

Year 11 Overview

Year 11 SoW Foundation

Autumn 1

- Algebra
- Equations and inequalities
- Graphs

Autumn 2

- Angles
- Circles
- Scale and Drawing

Spring 1

- Probability
- Transformations
- Constructions
- Units
- Pattern

Spring 2

- Surface Area and Volume
- Quadratic Graphs
- Pythagoras' Theorem
- Past Papers

Summer 1

- Past Papers

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| Module: 8(F) | Chapter Title: Basic Algebra Chapter 7 | Text Book: Collins (F) | No. Of Lessons: 6 | Year: 10 |
| <p>Objectives: Pupils will be able to:</p> <ul style="list-style-type: none"> • Use letters, symbols and numbers to write expressions and formulae • Simplifying • Expand brackets • Factorising • Quadratic expressions • Substitution | | | | |
| <p>Useful Background Information:</p> <ul style="list-style-type: none"> • Should be familiar with BODMAS, order of operations | | | <p>Development of The Topic For Extension / Support:</p> | |
| <p>Opportunity for ICT / AT1:</p> <ul style="list-style-type: none"> • Use of excel to write formula • DARTMATHS | <p>Cross Curricula Links:</p> <ul style="list-style-type: none"> • Links to science and technology • Changing subject of formula in Science eg $W=IR$ $R=W/I$ • Business Studies | <p>Work Related Learning:</p> <ul style="list-style-type: none"> • Engineering/Scientific roles • Business calculations by formulae for profit/loss • Accountancy formulae • Substitution used in calculating costs in CITB | | |

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| Module: 13 (F) | Chapter Title: Graphs | Text Book: Collins – Ch.14 | No. Of Lessons: 4 | Year: 11 |
| <p>Objectives: Pupils will be able to:</p> <ul style="list-style-type: none"> • Read information from a conversion graph • Read information from a travel graph • Understand flow diagrams • Draw a straight line graph from its equation | | | | |
| <p>Useful Background Information:</p> <ul style="list-style-type: none"> • Plot coordinates in the first quadrant • Know how speed, distance and time are related • Know how to substitute numbers into a formula. • | | | <p>Development of The Topic For G & T / Support:</p> | |
| <p>Opportunity for ICT / AT1:</p> <ul style="list-style-type: none"> • Mymaths.co.uk • Dart Maths • IWB software • geogebra | <p>Cross Curricula Links:</p> <ul style="list-style-type: none"> • Conversion graphs in Business studies and Science • Flow chart in ICT • Graphing in ICT | <p>Work Related Learning:</p> <ul style="list-style-type: none"> • Conversion graphs used in economics for exchange rates • Graphing used in all areas of business. | | |

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| Module: 14 (F) | Chapter Title: Angles | Text Book: Collins Ch. 15 | No. Of Lessons: 6 | Year: 11 |
| <p>Objectives: Pupils will be able to:</p> <ul style="list-style-type: none"> • Measure and draw angles • Angle facts • Angles in a triangle • Angles in a polygon • Regular polygons • Parallel lines • Special quadrilaterals • Bearings | | | | |
| <p>Useful Background Information:</p> <ul style="list-style-type: none"> • 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 | | <p>Development of the Topic For Extension / Support:</p> <ul style="list-style-type: none"> • Tessellations • Interior and Exterior angles • Map reading | | |
| <p>Opportunity for ICT / AT1:</p> <ul style="list-style-type: none"> • LOGO program | <p>Cross Curricula Links:</p> <ul style="list-style-type: none"> • Geography – map skills • D&T accurate measurement and drawing • Graphics – use of angles of lines | <p>Work Related Learning:</p> <ul style="list-style-type: none"> • Building, carpentry and allied trades • Tiling • Draughtsperson | | |

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| Module: 15 (F) | Chapter Title: Circles | Text Book: Collins – Ch.16 | No. Of Lessons: 4 | Year: 11 |
| <p>Objectives: Pupils will be able to:</p> <ul style="list-style-type: none"> • Draw circles • Calculate the circumference of a circle • Calculate the area of a circle • Know how to write answers in terms of pi. | | | | |
| <p>Useful Background Information:</p> <ul style="list-style-type: none"> • Know how to use a pair of compasses to draw a circle • Understand the terminology ‘radius’, ‘diameter’ and ‘semicircle’ • Know how to use a protractor to draw angles • Know how to round numbers to a given number of decimal places • Know how to find the square and square root of a number | | | <p>Development of The Topic For G & T / Support:</p> <ul style="list-style-type: none"> • Construction techniques for angles, bisection, polygons | |
| <p>Opportunity for ICT / AT1:</p> <ul style="list-style-type: none"> • MS logo programme for angles in polygons | <p>Cross Curricula Links:</p> <ul style="list-style-type: none"> • GNVQ building and construction, D and T courses | <p>Work Related Learning:</p> <ul style="list-style-type: none"> • Joinery • Architecture • Mapping • Machining | | |

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| Module: 16(F) | Chapter Title: Scale and Drawing | Text Book: Collins Ch 17 | No. Of Lessons: 7 | Year: 11 |
| <p>Objectives: Pupils will be able to:</p> <ul style="list-style-type: none"> • Read scales • Estimate everyday lengths, weights etc • Produce scale drawings • Construct Nets • Use Isometric paper | | | | |
| <p>Useful Background Information:</p> <ul style="list-style-type: none"> • Names of common 3D shapes • Measuring lengths of lines • Measuring angles with a protractor | | <p>Development of The Topic For Extension / Support:</p> <ul style="list-style-type: none"> • Combine with topic of Angles. Designing, Drawing and Making • Plans and Elevations • Metric to Imperial conversions | | |
| <p>Opportunity for ICT / AT1:</p> <ul style="list-style-type: none"> • Look at Design technology dept for use of CAD packages. | <p>Cross Curricula Links:</p> <ul style="list-style-type: none"> • Graphics • Design & Tech • Art • Geography | | <p>Work Related Learning:</p> <ul style="list-style-type: none"> • Use of plans and maps • Construction trades | |

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| Module: 17 (F) | Chapter Title: Probability | Text Book: Collins Ch 18 | No. Of Lessons: 8 | Year: 11 |
| <p>Objectives: Pupils will be able to:</p> <ul style="list-style-type: none"> • Use a Probability Scale • Calculate Probabilities • Addition rule for outcomes • Experimental Probability • Combined events • Expected outcomes • Use two way tables | | | | |
| <p>Useful Background Information:</p> <ul style="list-style-type: none"> • How to add, subtract and cancel fractions • How to list all the outcomes of an event in a systematic manner | | | <p>Development of The Topic For Extension / Support:</p> <ul style="list-style-type: none"> • Probability experiments • Tree diagrams | |
| <p>Opportunity for ICT / AT1:</p> <ul style="list-style-type: none"> • Two way tables on Excel • National Lottery | <p>Cross Curricula Links:</p> <ul style="list-style-type: none"> • Biology • PSHE - gambling | | <p>Work Related Learning:</p> <ul style="list-style-type: none"> • Betting industry | |

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| Module: 18(F) | Chapter Title: Transformations | Text Book: Collins Ch 19 | No. Of Lessons: 10 | Year: 11 |
| <p>Objectives: Pupils will be able to:</p> <ul style="list-style-type: none"> • Understand congruent shapes • Produce tessellations • Translate • Reflect • Rotate • Enlarge | | | | |
| <p>Useful Background Information:</p> <ul style="list-style-type: none"> • Line Symmetry of 2D shapes • Rotational symmetry of 2D shapes | | <p>Development of The Topic For Extension / Support:</p> <ul style="list-style-type: none"> • Finding equations of a line • 3D symmetry • Enlargement with negative and fractional scale factors | | |
| <p>Opportunity for ICT / AT1:</p> <ul style="list-style-type: none"> • Use of OMNIGRAPH | <p>Cross Curricula Links:</p> <ul style="list-style-type: none"> • Design and Technology • Art | | <p>Work Related Learning:</p> <ul style="list-style-type: none"> • Graphic design | |

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| Module: 19 (F) | Chapter Title: Constuctions | Text Book: Collins Ch 20 | No. Of Lessons: 7 | Year: 11 |
| <p>Objectives: Pupils will be able to:</p> <ul style="list-style-type: none"> • Construct triangles using compass and protractor • Constructing Line and Angle bisectors • Constructing Loci | | | | |
| <p>Useful Background Information:</p> <ul style="list-style-type: none"> • Names of common 3D shapes • How to measure with a ruler and protractor | | | <p>Development of The Topic For Extension / Support:</p> <ul style="list-style-type: none"> • Construct polygons • Inscribed and circumscribed circles | |
| <p>Opportunity for ICT / AT1:</p> <ul style="list-style-type: none"> • Drawing shapes on OMNIGRAPH | <p>Cross Curricula Links:</p> <ul style="list-style-type: none"> • Design and Technology • Graphics | | <p>Work Related Learning:</p> <ul style="list-style-type: none"> • Carpentry • Tiling | |

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| Module: 20(F) | Chapter Title: Units | Text Book: Collins Ch 21 | No. Of Lessons: 5 | Year: 11 |
| <p>Objectives: Pupils will be able to:</p> <ul style="list-style-type: none"> • Understand systems of measurement • Knowledge and use of Metric units • Knowledge and use of everyday Imperial units • Converting between Metric and Imperial units | | | | |
| <p>Useful Background Information:</p> <ul style="list-style-type: none"> • Basic units for measuring Length, Weight and Capacity • Approximate size of units • How to multiply or divide by powers of ten | | <p>Development of The Topic For Extension / Support:</p> <ul style="list-style-type: none"> • Convert between units by mental arithmetic | | |
| <p>Opportunity for ICT / AT1:</p> | <p>Cross Curricula Links:</p> <ul style="list-style-type: none"> • Food technology – units in recipes • Science – awareness of two systems | | <p>Work Related Learning:</p> <ul style="list-style-type: none"> • Building and allied trades | |

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| Module: 21 (F) | Chapter Title: Pattern | Text Book: Collins Ch 23 | No. Of Lessons: 7 | Year: 11 |
| <p>Objectives: Pupils will be able to:</p> <ul style="list-style-type: none"> • 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 | | | | |
| <p>Useful Background Information:</p> <ul style="list-style-type: none"> • Understand basic algebra • Know how to substitute numbers into algebraic expressions • Know how to solve simple linear equations | | <p>Development of The Topic For Extension / Support:</p> <ul style="list-style-type: none"> • Drawing graphs • Simple quadratic rules • Matchstick puzzles | | |
| <p>Opportunity for ICT / AT1:</p> <ul style="list-style-type: none"> • Writing formulae in Excel | <p>Cross Curricula Links:</p> <ul style="list-style-type: none"> • Science – population growth patterns | | <p>Work Related Learning:</p> | |

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| Module: 22 (F) | Chapter Title: 3D Shapes | Text Book: Collins Ch 24 | No. Of Lessons: 7 | Year: 11 |
| <p>Objectives: Pupils will be able to:</p> <ul style="list-style-type: none"> • 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 | | | | |
| <p>Useful Background Information:</p> <ul style="list-style-type: none"> • Area of rectangles and triangles • Units of area • Names of basic 3D shapes • Understanding the term Volume | | <p>Development of The Topic For Extension / Support:</p> <ul style="list-style-type: none"> • Surface area of Cylinders | | |
| <p>Opportunity for ICT / AT1:</p> | <p>Cross Curricula Links:</p> <ul style="list-style-type: none"> • Science • Design technology | | <p>Work Related Learning:</p> <ul style="list-style-type: none"> • Painting and decorating | |

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| Module: 23 (F) | Chapter Title: Quadratic graphs | Text Book: Collins Ch 25 | No. Of Lessons: 4 | Year: 11 |
| <p>Objectives: Pupils will be able to:</p> <ul style="list-style-type: none"> • Draw Quadratic graphs • Solving quadratics from a graph | | | | |
| <p>Useful Background Information:</p> <ul style="list-style-type: none"> • How to plot coordinates in all 4 quadrants • Substituting into a formula • Drawing linear graphs | | | <p>Development of The Topic For Extension / Support:</p> <ul style="list-style-type: none"> • Possible move to higher tier exam | |
| <p>Opportunity for ICT / AT1:</p> <ul style="list-style-type: none"> • Use of OMNIGRAPH | <p>Cross Curricula Links:</p> <ul style="list-style-type: none"> • Projectile motion in Science | | <p>Work Related Learning:</p> | |

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| Module: 24 (F) | Chapter Title: Pythagoras | Text Book: Collins Ch 26 | No. Of Lessons: 7 | Year: 11 |
| <p>Objectives: Pupils will be able to:</p> <ul style="list-style-type: none"> • Use Pythagoras to find Hypotenuse • Use Pythagoras to find a short side • Solve problems using Pythagoras | | | | |
| <p>Useful Background Information:</p> <ul style="list-style-type: none"> • Finding squares and square roots of a number • Rounding answers to a suitable degree of accuracy | | <p>Development of The Topic For Extension / Support:</p> <ul style="list-style-type: none"> • 3D Pythagoras • Practical applications • Areas of Isosceles triangles • Pythagorean triples | | |
| <p>Opportunity for ICT / AT1:</p> <ul style="list-style-type: none"> • Spreadsheets for triples | <p>Cross Curricula Links:</p> <ul style="list-style-type: none"> • Graphics | <p>Work Related Learning:</p> <ul style="list-style-type: none"> • Builder and allied trades • Astronomy • Navigation | | |