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:

- Use conventional terms and notations: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries.
- Use the standard conventions for labelling and referring to the sides and angles of triangles.
- Draw diagrams from written description.
- Identify properties of the faces, surfaces, edges and vertices of: cubes, cuboids, prisms, cylinders, pyramids, cones and spheres.
- Derive and apply the properties and definitions of: special types of quadrilaterals, including square, rectangle, parallelogram, trapezium, kite and rhombus; and triangles and other plane figures using appropriate language apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles.
- Communicate your methods verbally, using a range of mathematical vocabulary.

Lesson Overview

VISUALISING AND CONSTRUCTING

- Know the meaning of faces, edges and vertices.
- Use notation for parallel lines.
- Know the meaning of 'perpendicular' and identify perpendicular lines.
- Know the meaning of 'regular' polygons.
- Identify line and rotational symmetry in polygons.
- Use AB notation for describing lengths.
- Use ∠ABC notation for describing angles.
- Use ruler and protractor to construct triangles from written descriptions.
- Use ruler and compasses to construct triangles when all three sides known.

INVESTIGATING PROPERTIES OF SHAPES

- Know the vocabulary of 3D shapes.
- Know the connection between faces, edges and vertices in 3D shapes.
- Visualise a 3D shape from its net.
- Recall the names and shapes of special triangles and quadrilaterals.
- Know the meaning of a diagonal of a polygon.
- Know the properties of the special quadrilaterals (including diagonals).
- Apply the properties of triangles to solve problems.
- Apply the properties of quadrilaterals to solve problems.

INVESTIGATING ANGLES

- Identify fluently angles at a point, angles at a point on a line and vertically opposite angles.
- Identify known angle facts in more complex geometrical diagrams.
- Use knowledge of angles to calculate missing angles in geometrical diagrams.
- Know that angles in a triangles total 180°.
- Find missing angles in triangles.
- Find missing angles in isosceles triangles.
- Explain reasoning using vocabulary of angles.

Key Words

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

Edge, Face, Vertex (Vertices)
Parallel, Perpendicular
Regular polygon
Rotational symmetry, Plane
Cube, Cuboid, Prism, Cylinder, Pyramid, Cone, Sphere
Quadrilateral
Square, Rectangle, Parallelogram, (Isosceles) Trapezium, Kite, Rhombus
Delta, Arrowhead
Diagonal
Triangle
Scalene, Right-angled, Isosceles, Equilateral
Angle, Degrees
Right, Acute, Obtuse, Reflex angle
Protractor
Vertically opposite
Geometry, geometrical

Notation

Dash notation to represent equal lengths in shapes and geometric diagrams
Right angle notation
The line between two points A and B is AB
The angle made by points A, B and C is ∠ABC
The angle at the point A is Â
Arrow notation for sets of parallel lines
Dash notation for sides of equal length
Arc notation for all other angles
The degree symbol (°)

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