Coordinates Prior Assessment Questions 1 and 2
Objective: I can read and plot coordinates on a 4-quadrant grid.

NC SH 6: describe positions on the full coordinate grid (all four quadrants)

Teacher Input Ideas: If previously taught, recap with the children the purpose of line graphs. Share a line graph with data plotted on to this and discuss how the line graph is presented. Can the children remember any of the key terminology? Such as axis, scale, etc.

Discuss how children know how to plot the data on to a line graph and what they are used for. Now introduce plotting information onto other grids. Present 2 quadrant grids and 4 quadrant grids. Can the children identify each axis? Encourage the children to identify the x and y axis and ways to remember these. Some children remember along the corridor and up the stairs, and some children say x comes before y using this too. Ensure that the children understand why these are important and how they can be used to plot positions on to the grid. Model how we can use this to plot points on to the grid to show the position of something (it may be a vertex for a shape, a position on a map, etc.)

Write some coordinates for the children to come and find on the grid. Ensure the children understand that the first coordinate given is always the x axis. Discuss how there are negative numbers too on a 4-quadrant grid, giving some examples of these. Encourage the children to plot and read coordinates given and discuss any issues that the children have.

Practice Activities

Purple Practice: most suited for children who made errors in Question 1 of the prior learning assessment.

The task sheet for this activity has numbers positioned on a 4-quadrant grid. The children are to work out the coordinate of the position of the number ensuring that they read the coordinate on the x axis first and then the y axis. To help the children, the coordinates are on the blocks at the bottom of the page. They are to find the corresponding block and place this letter into the correct position to revel a mystery word. Ensure that the children are reading the coordinates accurately and that they do not just try to guess the word.

Green Practice: most suitable for children who made errors in Question 2 of the prior learning assessment.

The children are to read the coordinates accurately and plot these on to a 4-quadrant grid. The children are to plot the points for each coordinate given to reveal a star design. Encourage the children to plot each point and join each point in order, to make the 16-sided star shape. For the challenge, allow children to use maths dictionaries or the internet to research the name of a 16-sided shape. Once the children have found that it is called a hexadecagon, encourage the children to explain that the name has been formed using the vocabulary of a 6-sided shape (hexagon), a 10-sided shape (decagon).

Yellow Practice most suited for children who demonstrate understanding with describing the position of coordinates and would further benefit from applying knowledge of measuring angles.

For this activity, the children are presented with a 4-quadrant grid and are required to record the coordinates onto the grid. They are then given the opportunity to apply their knowledge of measuring angles using a protractor. The children should measure accurately and check that their measurements are realistic by using their knowledge of the total measure of angles in different polygons.

The children could also be challenged to draw their own shape in any remaining space and record the coordinates and angles.

Mastery

Encourage the children to plot the shapes that need to be included thinking about the properties and measurements of the shapes. Encourage the children to use the coordinates to help the children to ensure that the shapes have the accurate properties. Children are also encouraged to use as much of the space in the 4-quadrant grid as possible, trying out different combinations to see which is the best way to fill the grid. Encourage the children to share ideas and discuss how the properties of the shapes influence the positions in the grid. Children can share ideas and use these for trail and improvement. Also, there are fluency opportunities to apply area, angles, percentages, fractions and decimals.

Purple: the children should find the appropriate coordinate for the number to reveal the word: GEOMETRY

Green:
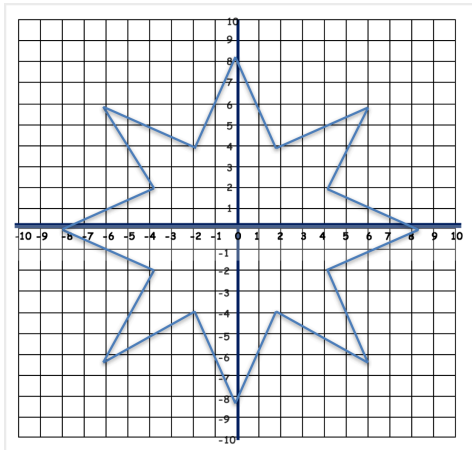
Yellow:

shape name	coordinates	angle sizes
Hexagon	(-8,9) (-4,9) (-3, 8) (-3,2) (-7,2) (-8,3)	
Trapezium	(-2, 2) (3, 2) (4, -2) (-3, -2)	
Parallelogram	(6,9) (7, 6) (5,3) (4,6)	
Isosceles Triangle	(7, -1) (10, -5) (4, -5)	
Rhombus	(-3, -3) (-5, -7) (-9, -7) (-7,-3)	

Mastery

There are various possible combinations and you want to encourage the children to share their thought process regularly with others. Here is an example to share if children are finding it hard to think of a starting point.

BRICKWORK
mathematics
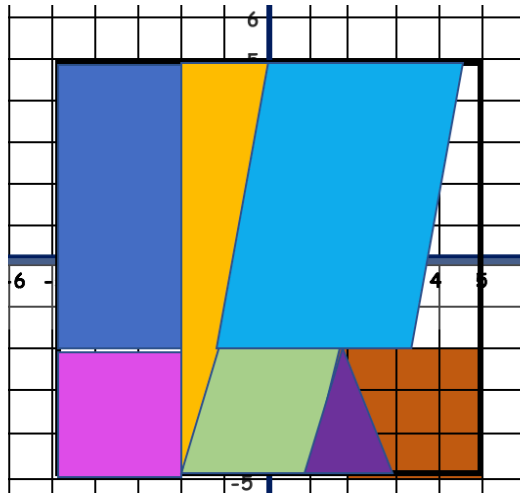
Look at the coordinates on the 4-quadrant grid. Work out the coordinates in order. Find the correct coordinate on the blocks below and place the letter into the right place to reveal a word.
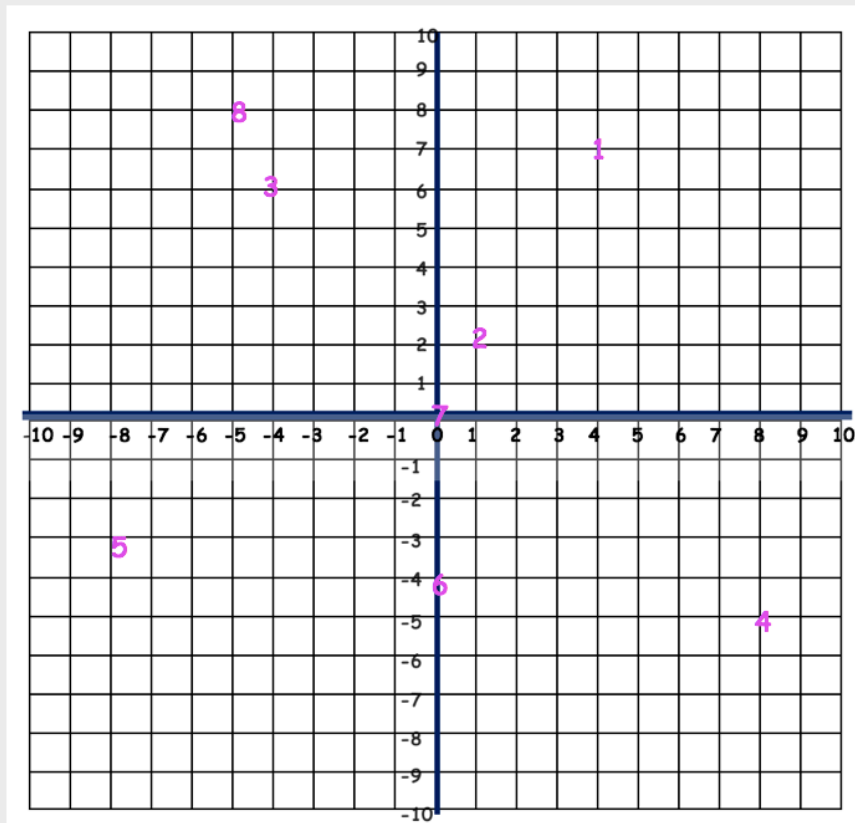
The secret word is:

1	2	3	4	5	6	7	8

-4 , 6
O

4 , 7
G

−5 , 8
Y

8 , −5
M

0 , −4
T

−8 , −3
E

0 , 0
R

1 , 2
E

Plot each of the points below on to the grid.

a) 0, 8   b) 2, 4   c) 6, 6   d) 4, 2

e) 8, 0   f) 4, -2   g) 6, - 6   h) 2, -4

i) 0, -8   j) -2, -4   k) -6, -6   l) -4, -2

m) -8, 0   n) -4, 2   o) -6, 6   p) – 2, 4

q) 0, 8

Join each point in order to reveal a design.
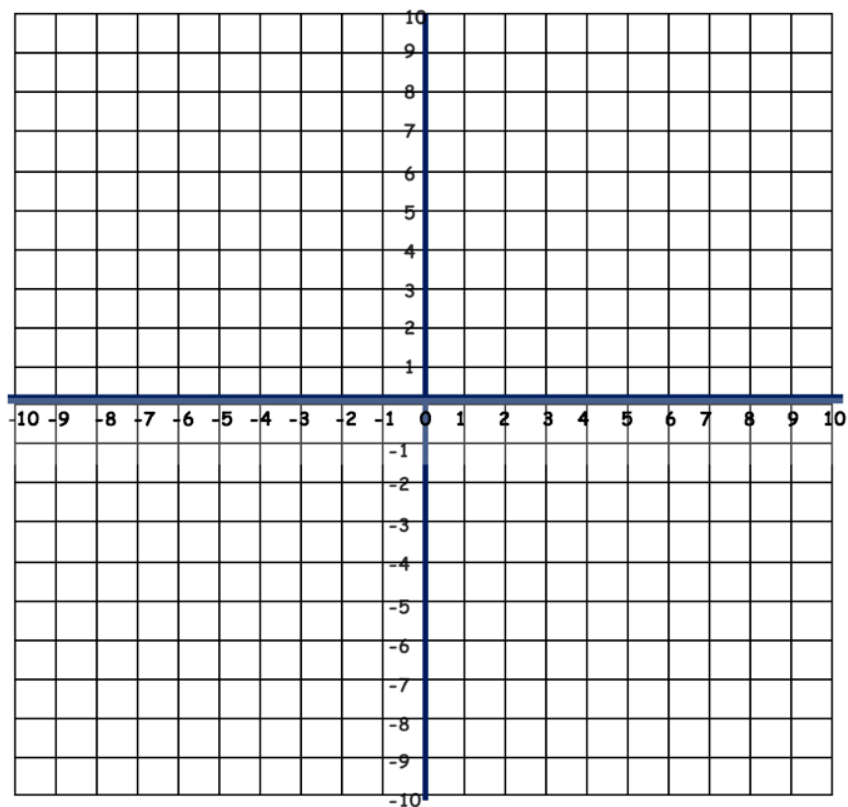
Challenge:
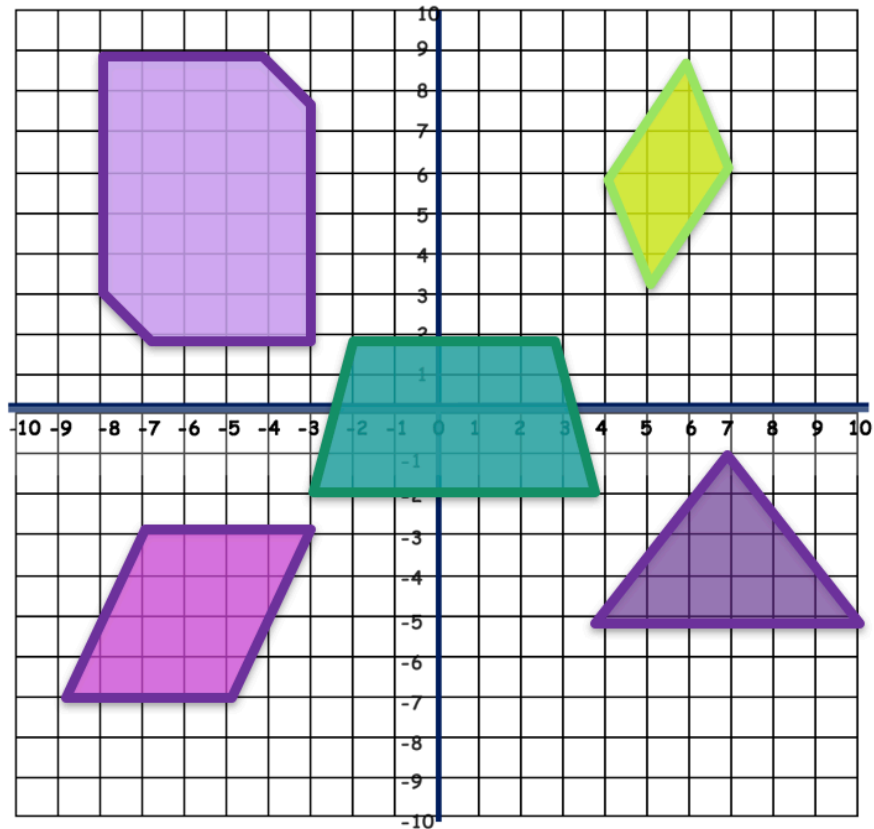How many sides does this shape have?
Research the name of this shape. Why do you think this shape has been given this name?

BRICKWORK
mathematics

Look at the shapes on the grid below. Write down the coordinates of the vertices and measure the angles in each shape.

shape name	coordinates	angle sizes

BRICKWORK
Mathematics

1) Draw your own 4 quadrant grid. On the x and y axis, the amounts should be from 5 to -5.

2) In your grid, you need to draw the following shapes to try to fill all the grid. None of the shapes can overlap and you must have the least number of empty squares as possible left at the end:

rhombus

square

trapezium

rectangle

parallelogram

scalene triangle

isosceles triangle

Challenge:

Workout the percentage of your grid that is filled with shapes.

Work out the percentage of your grid that is of empty squares.

Can you convert these amounts into a fraction and a decimal?