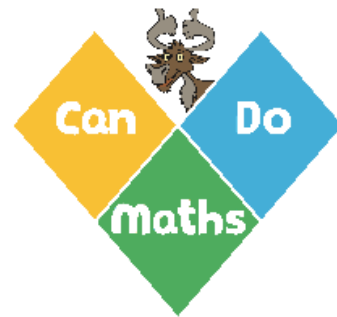


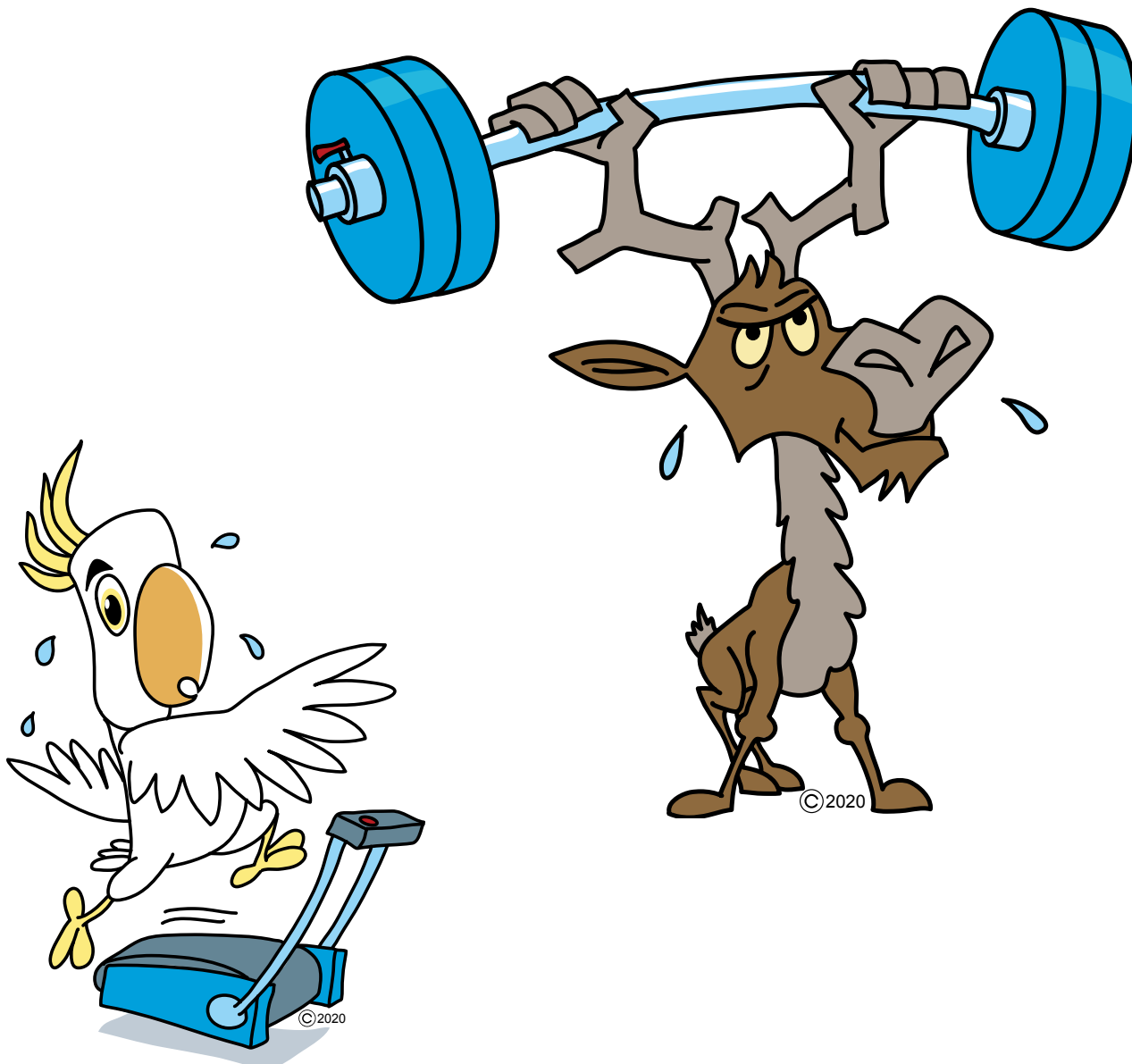


Colin and Coco's Deliberate Practice

Year 4 Unit 2

Geometry: Properties of Shapes

Answers





Contents

This pack of deliberate practice is designed to be used flexibly to secure the manageable steps of this unit.

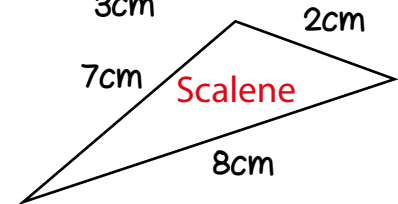
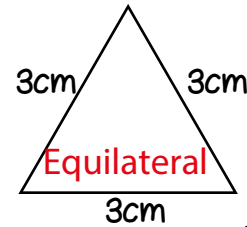
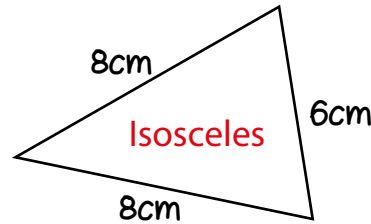
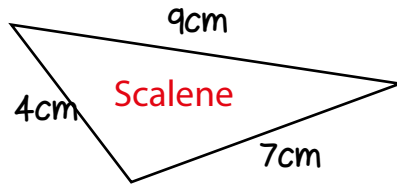
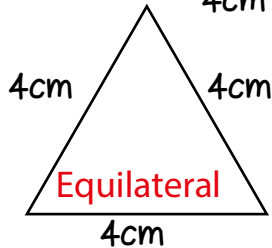
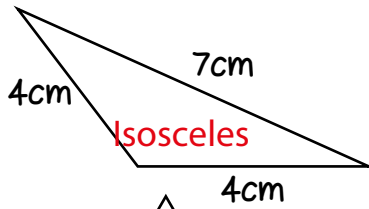
The table below indicates which activities are linked to which manageable steps.

	Do It	Challenge It	Play It
Identify and describe an equilateral triangle	1	1	
Identify and describe an isosceles triangle	1	1	1
Identify and describe a scalene triangle	1	1	1
Identify and describe a parallelogram	2	2	2
Identify and describe a rhombus	2	2	2
Identify and describe a trapezium	2	2	2
Identify and describe a kite	2	2	2
Classify 2D shapes	3	3	3
Identify lines of symmetry of a 2D shape	4		
Identify a line of symmetry of a pattern and for a diagram of a reflection		4	
Use a line of symmetry to produce a symmetrical pattern			4
Use a line of symmetry to complete a symmetrical shape	5	5	5



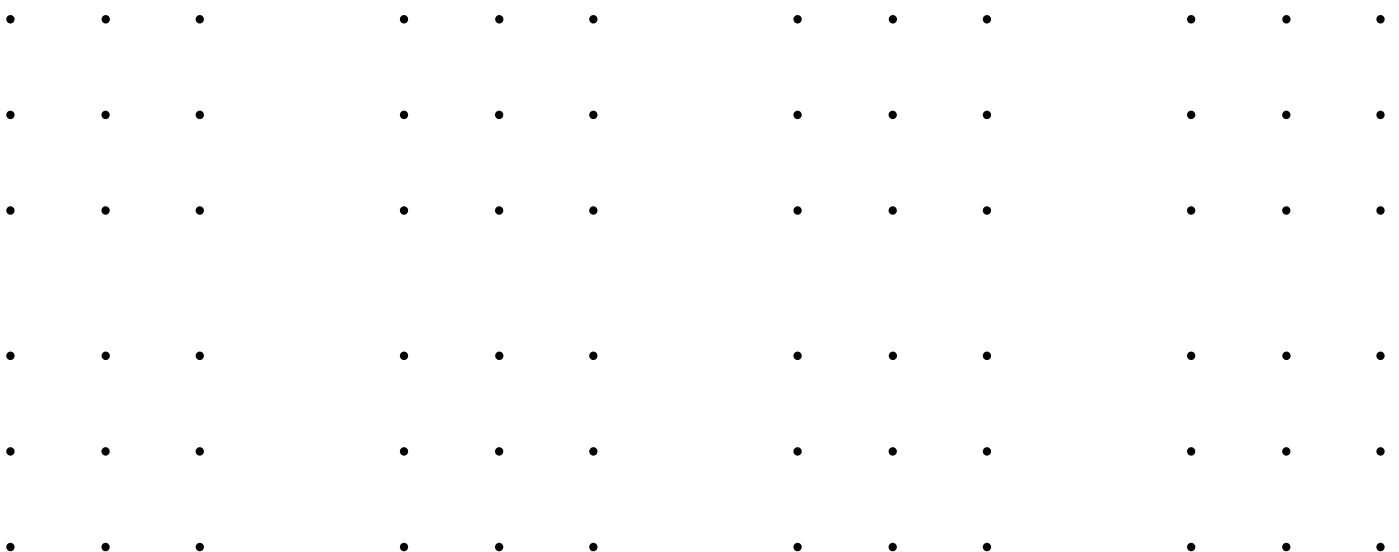
Do It 1

Are the triangles scalene, isosceles or equilateral?
(They are not drawn to scale.)



Challenge It 1

How many different triangles can you draw on a 3 by 3 dotted grid?
Keep track of which triangles are scalene, isosceles or equilateral.
(You may need more dotted grids!)



Which type of triangle is impossible to draw on the grid?



Triangles Game

Play It 1

You need:

Pencil and paper each

Dotty grid

To play:

Take it in turns to draw a straight line joining any two dots.

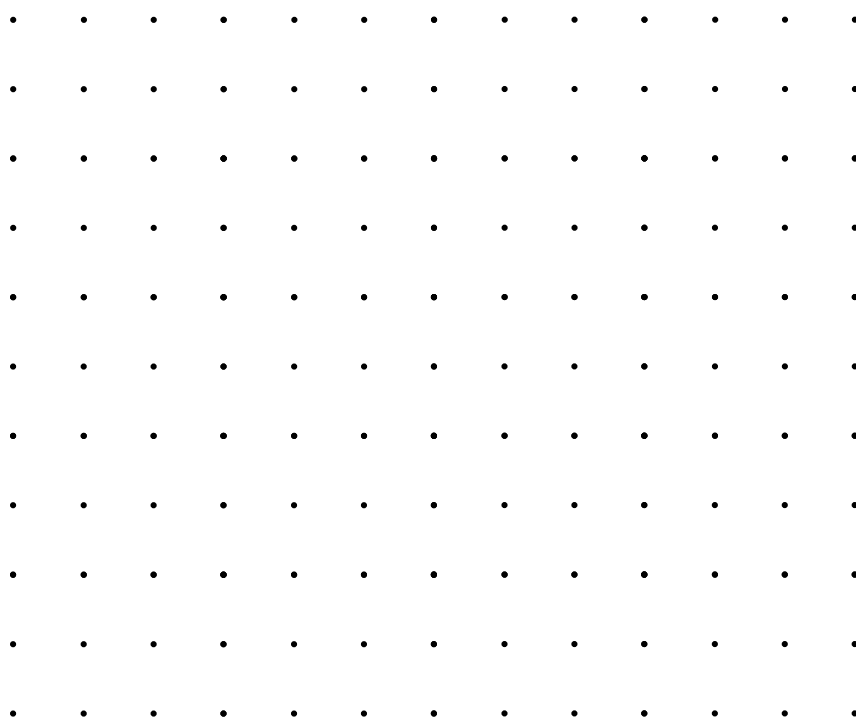
If you create a triangle score 1 point. If you can identify the type of triangle it is score 3 points in total.

Your line must not cross a line already drawn.

To win:

The winner is the first player to score 20 points.

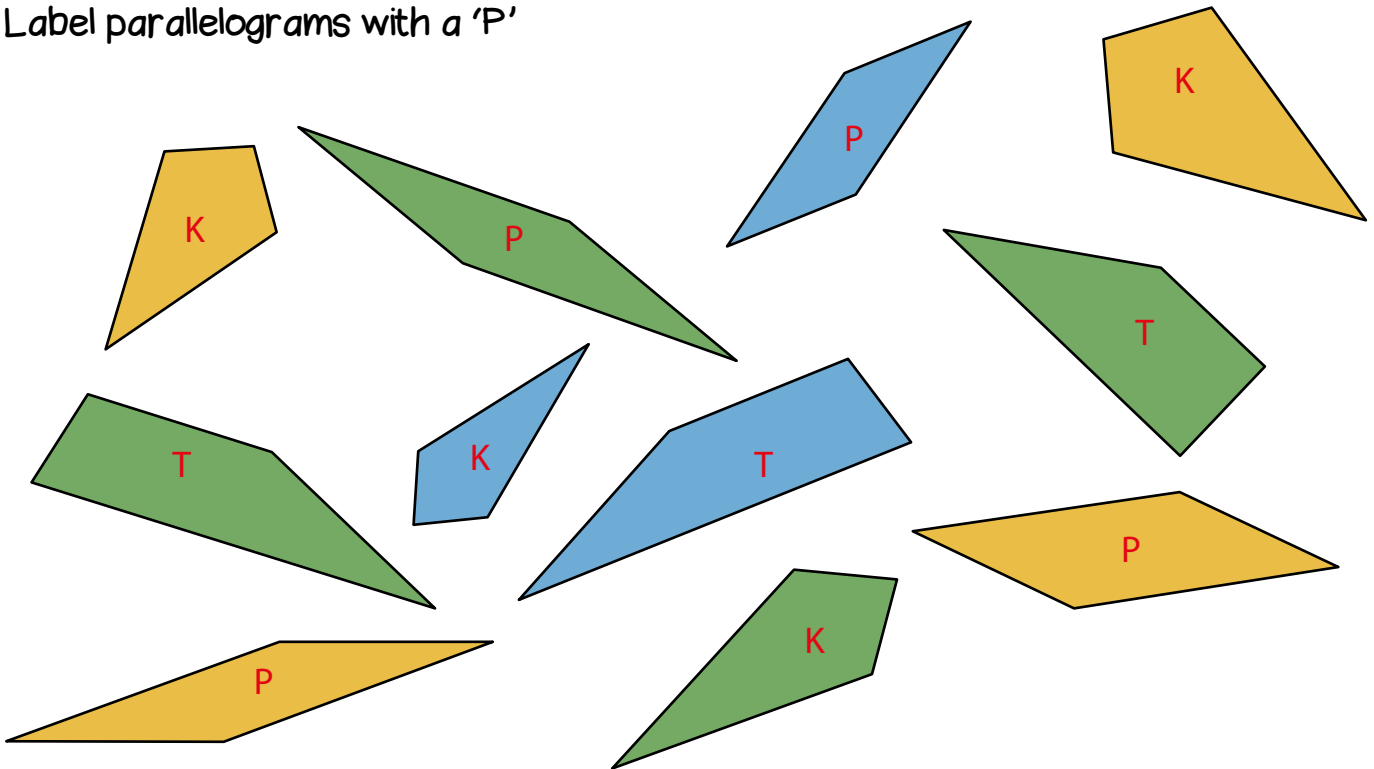
What if your lines are allowed to cross?





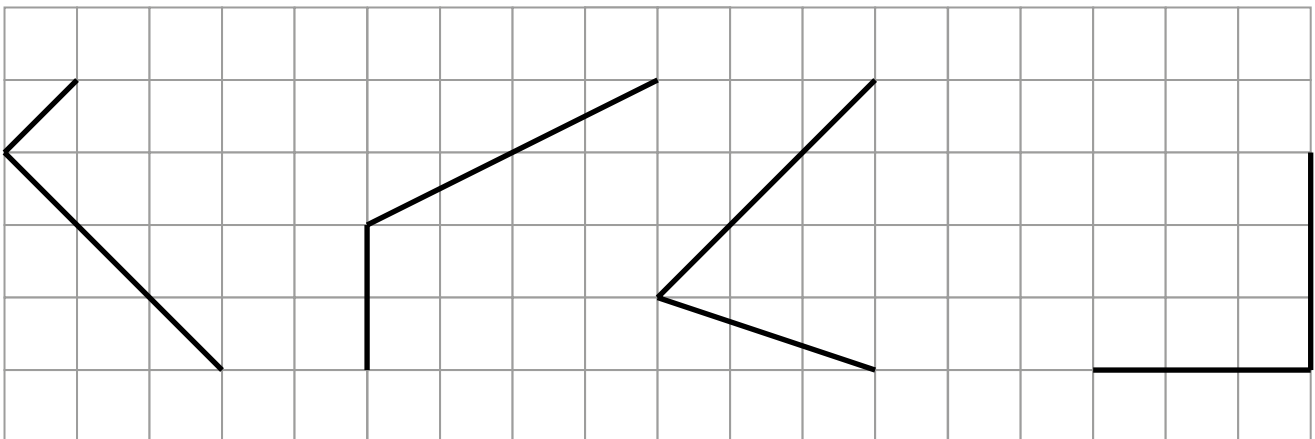
Label kites with a 'K'
Label trapeziums with a 'T'
Label parallelograms with a 'P'

Do It 2



Challenge It 2

Add lines to make quadrilaterals. Label your quadrilaterals.
Complete each one in several ways.
Are any quadrilaterals impossible to draw?





Quadrilaterals Game

Play It 2

You need:

Pencil and paper each

Dotty grid

To play:

Take it in turns to draw a straight line joining any two dots.

Try to create quadrilaterals. If your line creates a quadrilateral, score points as follows:

Rectangle (including square) - 1 point

Kite - 2 points

Parallelogram - 2 points

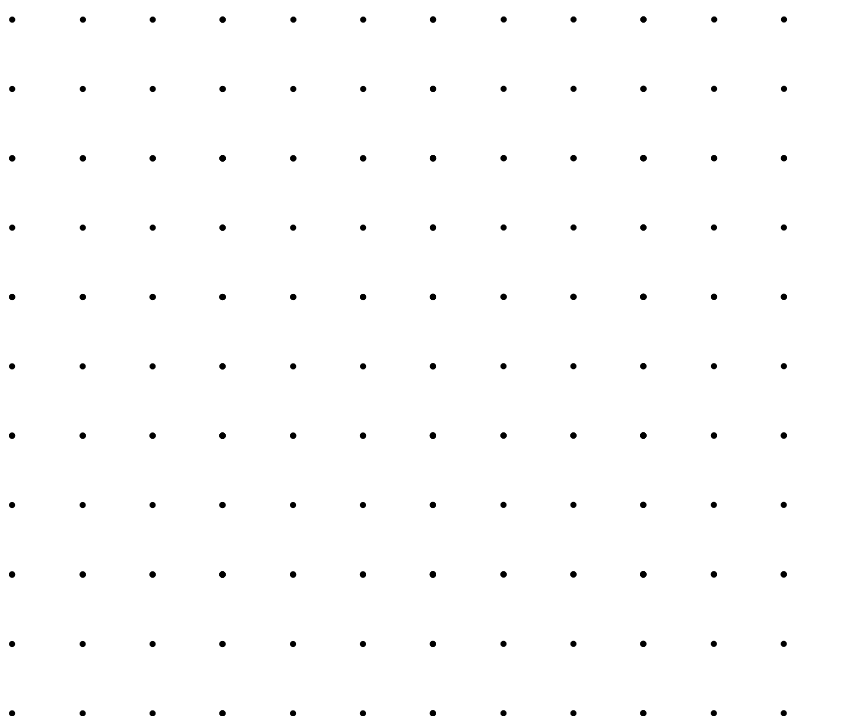
Rhombus - 3 points

Trapezium - 3 points

Any other quadrilateral - 1 point

To win:

The winner is the first player to score 20 points.



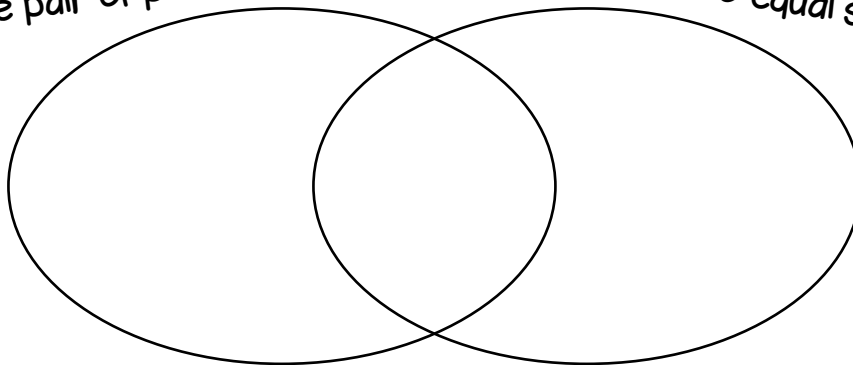


Sort the shapes.

Do It 3

At least one pair of parallel sides

At least two equal sides



trapezium

equilateral triangle

parallelogram

rhombus

isosceles triangle

kite

Name a shape that cannot go in either set.

Challenge It 3

What could the criteria be in the Carroll Diagram?

Complete the Carroll diagram in several different ways, if possible.

	no parallel sides	at least one pair of parallel sides
no right angles	kite	parallelogram
at least one right angle	right angled triangle	square



Sketch a Shape Game

Play It 3

You need:

Properties of shapes cards (on the next page.)

To play:

Shuffle the cards and place them face down on the table.

Start your turn by turning over a card.

Name and sketch a shape that has the property on the card.

Now turn over another card.

Name and sketch a shape that has both the properties of both cards.

Now turn over another card.

Name and sketch a shape that has all three properties of the cards.

Continue until you can not sketch a shape. You score the number of cards that you completed.

For example:

Player 1: My card says 'at least one pair of parallel sides.'

I have sketched a square.

My second card says 'at least one right angle.'

My square still works.

My third card says 'no equal sides'

I have sketched a trapezium with a right angle.

It matches all three of my cards.

My fourth card says 'three straight sides' so I can not sketch a shape to match all four cards. I score 3

To win:

The winner is the first player to score 10 points.



Sketch a Shape Cards

3 straight sides

4 straight sides

at least one
angle less than a
right angle

no equal sides

at least 2 equal
sides

no right angles

at least one right
angle

no lines of
symmetry

at least one line of
symmetry

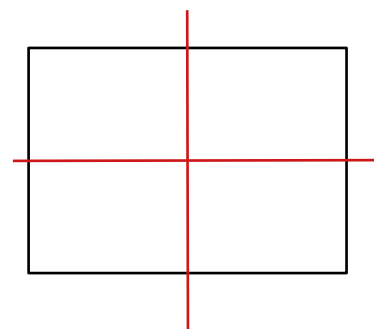
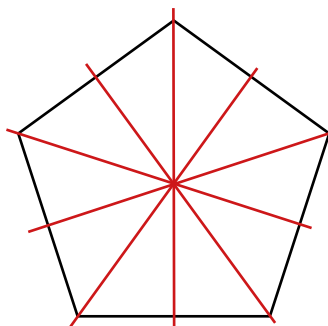
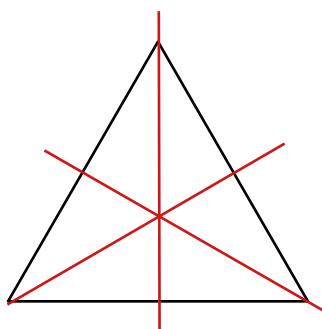
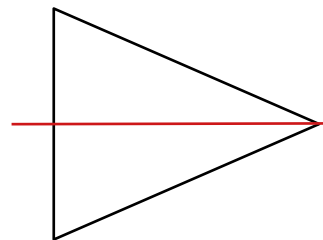
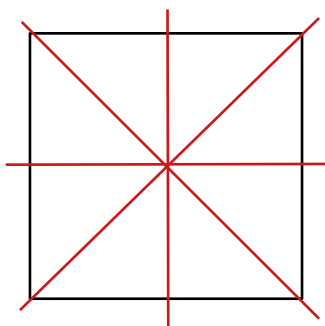
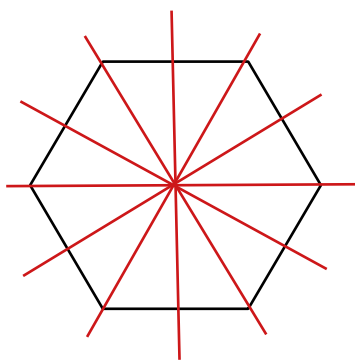
no parallel sides

at least one pair
of parallel sides

at least one
angle greater than
a right angle



Draw all the lines of symmetry on the following shapes.



Challenge It 4

Arrange eight squares in a pattern so that there is:

1. exactly one line of symmetry.
2. two lines of symmetry
3. three lines of symmetry
4. four lines of symmetry

Investigate different number of squares that can be arranged in patterns with different numbers of lines of symmetry.



Symmetry Game

Play It 4

You need:

Squared grid

1 - 6 dice

To play:

Take it in turns to throw the dice and shade that number of squares on the grid.

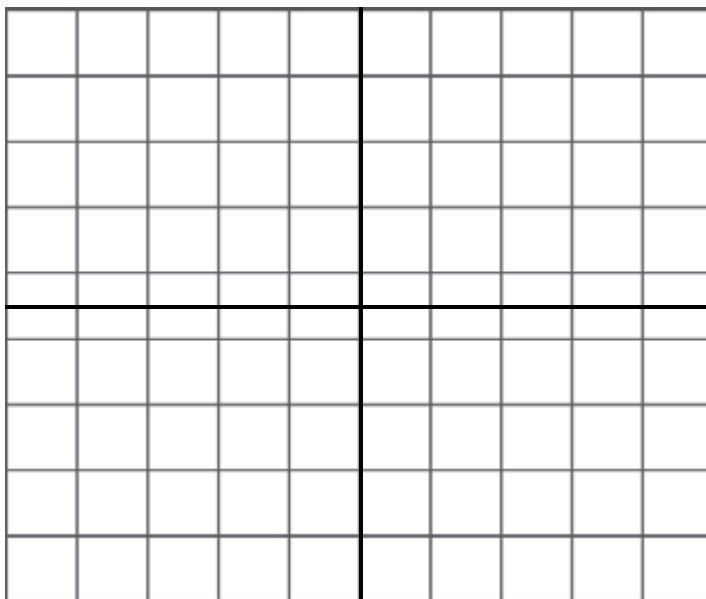
Score the number of lines of symmetry that the pattern has.

For example: Player 1 shades 3 squares on the grid, and the pattern has 2 lines of symmetry so they score 2 points.

Keep adding squares to the pattern each go.

To win:

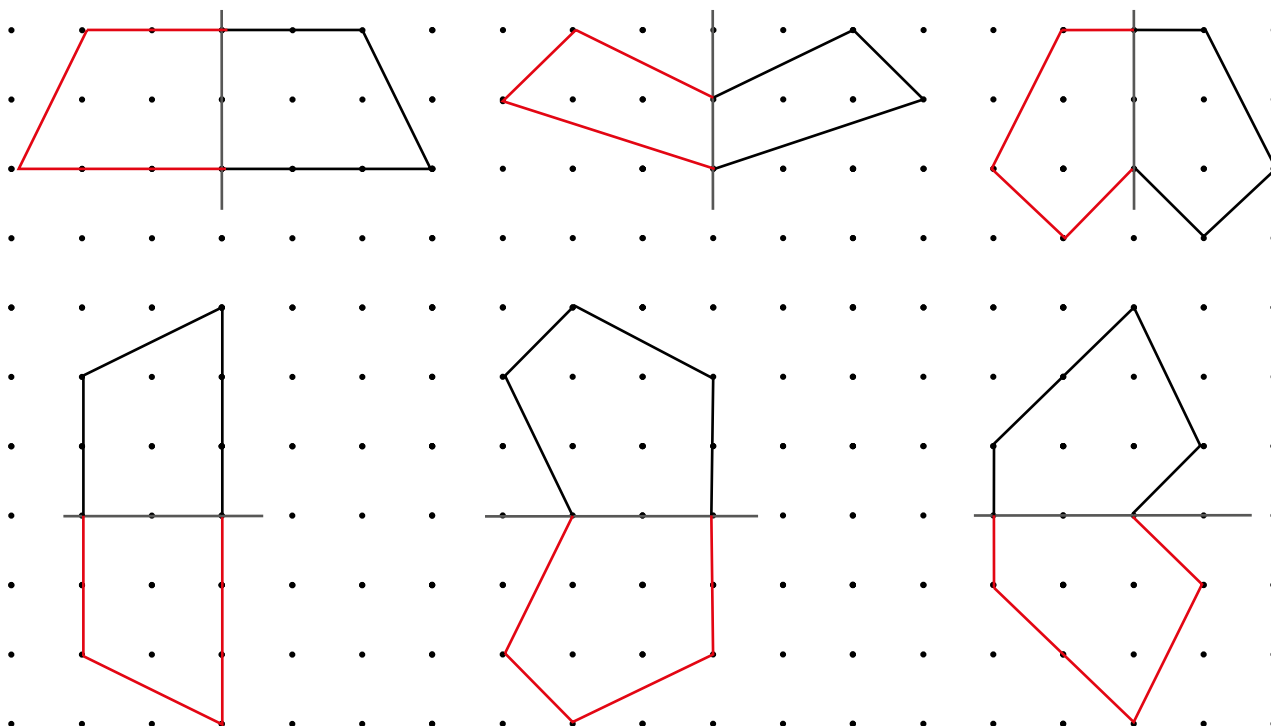
The winner is the first player to score 20 points.





Do It 5

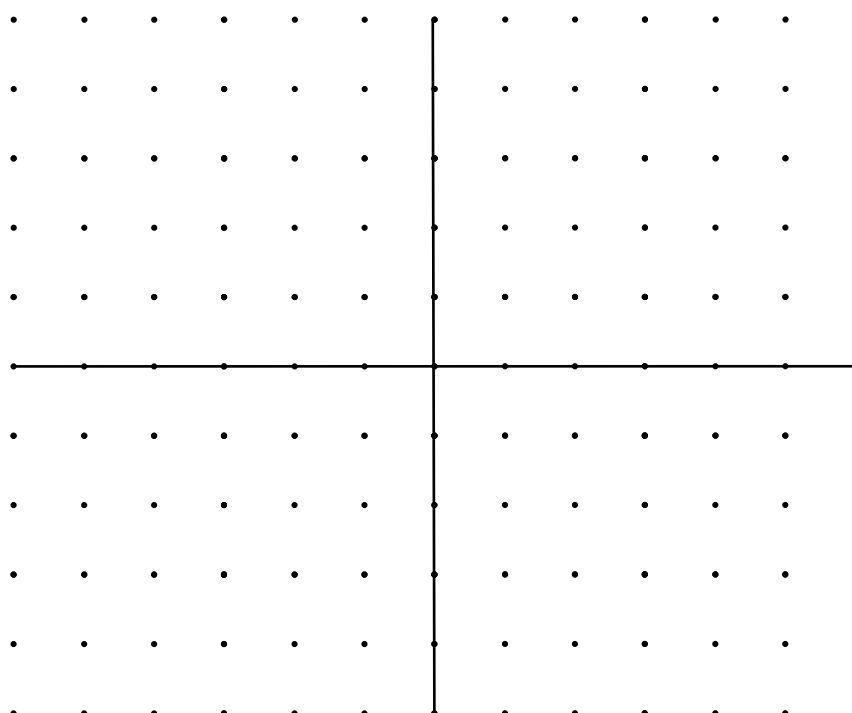
Complete the shapes by reflecting them in the line of symmetry.



Challenge It 5

Use the grid with reflection lines. Draw two straight lines in the top right quadrant, so they create part of a shape. Reflect your shape into each of the quadrants.

What shapes can you create?





Reflect my Shape Game

Play It 5

You need:

Dotty grid for each player

To play:

Player 1 draws a shape on their dotty paper.

Describe to player 2 how to draw a reflection of your shape.

When they have finished, put the two together to check that you have created a shape with a line of symmetry.

Swap roles.

