count straight sides. Curved edges do not make a square.
A coin and a drawing of its edge	The traced outline makes a circle. The coin itself has thickness.

Read the model

Meet four shapes

A triangle has three straight sides and three corners.

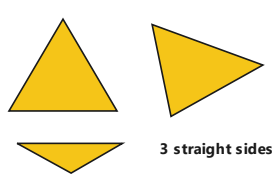
A square has four equal straight sides and four square corners. A circle has a curved boundary and no corners.



Turn it, keep its name

These triangles point different ways.

Each still has three straight sides and three corners. Turning does not change the shape.



side A straight part of a shape's boundary.
corner Where two sides meet.
boundary The outline around a shape.



Which shape follows?

Square. Each circle is followed by a square.

WORKED INVESTIGATION

Make a shape sign

Make a sign with three straight sticks joined end to end. If all three corners meet and the sticks enclose a space, you have a triangle.

Look at this part	What it tells you
Triangle	3 straight sides
Square	4 equal sides and 4 square corners
Circle	a curved boundary with no corners

Work it through

Turn the triangle so one corner points down. Trace around it. You still make three straight journeys before returning to the start.

Catch the mistake

Three sticks in an open zigzag have no inside. Counting three pieces alone cannot make that open line a triangle.

Compare the cases

Squares and rectangles

A rectangle has four straight sides and four square corners.

A square is a special rectangle: all four sides are equal. Some rectangles have two longer sides.

Make a shape

Two triangles can make a new shape



Name the parts you used

Compose a new 2-D shape

Colour is not the rule

A red triangle and a yellow triangle can have the same shape.

A big circle and a small circle are both circles. Look at their boundaries, not their colours.

Change one condition

A long thin triangle and a short wide triangle both pass the three-side test. Their side lengths can differ.

Catch a shape mistake

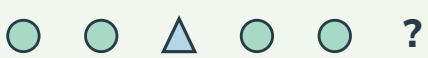
A child says a triangle must point up.

Turn a paper triangle. Count its sides again. It is still a triangle.

Try with paper

Draw a triangle and a rectangle. Trace each straight side.

Look for a circle on a clock face. Its outline has no corners.



Where does the repeat end?

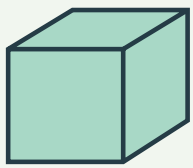
After the triangle. The missing sixth shape is a triangle.

ILLUSTRATED PROBLEM SHEET

Match a solid to its flat print

A print shows the face that touches the paper. A different solid can make the same print.

1

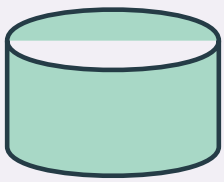


flat face

Which outline can one cube face print?

A square. Turn it to another face and you still get a square.

2

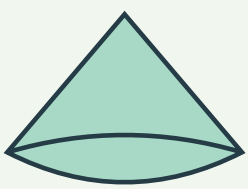


flat end

Stand the cylinder on its flat end. What print appears?

A circle.

3

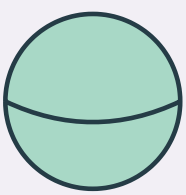


flat base

Can this cone leave the same kind of print as a cylinder?

Yes. Its flat base is also circular.

4



curved

Can the ball rest on a whole flat face like the cube?

No. Its surface is curved all around.

A cylinder end and a cone base both can print circles.

A cube face and a rectangular box face can print different outlines.

CHAPTER PROBLEM

Does turning a square change its name?

No. Its equal sides and square corners stay the same.

QUESTION BANK · FOLD OR COVER THE RIGHT COLUMN

Check your reasoning

Try the problem	Solution and reasoning
01 Can a closed shape with three straight sides and three corners be a triangle even if one side points up?	Yes. Turning it keeps the same sides and corners.
02 You see a square print. Does that prove every face of the object is square?	No. You only know about the face that made the print.
03 Can a circle have a corner?	No. A circle has a curved boundary with no corners.
04 I turn a square sign until it rests on a corner. Is it still a square? What could you check?	Yes. Trace the four equal sides and check its four square corners. Turning changes none of them.
05 A triangle has one very long side. Is it still a triangle?	Yes, if its three straight sides meet to close the shape.
06 Does a folded paper square always become a triangle?	No. Folding one edge onto the opposite edge gives a rectangle; a diagonal fold gives a triangle.
07 Which two shapes have only straight edges? 	The triangle has three straight edges and the square has four. The circle has a curved boundary.



What belongs in the middle gap?

Triangle. Match the fifth place to the second.

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