<table>
<thead>
<tr>
<th>Year 11 Overview</th>
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</thead>
<tbody>
<tr>
<td><strong>Year 11 SoW Foundation</strong></td>
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<tr>
<td><strong>Autumn 1</strong></td>
</tr>
<tr>
<td>- Algebra</td>
</tr>
<tr>
<td>- Equations and inequalities</td>
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<tr>
<td>- Graphs</td>
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<tr>
<td><strong>Autumn 2</strong></td>
</tr>
<tr>
<td>- Angles</td>
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<tr>
<td>- Circles</td>
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<tr>
<td>- Scale and Drawing</td>
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<tr>
<td><strong>Spring 1</strong></td>
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<tr>
<td>- Probability</td>
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<tr>
<td>- Transformations</td>
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<tr>
<td>- Constructions</td>
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<tr>
<td>- Units</td>
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<tr>
<td>- Pattern</td>
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<tr>
<td><strong>Spring 2</strong></td>
</tr>
<tr>
<td>- Surface Area and Volume</td>
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<tr>
<td>- Quadratic Graphs</td>
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<tr>
<td>- Pythagoras’ Theorem</td>
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<tr>
<td>- Past Papers</td>
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<tr>
<td><strong>Summer 1</strong></td>
</tr>
<tr>
<td>- Past Papers</td>
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<tr>
<td>Module: 8(F)</td>
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<tr>
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<tr>
<td><strong>Objectives:</strong> Pupils will be able to:</td>
</tr>
<tr>
<td>• Use letters, symbols and numbers to write expressions and formulae</td>
</tr>
<tr>
<td>• Simplifying</td>
</tr>
<tr>
<td>• Expand brackets</td>
</tr>
<tr>
<td>• Factorising</td>
</tr>
<tr>
<td>• Quadratic expressions</td>
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<tr>
<td>• Substitution</td>
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</tbody>
</table>

**Opportunity for ICT / AT1:**

- Use of excel to write formula
- DARTMATHS

**Cross Curricula Links:**

- Links to science and technology
- Changing subject of formula in Science eg $W=IR \quad R=W/I$
- Business Studies

**Work Related Learning:**

- Engineering/Scientific roles
- Business calculations by formulae for profit/loss
- Accountancy formulae
- Substitution used in calculating costs in CITB
Objectives: Pupils will be able to:

- Read information from a conversion graph
- Read information from a travel graph
- Understand flow diagrams
- Draw a straight line graph from its equation

Useful Background Information:
- Plot coordinates in the first quadrant
- Know how speed, distance and time are related
- Know how to substitute numbers into a formula.

Development of The Topic For G & T / Support:

Opportunity for ICT / AT1:
- Mymaths.co.uk
- Dart Maths
- IWB software
- GeoGebra

Cross Curricula Links:
- Conversion graphs in Business studies and Science
- Flow chart in ICT
- Graphing in ICT

Work Related Learning:
- Conversion graphs used in economics for exchange rates
- Graphing used in all areas of business.
Objectives: Pupils will be able to:
- Measure and draw angles
- Angle facts
- Angles in a triangle
- Angles in a polygon
- Regular polygons
- Parallel lines
- Special quadrilaterals
- Bearings

Useful Background Information:
- How to use a protractor
- Meanings of terms Acute, Obtuse, Reflex and Right
- Definition of a polygon
- Meaning of diagonal, parallel lines and perpendicular
- Links to solving an equation

Development of the Topic For Extension / Support:
- Tessellations
- Interior and Exterior angles
- Map reading

Opportunity for ICT / AT1:
- LOGO program

Cross Curricula Links:
- Geography – map skills
- D&T accurate measurement and drawing
- Graphics – use of angles of lines

Work Related Learning:
- Building, carpentry and allied trades
- Tiling
- Draughtsperson
**Objectives:** Pupils will be able to:

- Draw circles
- Calculate the circumference of a circle
- Calculate the area of a circle
- Know how to write answers in terms of pi.

<table>
<thead>
<tr>
<th>Useful Background Information:</th>
<th>Development of The Topic For G &amp; T / Support:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Know how to use a pair of compasses to draw a circle</td>
<td>- Construction techniques for angles, bisection, polygons</td>
</tr>
<tr>
<td>- Understand the terminology ‘radius’, ‘diameter’ and ‘semicircle’</td>
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<tr>
<td>- Know how to use a protractor to draw angles</td>
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<tr>
<td>- Know how to round numbers to a given number of decimal places</td>
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<tr>
<td>- Know how to find the square and square root of a number</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunity for ICT / AT1:</th>
<th>Cross Curricula Links:</th>
<th>Work Related Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- MS logo programme for angles in polygons</td>
<td>- GNVQ building and construction, D and T courses</td>
<td>- Joinery</td>
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<tr>
<td></td>
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<td>- Architecture</td>
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<td>- Mapping</td>
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<td>- Machining</td>
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</tbody>
</table>
**Objectives:** Pupils will be able to:
- Read scales
- Estimate everyday lengths, weights etc
- Produce scale drawings
- Construct Nets
- Use Isometric paper

**Useful Background Information:**
- Names of common 3D shapes
- Measuring lengths of lines
- Measuring angles with a protractor

**Development of The Topic For Extension / Support:**
- Combine with topic of Angles. Designing, Drawing and Making
- Plans and Elevations
- Metric to Imperial conversions

**Opportunity for ICT / AT1:**
- Look at Design technology dept for use of CAD packages.

**Cross Curricula Links:**
- Graphics
- Design & Tech
- Art
- Geography

**Work Related Learning:**
- Use of plans and maps
- Construction trades
<table>
<thead>
<tr>
<th>Module: 17 (F)</th>
<th>Chapter Title: Probability</th>
<th>Text Book: Collins Ch 18</th>
<th>No. Of Lessons: 8</th>
<th>Year: 11</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectives:</strong> Pupils will be able to:</td>
<td><strong>Useful Background Information:</strong></td>
<td><strong>Development of The Topic For Extension / Support:</strong></td>
<td></td>
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</tr>
<tr>
<td>• Use a Probability Scale</td>
<td>• How to add, subtract and cancel fractions</td>
<td>• Probability experiments</td>
<td></td>
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<tr>
<td>• Calculate Probabilities</td>
<td>• How to list all the outcomes of an event in a systematic manner</td>
<td>• Tree diagrams</td>
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<tr>
<td>• Addition rule for outcomes</td>
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<td></td>
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<tr>
<td>• Experimental Probability</td>
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<tr>
<td>• Combined events</td>
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<td></td>
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</tr>
<tr>
<td>• Expected outcomes</td>
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<tr>
<td>• Use two way tables</td>
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<tr>
<th>Opportunity for ICT / AT1:</th>
<th>Cross Curricula Links:</th>
<th>Work Related Learning:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Two way tables on Excel</td>
<td>• Biology</td>
<td>• Betting industry</td>
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<tr>
<td>• National Lottery</td>
<td>• PSHE - gambling</td>
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</tbody>
</table>
Objectives: Pupils will be able to:
- Understand congruent shapes
- Produce tessellations
- Translate
- Reflect
- Rotate
- Enlarge

Useful Background Information:
- Line Symmetry of 2D shapes
- Rotational symmetry of 2D shapes

Development of The Topic For Extension / Support:
- Finding equations of a line
- 3D symmetry
- Enlargement with negative and fractional scale factors

Opportunity for ICT / AT1:
- Use of OMNIGRAPH

Cross Curricula Links:
- Design and Technology
- Art

Work Related Learning:
- Graphic design
<table>
<thead>
<tr>
<th>Module: 19 (F)</th>
<th>Chapter Title: Constuctions</th>
<th>Text Book: Collins Ch 20</th>
<th>No. Of Lessons: 7</th>
<th>Year: 11</th>
</tr>
</thead>
</table>

**Objectives:** Pupils will be able to:

- Construct triangles using compass and protractor
- Constructing Line and Angle bisectors
- Constructing Loci

**Useful Background Information:**

- Names of common 3D shapes
- How to measure with a ruler and protractor

**Development of The Topic For Extension / Support:**

- Construct polygons
- Inscribed and circumscribed circles

**Opportunity for ICT / AT1:**

- Drawing shapes on OMNIGRAPH

**Cross Curricula Links:**

- Design and Technology
- Graphics

**Work Related Learning:**

- Carpentry
- Tiling
Objectives: Pupils will be able to:

- Understand systems of measurement
- Knowledge and use of Metric units
- Knowledge and use of everyday Imperial units
- Converting between Metric and Imperial units

Useful Background Information:

- Basic units for measuring Length, Weight and Capacity
- Approximate size of units
- How to multiply or divide by powers of ten

Development of The Topic For Extension / Support:

- Convert between units by mental arithmetic

Opportunity for ICT / AT1:

Cross Curricula Links:

- Food technology – units in recipes
- Science – awareness of two systems

Work Related Learning:

- Building and allied trades
Objectives: Pupils will be able to:

- Find patterns in Numbers
- Generate a sequence from a rule
- Find an Nth term rule
- Know the special sequences
- Find a general rule from a given pattern

Useful Background Information:

- Understand basic algebra
- Know how to substitute numbers into algebraic expressions
- Know how to solve simple linear equations

Development of The Topic For Extension / Support:

- Drawing graphs
- Simple quadratic rules
- Matchstick puzzles

Opportunity for ICT / AT1:

- Writing formulae in Excel

Cross Curricula Links:

- Science – population growth patterns

Work Related Learning:
### Objectives: Pupils will be able to:

- Understand units of Volume
- Find the surface area and volume of a cuboid
- Calculate density
- Find the Surface area and Volume of a Prism
- Find the Volume of a Cylinder

### Useful Background Information:

- Area of rectangles and triangles
- Units of area
- Names of basic 3D shapes
- Understanding the term Volume

### Development of The Topic For Extension / Support:

- Surface area of Cylinders

### Opportunity for ICT / AT1:

### Cross Curricula Links:

- Science
- Design technology

### Work Related Learning:

- Painting and decorating
<table>
<thead>
<tr>
<th>Module: 23 (F)</th>
<th>Chapter Title: Quadratic graphs</th>
<th>Text Book: Collins Ch 25</th>
<th>No. Of Lessons: 4</th>
<th>Year: 11</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectives:</strong> Pupils will be able to:</td>
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<tr>
<td>- Draw Quadratic graphs</td>
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<tr>
<td>- Solving quadratics from a graph</td>
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<tr>
<td><strong>Useful Background Information:</strong></td>
<td><strong>Development of The Topic For Extension / Support:</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>- How to plot coordinates in all 4 quadrants</td>
<td>- Possible move to higher tier exam</td>
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<tr>
<td>- Substituting into a formula</td>
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<tr>
<td>- Drawing linear graphs</td>
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<tr>
<td><strong>Opportunity for ICT / AT1:</strong></td>
<td><strong>Cross Curricula Links:</strong></td>
<td><strong>Work Related Learning:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Use of OMNIGRAPH</td>
<td>- Projectile motion in Science</td>
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</tr>
</tbody>
</table>
Objectives: Pupils will be able to:

- Use Pythagoras to find Hypotenuse
- Use Pythagoras to find a short side
- Solve problems using Pythagoras

Useful Background Information:
- Finding squares and square roots of a number
- Rounding answers to a suitable degree of accuracy

Development of The Topic For Extension / Support:
- 3D Pythagoras
- Practical applications
- Areas of Isosceles triangles
- Pythagorean triples

Opportunity for ICT / AT1:
- Spreadsheets for triples

Cross Curricula Links:
- Graphics

Work Related Learning:
- Builder and allied trades
- Astronomy
- Navigation