St. Patrick's High School Keady

Mathematics Department

Learning Intentions

YEAR 10

Unit: Shape, Space & Measure

Stage: Pythagoras Theorem

At the end of this unit **all** pupils should be able to:

- Identify the hypotenuse of a right angled triangle
- Recall Pythagoras' theorem
- Calculate the length of the hypotenuse given the other two sides

At the end of this unit **most** pupils should be able to:

- Calculate the length of one of the shorter sides when given the hypotenuse and the other side

At the end of this unit **some** pupils should be able to:

- Use Pythagoras' theorem to find the length of a line segment from a co-ordinate grid
- Use Pythagoras' theorem to solve problems from practical situations

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Unit: Shape, Space & Measure

Stage: 3D Shapes

At the end of this unit **all** pupils should be able to:

- Identify faces, edges and vertices of a 3D shape
- Recognise and name common 3D shapes
- Draw nets of 3D shapes
- Name a 3D shape from a given net

At the end of this unit **most** pupils should be able to:

- Draw a plan and front and side elevations of shapes made from simple solids

At the end of this unit **some** pupils should be able to:

- Draw a sketch of a 3D shape when given the plan, front elevation and side elevation

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Unit: Shape, Space & Measure

Stage: Area and Volume

At the end of this unit **all** pupils should be able to:

- Calculate the area of a square, rectangle, triangle and parallelogram
- Calculate the area of a trapezium
- Calculate the area of a compound shape made from squares, rectangles and right angled triangles with missing but attainable sides
- Calculate the circumference of the circle, given either radius or diameter
- Calculate the area of the circle, given either radius or diameter
- Find the volume of a shape by counting cubes
- Calculate the volume of a cube or cuboid

At the end of this unit **most** pupils should be able to:

- Calculate the area and perimeter of a semi-circle or quarter circle
- Calculate the volume of a prism
- Calculate the surface area of a cube or cuboid

At the end of this unit **some** pupils should be able to:

- Calculate the perimeter of a sector of a circle
- Calculate the area of a sector of a circle
- Find the cross-sectional area, given the volume and height
- Calculate the surface area of a cylinder

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Unit: Shape, Space & Measure

Stage: Transformations

At the end of this unit **all** pupils should be able to:

- Reflect a shape across a horizontal or vertical line
- Reflect a shape across a diagonal line angled at 45°
- Translate a shape when given a left/right and up/down instruction
- Translate a shape given vector notation
- Enlarge a shape by a positive integer scale factor

At the end of this unit **most** pupils should be able to:

- Describe a reflection
- Find the placement of the original shape when a translation has occurred
- Describe using vector notation a translation
- Enlarge a shape by a positive integer scale factor through a centre of enlargement
- Rotate a shape about a given centre of rotation

At the end of this unit **some** pupils should be able to:

- Describe an enlargement giving its centre of enlargement and scale factor
- Enlarge a shape by a fractional scale factor through a centre of enlargement
- Describe a rotation giving the centre of rotation, angle and direction