Subject: Maths

Year 11 Foundation Scheme of Work

William Hulme's Grammar School
The best in everyone™
Part of United Learning

Overview	The purpose of the Maths curriculum is to equip students with uniquely powerful ways to describe, analyse and solve problems and to make them more prepared for the real world. We do this by providing a secure understanding of mathematical concepts, from basic principles of mathematics to complex topics that combine several areas of study into a single question. In Year 11 we continue to concentrate on retention of knowledge and depth of learning. In doing this, all our students have the opportunity to master key skills.

Autumn Term

Half Term 1

Pythagoras

- Calculate with roots, and with integer indices
- Leave answers in surd form
- Given 3 sides of a triangle, justify if it is right-angled or not
- Apply Pythagoras' Theorem with a triangle drawn on a coordinate grid
- Calculate the length of a line segment AB given pairs of points

Right Angled Trigonometry

- Trigonometry in right angled triangles
- Know the exact values of sinθ and cosθ for θ = 0°, 30°, 45°, 60° and 90°. Know the exact value of tanθ for θ = 0°, 30°, 45° and 60°
- Find angles of elevation and depression

Bearings & Scale drawings

- Interpret maps and scale drawings
- Estimate lengths using a scale diagram
- Make an accurate scale drawing from a diagram
- Know and use compass directions
- Use three-figure bearings to specify direction
- Mark on a diagram the position of point B given its bearing from point A
- Give a bearing between the points on a map or scaled plan
- Given the bearing of a point A from point B, work out the bearing of B from A
- Use accurate drawing to solve bearings problems
- Solve locus problems including bearings

Half Term 2

Transformations

- Reflection and rotation symmetry
- Transformations - rotation, reflection, translation, enlargement (with a positive scale factor)
- Identify the equation of a line of symmetry
- Identify the scale factor of an enlargement of a shape as the ratio of the lengths of two corresponding sides, simple integer scale factors, or simple fractions
- Enlargements with a fractional scale factors

Congruence

- Identify congruent shapes by eye
- Understand that distances and angles are preserved under reflections, so that any figure is congruent under this transformation
- Congruence criteria for triangles (SSS, SAS, ASA, RHS)
- Solve angle problems involving congruence

Assessment

In Year 11 we do a past paper assessment every fortnight, these are a mix of seen and unseen papers.

Half Term 2
At the end of November, we do United Learning Mock GCSE 1 (this consists of 3 papers)

Spring Term

Half Term 3

Vectors

- Addition and subtraction of vectors, multiplications by a scalar and diagrammatic and column representations
- Be able to represent information graphically given column vectors
- Identify two column vectors which are parallel

Similar Shapes

- Understand that similar shapes are enlargements of each other, and angles are preserved – define similar in this unit
- Identify shapes which are similar, including all circles or all regular polygons with equal number of sides
- Apply the concepts similarity, including the relationships between lengths in similar figures
- Understand similarity of triangles and of other plane shapes, use this to make geometric inferences, and solve angle problems using similarity
- Understand the effect of enlargement on perimeter of shapes
- Solve problems to find missing lengths in similar shapes

Constructions & Loci

- Draw circles and arcs to a given radius or given the diameter
- Measure and draw lines, to nearest mm
- Measure and draw angles, to nearest degree
- Use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle)
- Construct angles of 90°, 45°
- Use constructions to construct given figures and solve loci problems; know that the perpendicular distance from a point to a line is the shortest distance to the line
- Construct:
  - region bounded by a circle and an intersecting line
  - a given distance from a point and a given distance from a line
  - equal distances from two points or two line segments
  - regions which may be defined by 'nearer to' or 'greater than'

Half Term 4

From HT4 Teachers Identify areas that they need to revise.

Assessment

In Year 11 we do a past paper assessment every fortnight, these are a mix of seen and unseen papers.

Half Term 4
Just before Easter Break. We do United Learning Mock 2 (this consists of 3 papers.

Summer Term	Half Term 5 From HT4 Teachers Identify areas that they need to revise.		Assessment In Year 11 we do a past paper assessment every fortnight, these are a mix of seen and unseen papers.

Useful Resources for Supporting Your Child at Home:	Homework:
■ hegartymaths.com ■ curriculum.unitedlearning.org.uk ■ ttrockstars.com ■ www.bbc.co.uk/bitesize/subjects/zqhs34j ■ mmerevise.co.uk	Hegarty Maths is used as the main homework platform and 2 tasks are set each week. On top of this web resources like Dr Frost are used to set more GCSE style questions. Pinpoint booklets are regularly set.