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.
- Explore the properties of rectangles.
- Investigate polygons.
- Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.
- Draw given angles, and measure them in degrees (°).
- Identify angles at a point and one whole turn (total 360°); angles at a point on a straight line and $^1/_2$ a turn (total 180°); other multiples of 90°.
- Communicate your methods verbally, using a range of mathematical vocabulary.

Lesson Overview

VISUALISING AND CONSTRUCTING

- Identify 3D-shapes from photographs and sketches.
- Identify 3D-shapes from nets.
- Identify 3D-shapes from diagrams on isometric paper.
- Construct diagrams of 3D-shapes on isometric paper.

INVESTIGATING PROPERTIES OF SHAPES

- Use the properties of rectangles to find missing lengths and angles.
- Use the properties of rectangles to find points on a coordinate grid.
- Know the difference between a regular and an irregular polygon.
- Use the properties of regular polygons to find points on a coordinate grid.

INVESTIGATING ANGLES

- Know that angles are measured in degrees and estimate acute, obtuse and reflex angles.
- Know that a reflex angle is greater than 180° and estimate reflex angles.
- Identify and find angles at a point.
- Identify and find angles at a point on a straight line.
- Use a protractor to measure angles less than 180°.
- Use a protractor to measure angles greater than 180°.
- Use a protractor to draw angles less than 180°.
- Use a protractor to draw angles greater than 180°.

Key Words

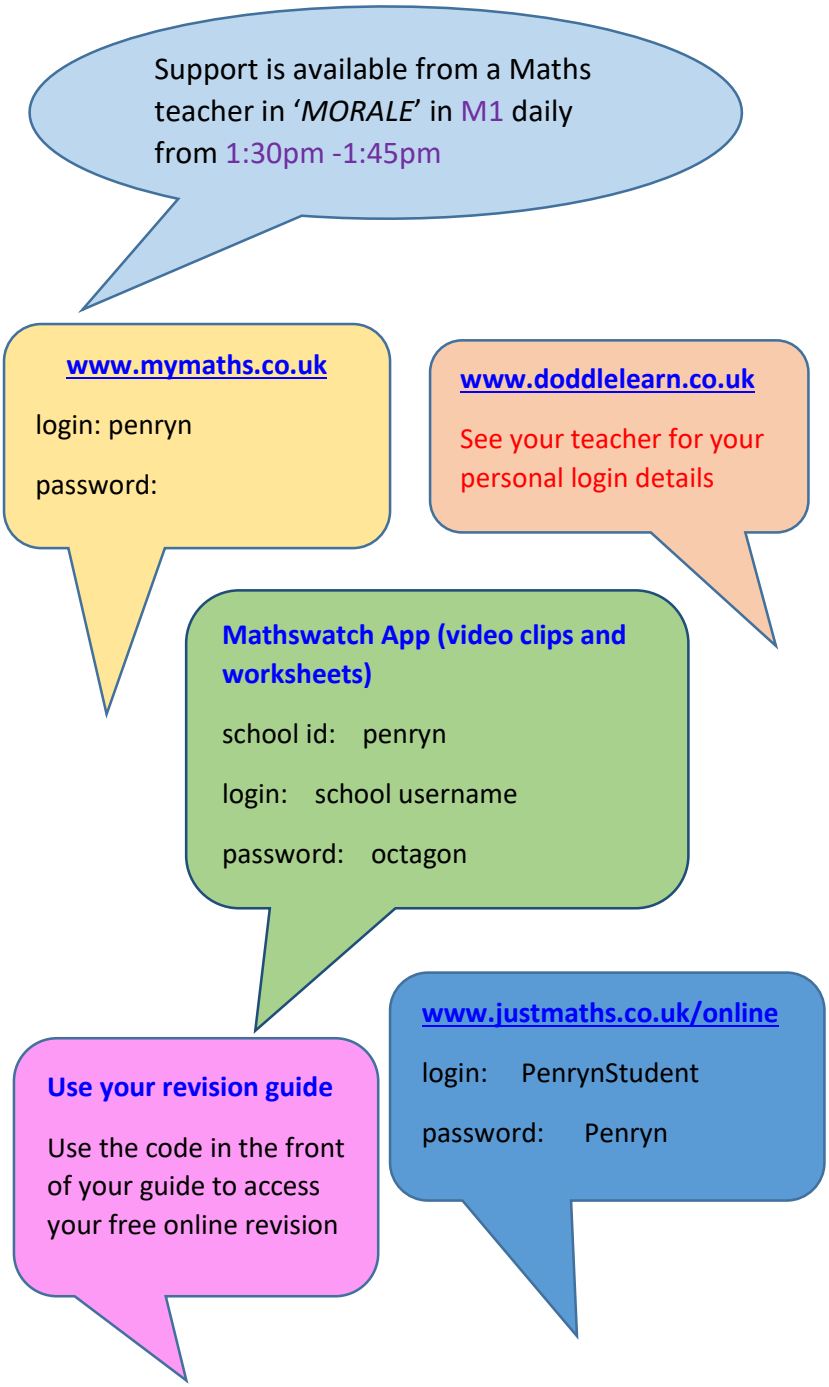
Refer to http://studymaths.co.uk/glossary.php for definitions of the key words

Cube
Cuboid
Cylinder
Pyramid
Prism
Cone
Sphere
2D
3D
Net
Sketch
Isometric paper
Rectangle
Square
Quadrilateral
(Regular / irregular) polygon, pentagon, hexagon, octagon
(Right) angle
Parallel
Perpendicular
Coordinates
Turn
Angle
Degrees
Acute angle
Obtuse angle
Reflex angle
Protractor

Notation

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

Suggested reading or support/ challenge available



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.
Technology- Make simple 3-D models from nets.
Art – Mathematical names of 3-D shapes.

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