

Assessing pupils' progress in mathematics at Key Stage 3

Year 7 assessment package
Shape, space and measures
Examples of pupils' work



Year 7

Shape, space and measures

LESSON 1: *Making shapes*

Sorting into groups sheet 1
Level 3

Write the letter of each shape in the correct place on the diagram.

The first one is done for you.

Has exactly 4 sides	Does not have exactly 4 sides
A B D e	F c g

Now write **different** labels for the sorting diagram below.

Then write the letter of each shape in the correct place on this diagram.

More than 4 sides	Less than 4 sides
F g	B A D E C

Write the letter of each shape in the correct place on the diagram.

The first one is done for you.

Has exactly 4 sides	Does not have exactly 4 sides
A, B, D, E,	C, F, G G

Now write **different** labels for the sorting diagram below.

Then write the letter of each shape in the correct place on this diagram.

Has 3 sides	Does not have 3 sides
C	A B F G D G E

Sorting into groups sheet 1
Level 4

Write the letter of each shape in the correct place on the diagram.

The first one is done for you.

Has exactly 4 sides	Does not have exactly 4 sides
A B E D	F G C

Now write **different** labels for the sorting diagram below.

Then write the letter of each shape in the correct place on this diagram.

Equal sides	Non Equal sides
A	B, C, D, E, F, G

Write the letter of each shape in the correct place on the diagram.

The first one is done for you.

Has exactly 4 sides	Does not have exactly 4 sides
A D E	B C F G

Now write **different** labels for the sorting diagram below.

Then write the letter of each shape in the correct place on this diagram.

Has lot more right angles	Has no right angles
A B C G	D e F G

Sorting into groups sheet 2

Level 4

Write the letter of each shape in the correct place on the diagram.

The first one is done for you.

	Is a quadrilateral	Is not a quadrilateral
Has at least one right angle	A B	F C G
Has no right angles	E D	

Now write **different** labels for the sorting diagram below.

Then write the letter of each shape in the correct place on the diagram.

	Has less than 4 right angles	Has 4 right angles
irregular	F G	
regular	D E C	A B

Write the letter of each shape in the correct place on the diagram.

The first one is done for you.

	Is a quadrilateral	Is not a quadrilateral
Has at least one right angle	A B D	F C G
Has no right angles	E	

Now write **different** labels for the sorting diagram below.

Then write the letter of each shape in the correct place on the diagram.

	Has 4 or more corners	has less than 4 corners
Has right angles	F G D B A	C
does not have right angles	E	

Sorting into groups sheet 2

Level 4

Write the letter of each shape in the correct place on the diagram.

The first one is done for you.

	Is a quadrilateral	Is not a quadrilateral
Has at least one right angle	A B	F ^C G
Has no right angles	D E	

Now write **different** labels for the sorting diagram below.

Then write the letter of each shape in the correct place on the diagram.

	<u>Begin with P</u>	<u>Does not begin with P</u>
<u>has an acute angle</u>	D G	C _F E
<u>no not acute angle</u>		A B

Write the letter of each shape in the correct place on the diagram.

The first one is done for you.

	Is a quadrilateral	Is not a quadrilateral
Has at least one right angle	A B	C F G
Has no right angles	D E	

Now write **different** labels for the sorting diagram below.

Then write the letter of each shape in the correct place on the diagram.

	<u>Symmetrical</u>	<u>Not symmetrical</u>
<u>all lines are equal</u>	A C	
<u>all lines are not equal</u>	B D E F	G

Sorting into groups sheet 2
Level 5

Write the letter of each shape in the correct place on the diagram.

The first one is done for you.

	Is a quadrilateral	Is not a quadrilateral
Has at least one right angle	A, B	C, F, G
Has no right angles	E, D	

Now write **different** labels for the sorting diagram below.

Then write the letter of each shape in the correct place on the diagram.

	Is a pentagon	Is not a pentagon
Has at least one acute angle	G	C, D, E, F
Has no acute angle		A, B

Write the letter of each shape in the correct place on the diagram.

The first one is done for you.

	Is a quadrilateral	Is not a quadrilateral
Has at least one right angle	A B	F G C
Has no right angles	D E	

Now write **different** labels for the sorting diagram below.

Then write the letter of each shape in the correct place on the diagram.

	Has a line of symmetry	Has no line of symmetry
Has at least one obtuse angle	E F	D G
Has no obtuse angles	A B C	

Sorting into groups sheet 2
Level 5

Write the letter of each shape in the correct place on the diagram.

The first one is done for you.

	Is a quadrilateral	Is not a quadrilateral
Has at least one right angle	A B	C G
Has no right angles	E D	F

Now write **different** labels for the sorting diagram below.

Then write the letter of each shape in the correct place on the diagram.

	Has a right angle	has no right angle
has two parallel lines	A b	D F
Has no parallel lines	C G	E

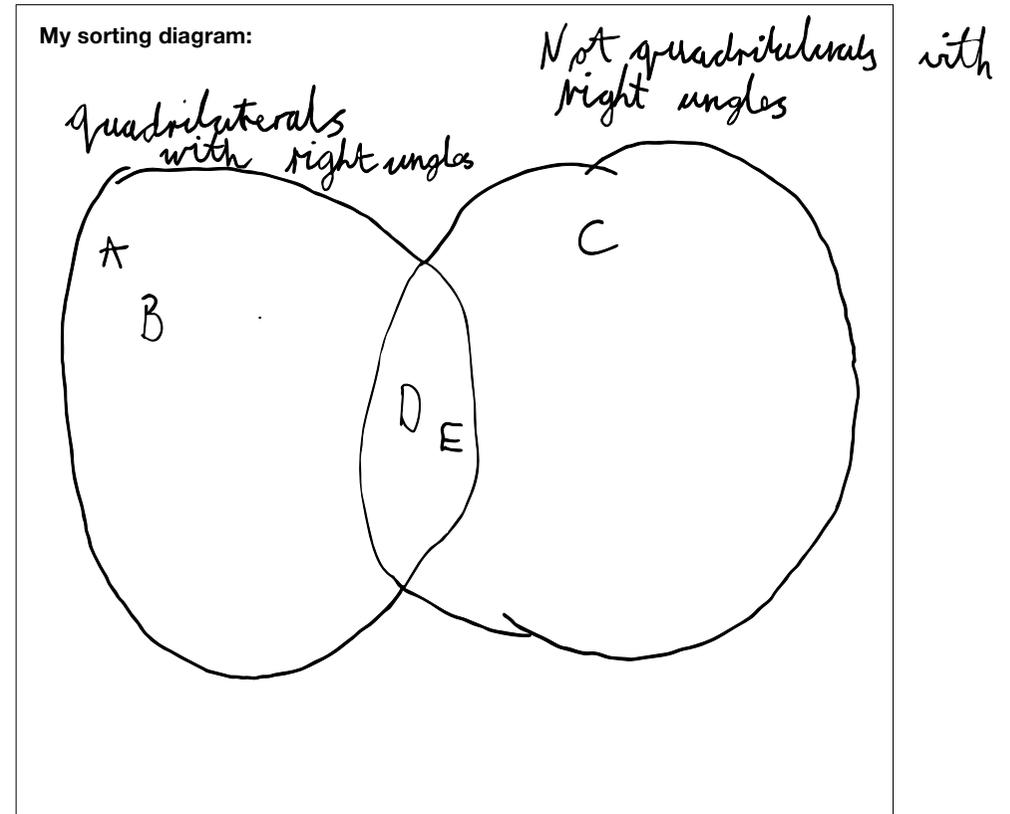
Sorting into groups sheet 3
Level 4

Now make up your own sorting diagram to sort the same seven shapes.

The shapes must **all** fit in a place on the diagram.

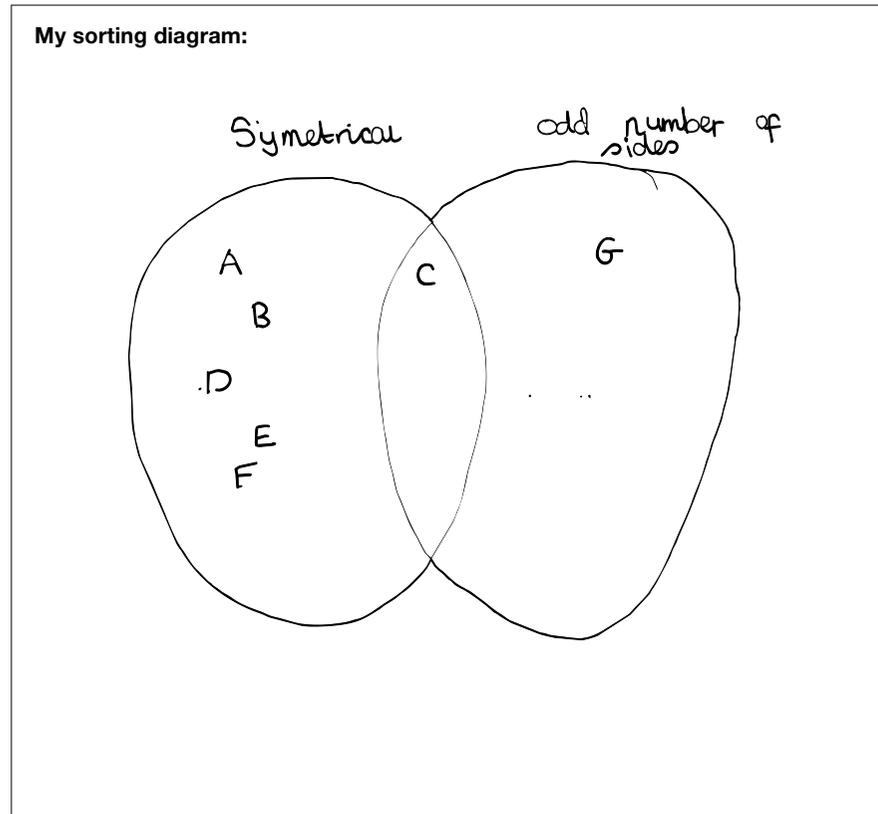
Try to use different properties of the shapes from those used on other worksheets.

On the next page, there are some examples of different sorting diagrams.

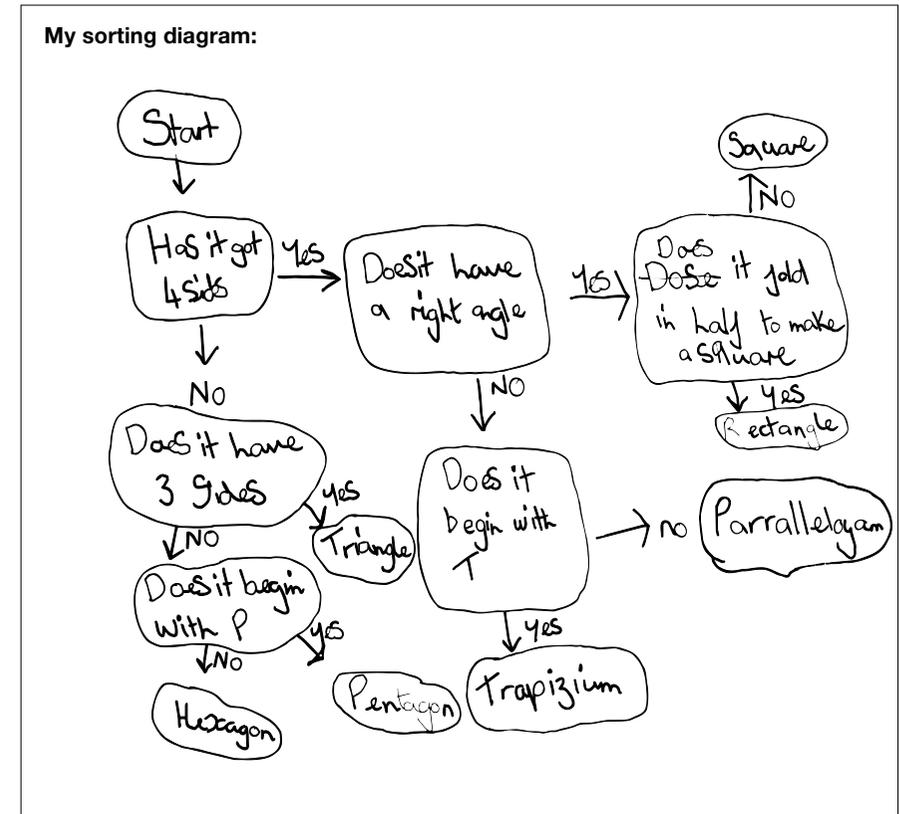


Sorting into groups sheet 3
Level 5

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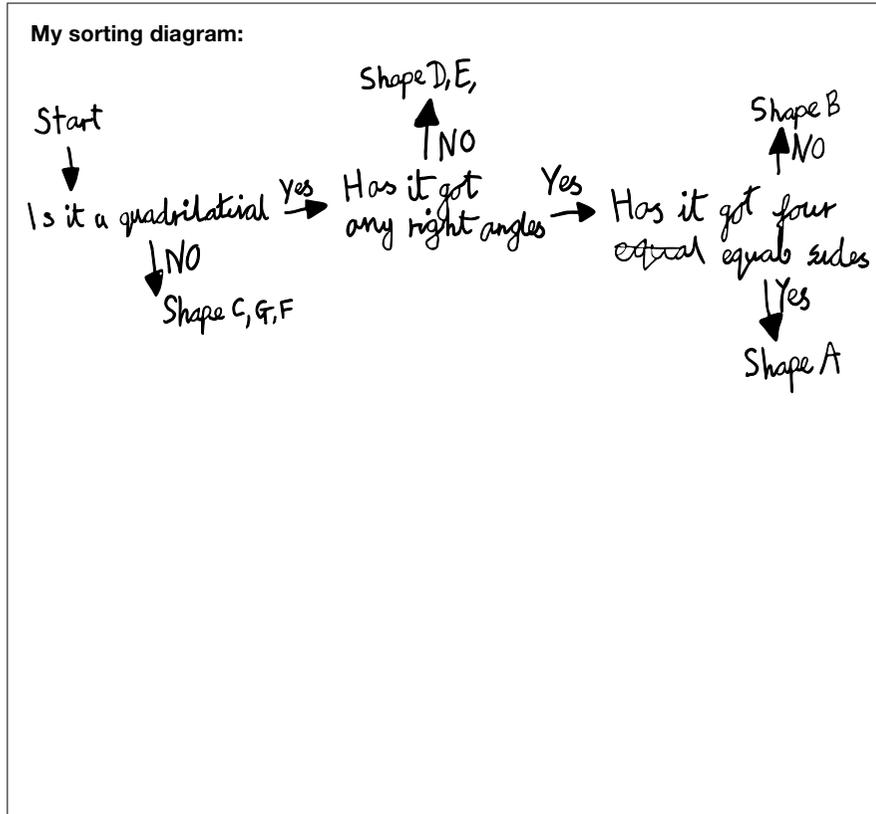


Now make up your own sorting diagram to sort the same seven shapes.
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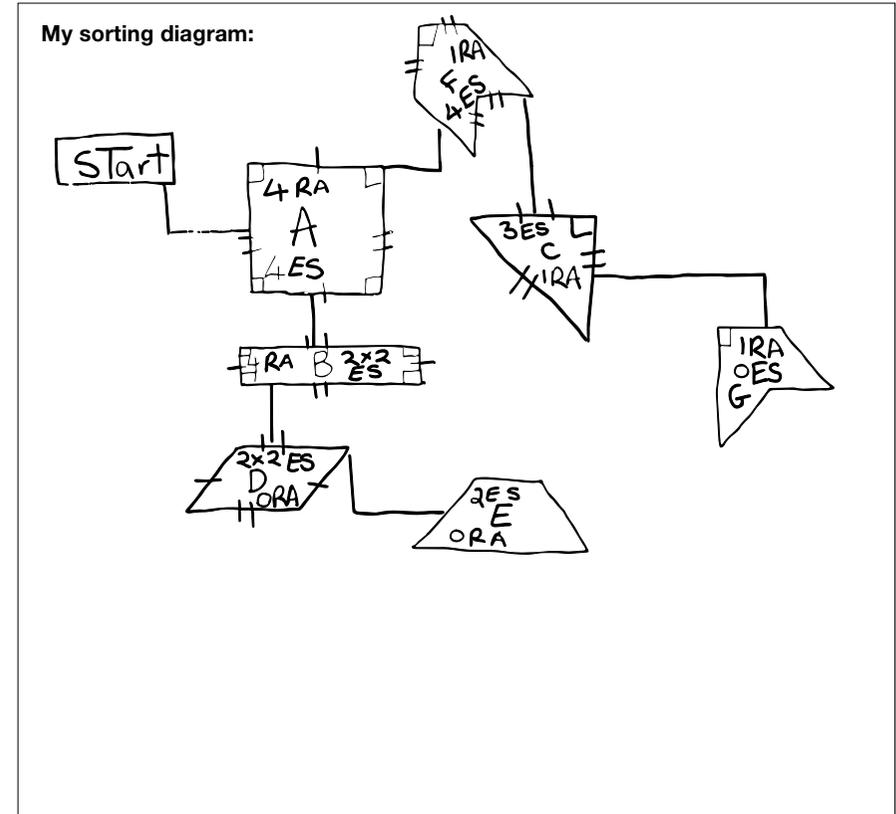


Sorting into groups sheet 3
Level 5

Now make up your own sorting diagram to sort the same seven shapes.
The shapes must **all** fit in a place on the diagram.
Try to use different properties of the shapes from those used on other worksheets.
On the next page, there are some examples of different sorting diagrams.



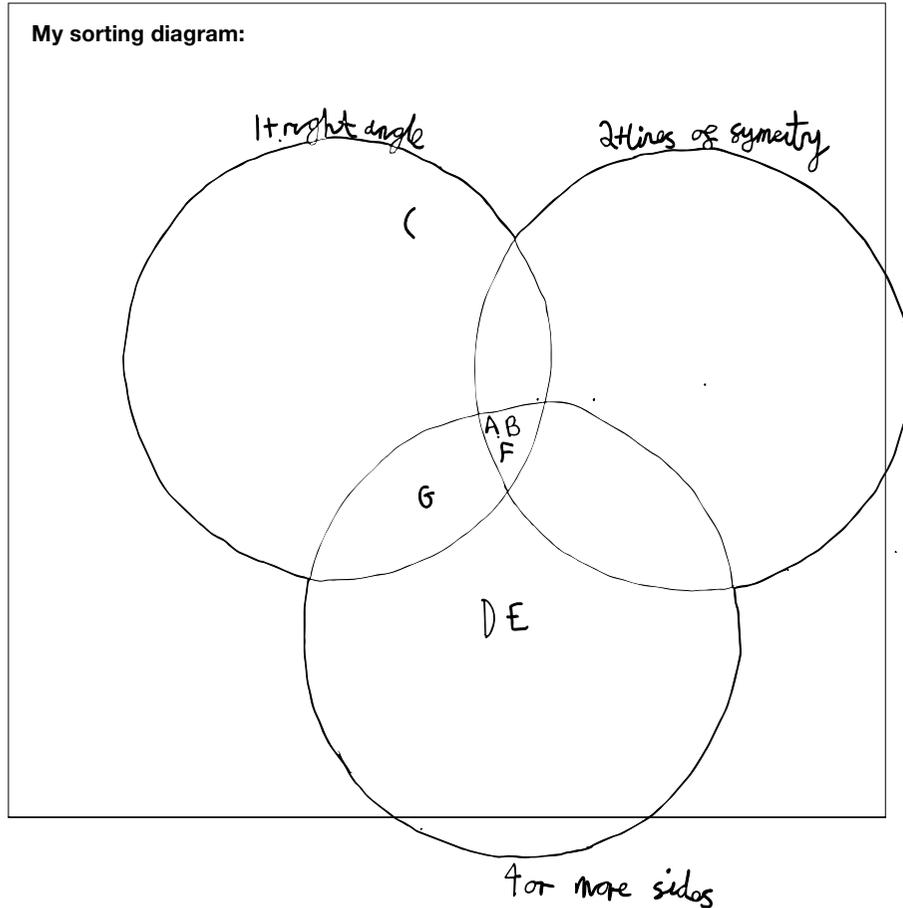
Now make up your own sorting diagram to sort the same seven shapes.
The shapes must **all** fit in a place on the diagram.
Try to use different properties of the shapes from those used on other worksheets.
On the next page, there are some examples of different sorting diagrams.



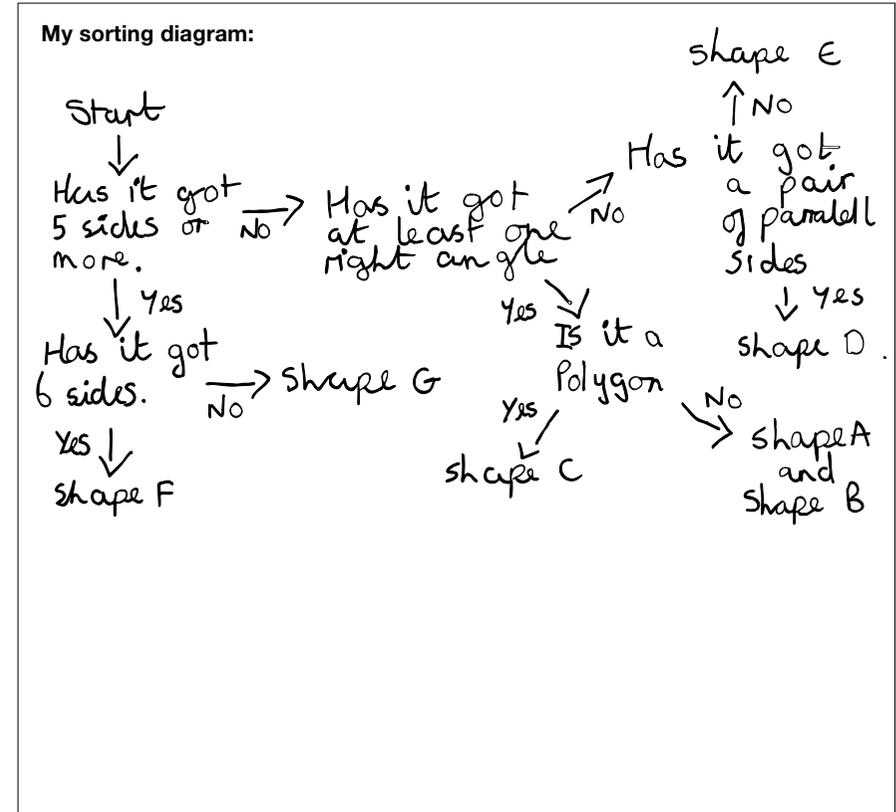
RA = Right Angles
ES = Equal sides

Sorting into groups sheet 3
Above level 5

Now make up your own sorting diagram to sort the same seven shapes.
The shapes must **all** fit in a place on the diagram.
Try to use different properties of the shapes from those used on other worksheets.
On the next page, there are some examples of different sorting diagrams.

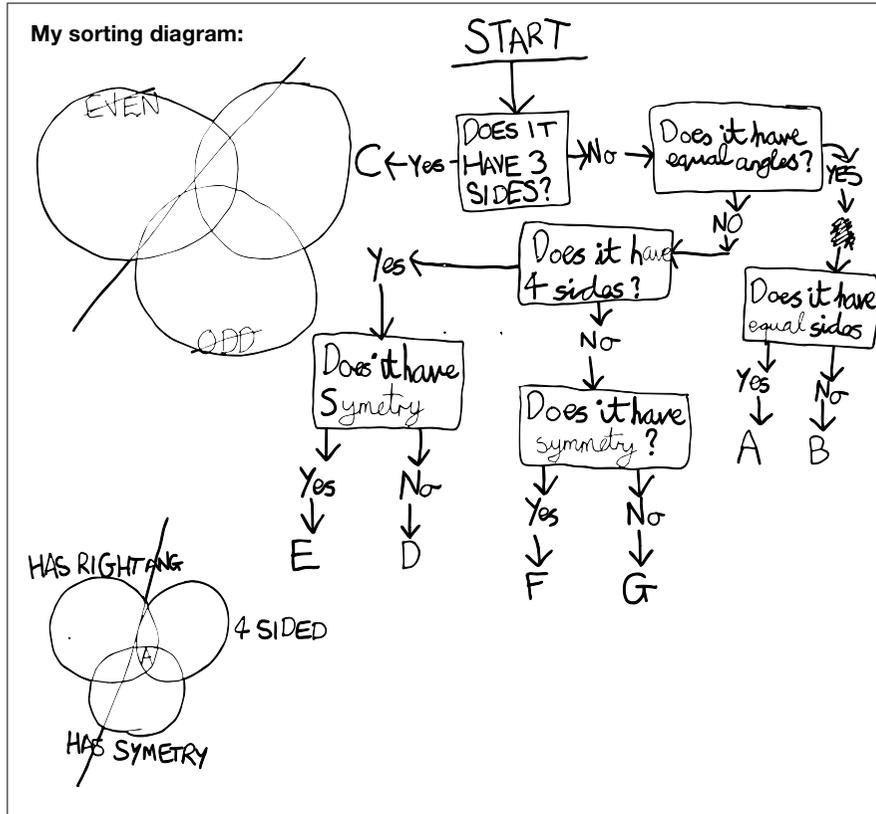


Now make up your own sorting diagram to sort the same seven shapes.
The shapes must **all** fit in a place on the diagram.
Try to use different properties of the shapes from those used on other worksheets.
On the next page, there are some examples of different sorting diagrams.

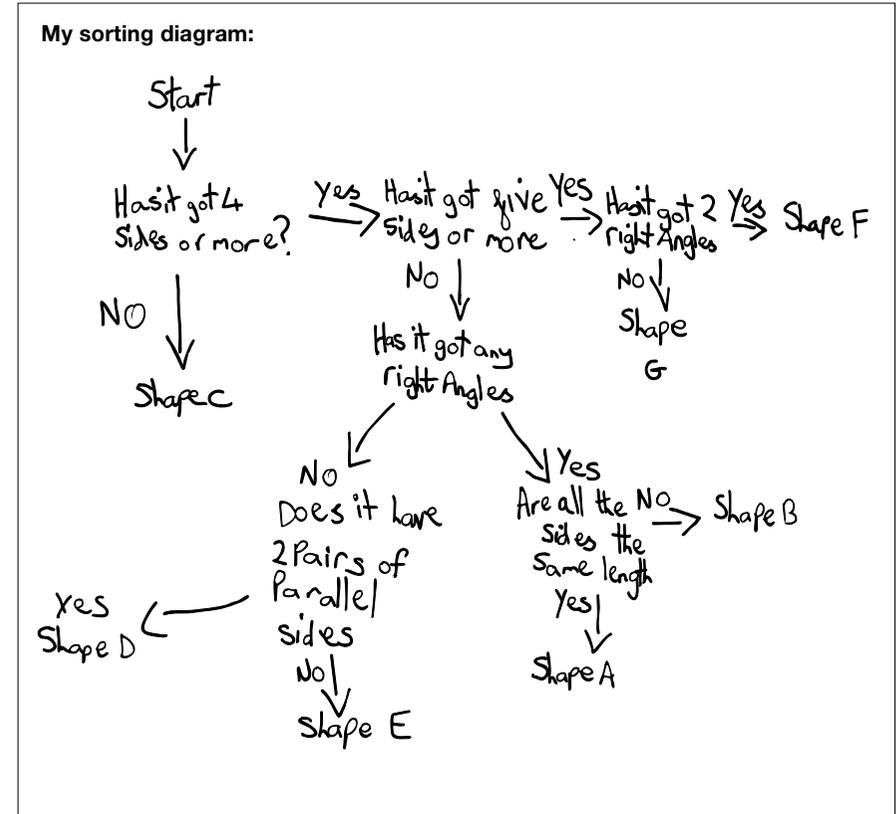


Sorting into groups sheet 3
Above level 5

Now make up your own sorting diagram to sort the same seven shapes.
The shapes must **all** fit in a place on the diagram.
Try to use different properties of the shapes from those used on other worksheets.
On the next page, there are some examples of different sorting diagrams.



Now make up your own sorting diagram to sort the same seven shapes.
The shapes must **all** fit in a place on the diagram.
Try to use different properties of the shapes from those used on other worksheets.
On the next page, there are some examples of different sorting diagrams.



Year 7

Shape, space and measures

LESSON 2: *What's the area?*

Area of 3 (continued)
Level 3

Now draw some other different ways in the table below, and write the area sums.

You can draw as many as you like. Carry on using another piece of paper if you need to.

Shapes	Area sum
	$2 + 1 = 3$
	$1 + 2 = 1 + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = 3$
	$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = 3$
	$\frac{1}{2} + 1 + 1 = 3$
	$1 + \frac{1}{2} + 1 + \frac{1}{2} = 3$
	$1 + 1 + \frac{1}{2} + \frac{1}{2} = 3$
	$2 + \frac{1}{2} + \frac{1}{2} = 3$
	$= 3$

Now draw some other different ways in the table below, and write the area sums.

You can draw as many as you like. Carry on using another piece of paper if you need to.

Shapes	Area sum
	$2 + \frac{1}{2} + \frac{1}{2} = 3$
	$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + 1 = 3$
	$1 + 1 + 1 = 3$
	$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = 3$
	$1 + 1 + \frac{1}{2} + \frac{1}{2} = 3$
	$1 + 1 = 3$
	$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + 1 = 3$
	$2 + 1 = 3$

Area of 3 (continued)

Level 4

Now draw some other different ways in the table below, and write the area sums.

You can draw as many as you like. Carry on using another piece of paper if you need to.

Shapes	Area sum
	$1 + 1 + \frac{1}{2} + \frac{1}{2} = 3$
	$1 + \frac{1}{2} + \frac{1}{2} + 1 = 3$
	$\frac{1}{2} + \frac{1}{2} + 1 + 1 = 3$
	$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = 3$
	$1 + 1 + 1 = 3$
	$1 + 1 + 1 = 3$
	$1 + 2 = 3$
	$2 + 1 = 3$

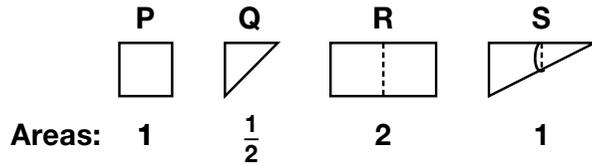
Now draw some other different ways in the table below, and write the area sums.

You can draw as many as you like. Carry on using another piece of paper if you need to.

Shapes	Area sum
	$1 + 1 + \frac{1}{2} + \frac{1}{2} = 3$
	$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = 3$
	$1 + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = 3$
	$1 + 1 + 1 = 3$
	$2 + 1 = 3$
	$1 + 2 = 3$
	$1 + 1 + 1 = 3$
	$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + 1 = 3$

What are the areas? sheet 1
Level 4

Look at the shapes.



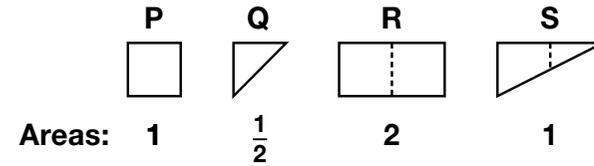
You can use them to find the areas of the shapes below.

Write the areas in the boxes.

Grid 1 shapes and areas:

- Shape 1: A 2x1 L-shape. Area = 4.
- Shape 2: A triangle with base 2 and height 1. Area = 2.
- Shape 3: A diamond with side length 2. Area = 8.
- Shape 4: A trapezium with parallel sides of length 1 and 2, and height 1. Area = 4.
- Shape 5: A house-shaped polygon. Area = 5.
- Shape 6: A kite with diagonals of length 2 and 2. Area = 5.
- Shape 7: A triangle with base 2 and height 1. Area = 3.

Look at the shapes.



You can use them to find the areas of the shapes below.

Write the areas in the boxes.

Grid 2 shapes and areas:

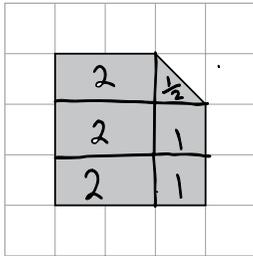
- Shape 1: A 2x1 L-shape. Area = 4.
- Shape 2: A triangle with base 2 and height 1. Area = 2.
- Shape 3: A diamond with side length 2. Area = 8.
- Shape 4: A trapezium with parallel sides of length 1 and 2, and height 1. Area = 3.
- Shape 5: A house-shaped polygon. Area = 5.
- Shape 6: A kite with diagonals of length 2 and 2. Area = 3.
- Shape 7: A complex polygon. Area = 4.

What are the areas? sheet 2

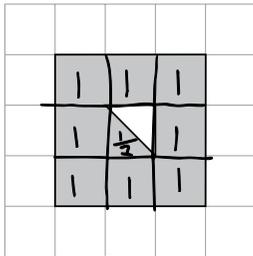
Level 4

Work out the area of each shaded shape below.

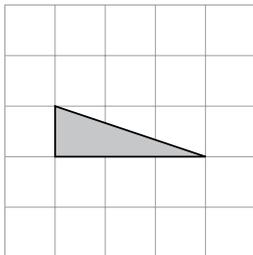
For each one, **you must show your working or explain how you worked it out.**



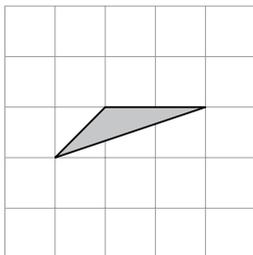
Area = $8\frac{1}{2}$



Area = $8\frac{1}{2}$



Area = $1\frac{1}{2}$



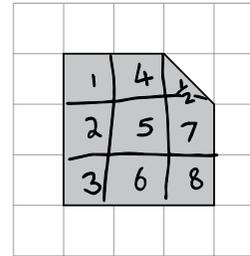
Area = $1\frac{1}{2}$

What are the areas? sheet 2

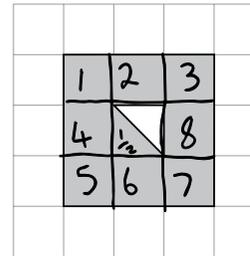
Level 5

Work out the area of each shaded shape below.

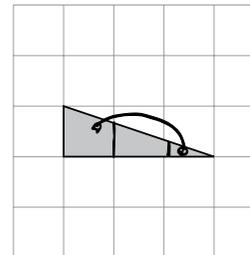
For each one, **you must show your working or explain how you worked it out.**



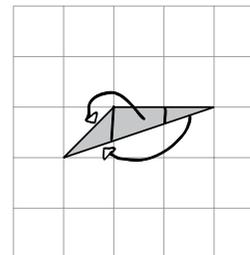
Area = $8\frac{1}{2}$



Area = $8\frac{1}{2}$



Area = $1\frac{1}{2}$



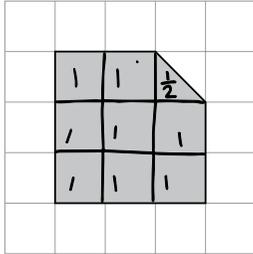
Area = 1

What are the areas? sheet 2

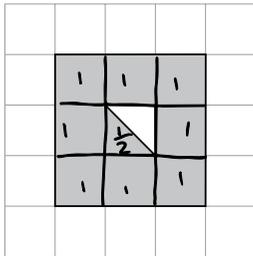
Level 5

Work out the area of each shaded shape below.

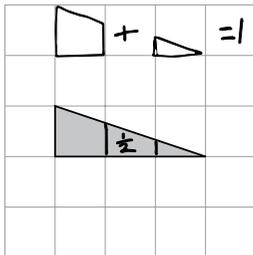
For each one, **you must show your working or explain how you worked it out.**



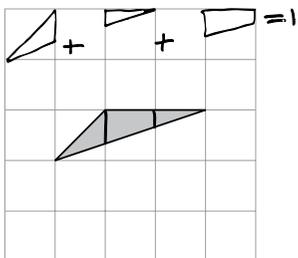
Area = $8\frac{1}{2}$



Area = $8\frac{1}{2}$



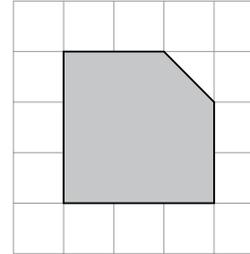
Area = $1\frac{1}{2}$



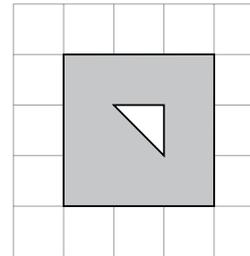
Area = 1

Work out the area of each shaded shape below.

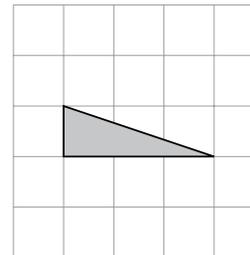
For each one, **you must show your working or explain how you worked it out.**



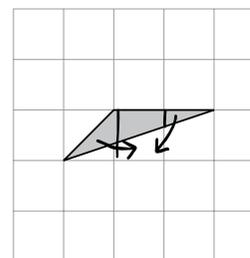
$3 \times 3 = 9$
 $-\frac{1}{2}$
 $8\frac{1}{2}$
 Area = $8\frac{1}{2}$



$3 \times 3 = 9$
 $-\frac{1}{2}$
 $8\frac{1}{2}$
 Area = $8\frac{1}{2}$



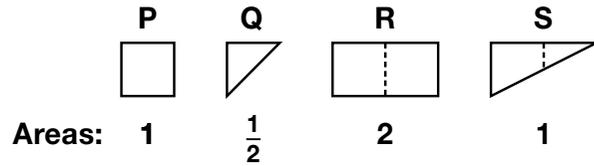
$\frac{1.5 - 1}{2} \times 3$
 $1\frac{1}{2}$
 Area = $1\frac{1}{2}$



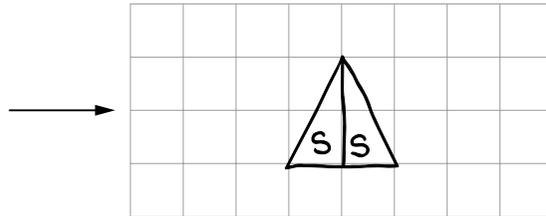
Area = 1

Making triangles
Level 5

Look at the shapes.



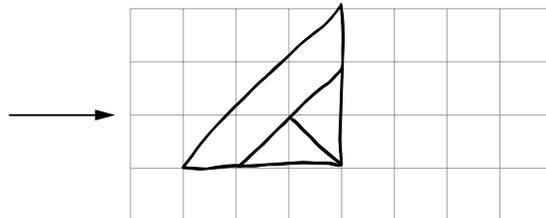
Use the shapes to make
a **triangle** with **area 2**



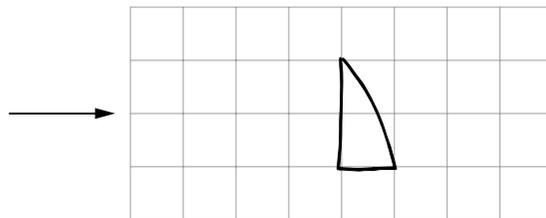
Use the shapes to make
a **different triangle** with **area 2**



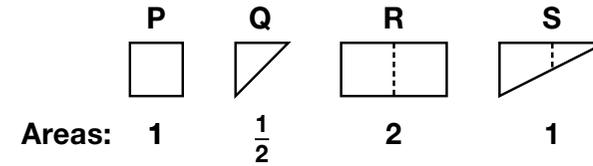
Use the shapes to make
a **triangle** with **area $4\frac{1}{2}$**



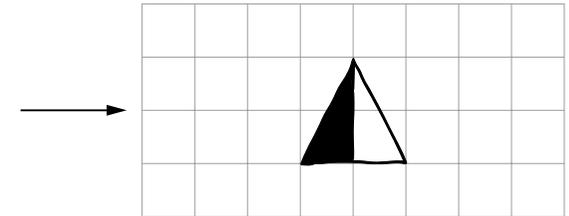
Use the shapes to make
a **triangle** with an **area** that is
an **odd number greater than 1**



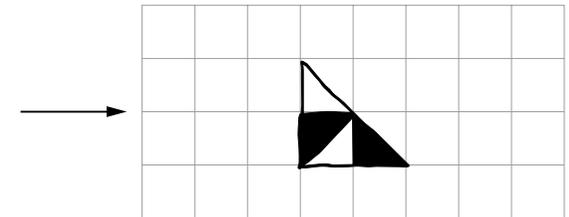
Look at the shapes.



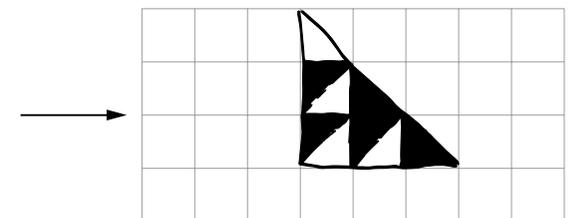
Use the shapes to make
a **triangle** with **area 2**



Use the shapes to make
a **different triangle** with **area 2**



Use the shapes to make
a **triangle** with **area $4\frac{1}{2}$**



Use the shapes to make
a **triangle** with an **area** that is
an **odd number greater than 1**

