Hitherfield Primary School

Geometry Policy

Part A: Two Dimensional (2D) Shapes

Introduction

In this policy, each year group's section only shows the new learning and language pupils will be introduced to that year. Pupils will also need to be secure in their understanding of all previous years' content. The colour coding for Years 1,2 and 3 highlights each year group's specific objectives within Key Stage One.

If you would like to discuss this policy, or any other aspect of maths at Hitherfield, please speak to your child's class teacher or the School Improvement Leaders for Mathematics;

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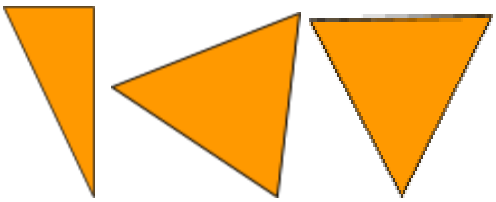
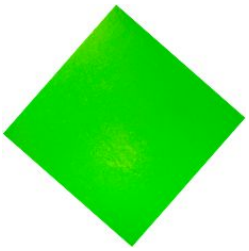
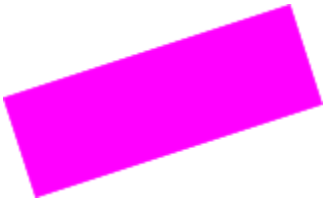
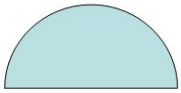
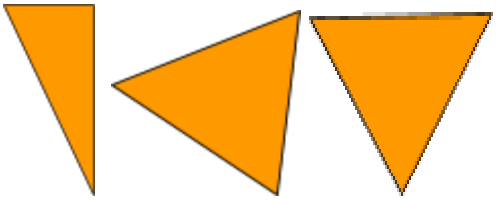
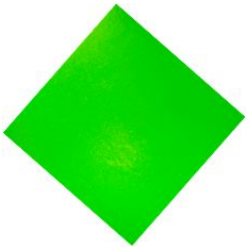
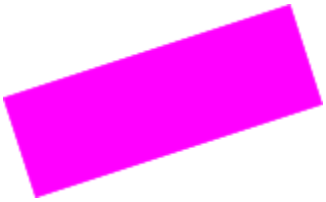
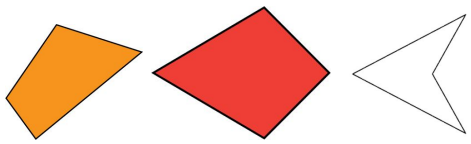
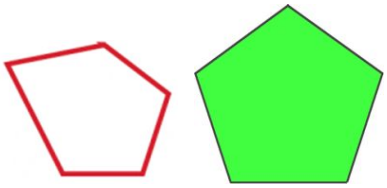
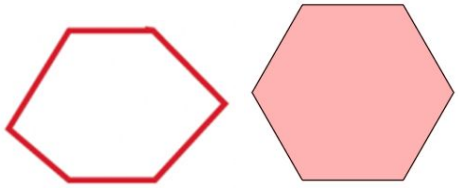
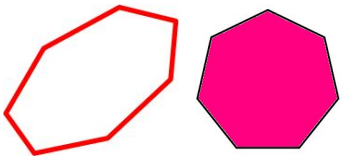
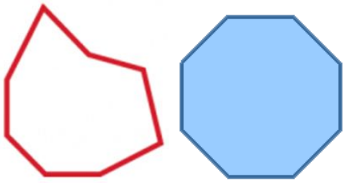
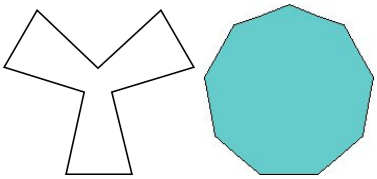
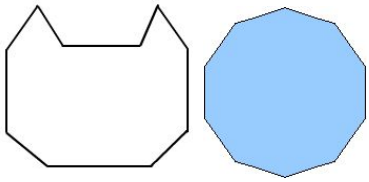
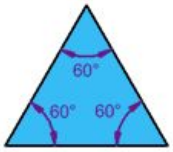
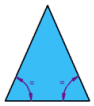
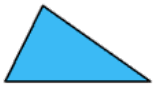
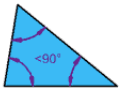
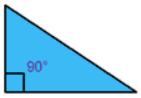
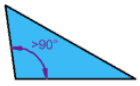
Contents

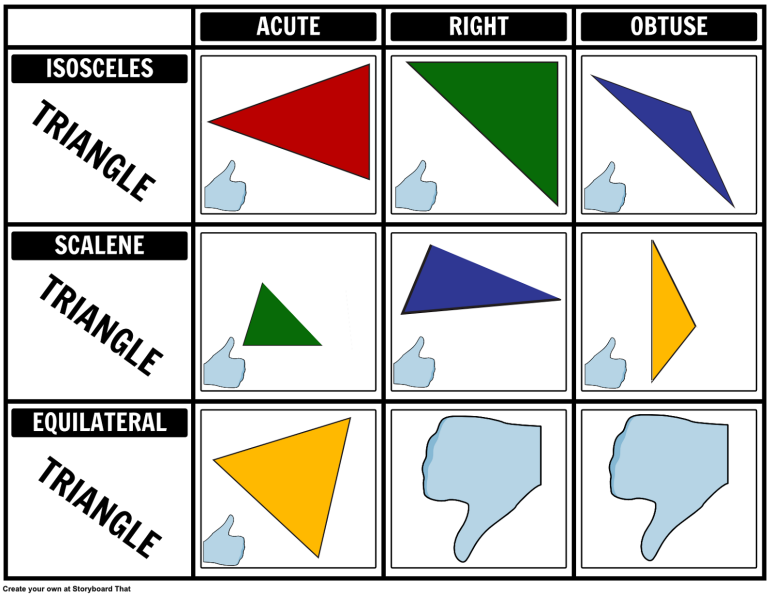
EYFS		
Two dimensional (2-D) shapes with straight sides		
Properties	Representation	Name
It is a round shape No vertices *“In maths we call corners vertices”*		Circle
Polygons - Two dimensional (2-D) shapes with straight sides		
3 straight sides 3 vertices		Triangle
4 straight sides which are all the same length 4 vertices		Square - *not a diamond*
4 straight sides Sides facing one another are the same length 4 vertices		Oblong

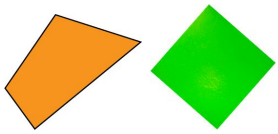
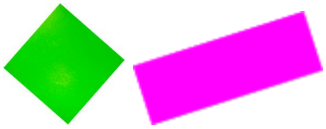
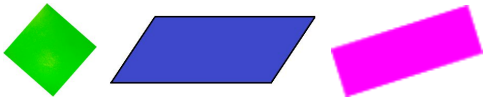
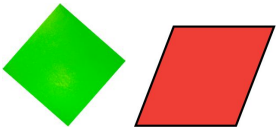
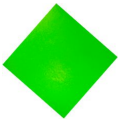
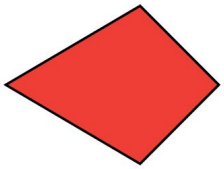
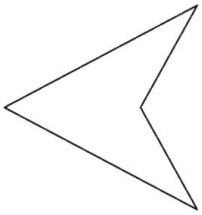
Years 1, 2 and 3		
Two dimensional (2-D) shapes		
Properties	Representation	Name
Appears to have one curved side When folded in half it makes a semi-circle		circle
Half of a circle *Appears to be a curved line meeting a straight side*		semi-circle
Polygons - Two dimensional (2-D) shapes with straight sides		
3 straight sides 3 vertices May have lines of symmetry		triangle
4 straight sides which are all the same length 4 vertices Has 4 lines of symmetry Opposite sides are parallel Adjacent sides are perpendicular		square-rectangle *not a diamond*
4 straight sides Not all sides are equal but opposite sides are equal Has 2 lines of symmetry Opposite sides are parallel Adjacent sides are perpendicular		oblong-rectangle

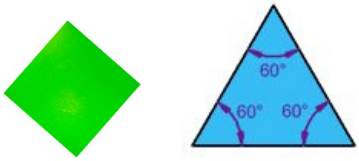
4 straight sides 4 vertices		quadrilateral
5 straight sides 5 vertices		pentagon
6 straight sides 6 vertices		hexagon
7 straight sides 7 vertices		heptagon
8 straight sides 8 vertices		octagon
9 straight sides 9 vertices		nonagon
10 straight sides 10 vertices	 *If appropriate pupils should be encouraged to research the properties of polygons with a greater number of sides and vertices.*	decagon

Years 4 and 5		
Triangles		
Three equal sides Three equal angles, always 60° Has 3 lines of symmetry		**equilateral triangle**
Two equal sides **Two** equal angles Has 2 lines of symmetry		**Isosceles triangle**
No equal sides No equal angles		**scalene triangle**
All angles are less than 90°		**acute triangle**
Has a right angle (90°)		**right triangle**
Has an obtuse (>90°) angle		**obtuse triangle**

Sometimes triangles can have a combined name, for example a right isosceles triangle, however not all combinations are possible:

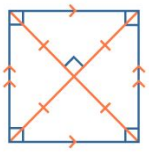


Quadrilaterals		
4 straight sides 4 vertices		**quadrilateral**
4 equal angles All angles are right angles		**rectangle**
2 pairs of parallel sides Opposite sides are equal Opposite sides are parallel		**parallelogram**
4 equal sides Opposite angles are equal Opposite sides are parallel		**rhombus**
4 equal angles and equal sides All angles are right angles		**square-rectangle**
A rectangle that is not a square		**oblong-rectangle**
One pair of parallel sides		**trapezium**
Two pairs of adjacent sides of equal length Only one pair of opposite equal angles Only one line of symmetry		**kite**
One convex interior angle Two pairs of equal adjacent sides Two pairs of adjacent equal sides Only one line of symmetry		**chevron or arrowhead kite**

<table>
<tr><td colspan="3">Year 5</td></tr>
<tr><td>All angles are equal and all sides are equal</td><td> 
</td><td>regular polygon</td></tr>
<tr><td>The sides and angles are not all equal.</td><td>  </td><td>irregular polygon</td></tr>
<tr><td colspan="3">Pupils should describe polygons using new understanding for example:

Interior angles add up to 360°

Diagonals are of equal length and bisect at right angles

  </td></tr>
</table>

Year 6		
 The perimeter of a circle	 The distance between the centre of a circle and its circumference	 A straight line through the centre of a circle joining two points on the circumference. Always twice the circle's radius.

Glossary of terms:

Acute angle: An angle smaller than a right angle (less than 90 degrees)

Adjacent: Next to or adjoining

Angle: A measurement of turn between two straight lines (measured in degrees)

Bisect: Divide (a line, angle, or shape) into two exactly equal parts.

Circumference: the perimeter of a circle

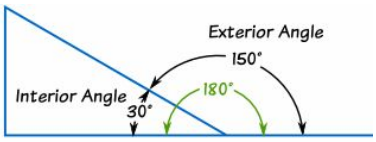
Convex angle: Greater than 180 degrees but less than 360 degrees.

Diagonals: Straight lines which connect two non-adjacent vertices

Diameter: A straight line through the centre of a circle joining two points on the circumference. Always twice the circle's radius.

Edge: the line where two surfaces meet

Exterior angle: The angle between any side of a shape, and a line extended from the next side.



Interior angle: An angle inside a shape

Obtuse angle: An angle that measures more than 90 degrees but less than 180 degrees

Parallel lines: Lines which stay the same distance apart

Perimeter: The distance around a two dimensional (2- D) shape

Perpendicular: Where two lines intersect or meet at right angles

Polygon: A two dimensional (2-D) shape with straight sides
*A polygon is **regular** when all angles are equal and all sides are equal*
*It is **irregular** when not all sides and angles are equal*

Radius: The distance between the centre of a circle and its circumference

Right Angle: 90 degrees

Straight Angle: 180 degrees

Symmetry: exactly similar parts facing each other or around an axis

Vertex *(plural: vertices):* the point where two or more straight lines meet