

Y9 Unit 2 Overview-Shape: Angles and construction:

Test window: 9th December 2019 – 20th December 2019

Target grade for tests:

You will learn about:

- 2D and 3D shapes
- Angles

You will be able to:

- Identify 3D shapes, including cubes and other cuboids, from 2D representations.
- Draw 2-D shapes using given dimensions and angles.
- Recognise, describe and build simple 3-D shapes, including making nets.
- Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.
- Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.
- Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
- Communicate your reasoning verbally and begin to develop your written communication.



Lesson Overview

VISUALISING AND CONSTRUCTING

- Use a protractor to draw angles up to 180°.
- Use a protractor to work out and construct reflex angles.
- Use a ruler to draw lines to the nearest millimetre.
- Use squared paper to guide construction of 2D shapes.
- Complete tessellations of given shapes.
- Know the names of common 3D shapes.
- Use mathematical language to describe 3D shapes.
- Construct 3D shapes from given nets.
- Use 'Polydron' to construct nets for common 3D shapes.
- Draw accurate nets for common 3D shapes.
- Find all the nets for a cube.
- Use a net to visualise the edges (vertices) that will meet when folded.

INVESTIGATING PROPERTIES OF SHAPES

- Know the definitions of special triangles.
- Know the definitions of special quadrilaterals.
- Classify 2D shapes using given categories; e.g. number of sides, symmetry.
- Know the angle sum of a triangle.
- Know the angle sum of a quadrilateral.
- Know how to find the angle sum of any polygon.
- Use the angle sum of a triangle to find missing angles.
- Find the missing angle in an isosceles triangle when only one angle is known.
- Use the angle sum of a quadrilateral to find missing angles.
- Know how to find the size of one angle in any regular polygon.

INVESTIGATING ANGLES

- Identify angles that meet at a point.
- Identify angles that meet at a point on a line.
- Identify vertically opposite angles.
- Know that vertically opposite angles are equal.
- Use known facts to find missing angles.

Key Words

Refer to

<http://studymaths.co.uk/glossary.php>
for definitions of the key words

Protractor, Measure, Nearest Construct, Sketch
Cube, Cuboid, Cylinder, Pyramid, Prism Net
Edge, Face, Vertex (Vertices)
Visualise
Quadrilateral, Square, Rectangle, Parallelogram, (Isosceles) Trapezium, Kite, Rhombus, Delta, Arrowhead
Triangle, Scalene, Right-angled, Isosceles, Equilateral
Polygon, Regular, Irregular
Pentagon, Hexagon, Octagon, Decagon, Dodecagon
Circle, Radius, Diameter, Circumference, Centre
Parallel, perpendicular
Diagonal
Angle, Degrees
Right angle
Acute angle
Obtuse angle
Reflex angle
Protractor
Vertically opposite

Notation

Dash notation to represent equal lengths in shapes and geometric diagrams
Right angle notation
Arc notation for all other angles
The degree symbol (°)

- Explain reasoning.

Suggested reading or support/ challenge available

Support is available from a Maths teacher in 'MORALE' in M1 daily from 1:30pm - 1:45pm



www.mymaths.co.uk
login: penryn
password:

www.hegartymaths.com
Go to student login at the top... find your school, enter your details and then set up your password...

<https://vle.mathswatch.com/vle/>
login: school username followed by @penryn-college
password: Penryn2016

Use your revision guide
Use the code in the front of your guide to access your free online revision

www.justmaths.co.uk/online
login: PenrynStudent
password: Penryn

Cross curricular

SMSC:

- 1.1 Exploring, understanding and respecting cultural diversity e.g. exploration of different methods of multiplication (Chinese, Russian).
- 3.1 Developing personal qualities and using social skills (regular paired/ group work communication).
- 3.2 Participating, cooperating and resolving conflicts (paired/group activities).
- 4.2 Experiencing fascination, awe and wonder of mathematics.
- 4.4 Using imagination and creativity in learning.

Literacy:

Verbal communication of understanding using key words in the correct context. Development of written communication of methods and strategies to problem solve.

NAC:

Science – Mathematical names of 3-D shapes. Make simple 3-D models from nets. Recognise 2-D representations of 3-D shapes. Use co-ordinates in the first Quadrant. Understand angle as a measure of turn. Measure and draw angles. Know and use the formula for the area of a rectangle.

Technology- Make simple 3-D models from nets.

Art – Mathematical names of 3-D shapes. Identify all the symmetries of 2-D shapes.

Research	Note-making	Group work & discussion	Memorisation	Precision & accuracy	Independence	Reflection