**Unit 1 Number**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **2** | Factors, Multiples and Primes | **28** |
|  | Introduction to Powers/Indices | **29** |
|  | Multiply and divide by powers of 10 | **30** |
|  |  |  |
| **3** | Calculator questions | **77** |
|  | Product of Primes | **78** |
|  | Highest Common Factor | **79** |
|  | Lowest Common Multiple | **80** |
|  | Rounding to significant figures | **90** |
|  | Estimating Answers | **91** |
|  | Using Place Value | **92** |
|  | Squares, Cubes and Roots | **81** |
|  | Working with Indices | **82** |
|  | Standard Form | **83** |
|  |  |  |
| **5** | Negative Indices | **154** |
|  | Mathematical Reasoning | **156** |
|  |  |  |
| **7** | Fractional indices | **188** |
|  |  |  |
| **8/9** | Surds | **207** |

**Unit 2 Algebra**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **2** | Simplifying – addition and subtraction | **33** |
|  | Simplifying – Multiplication | **34** |
|  | Simplifying – Division | **35** |
|  | Generating a Sequence term to term | **37** |
|  |  |  |
| **3** | Expanding brackets | **93** |
|  | Simple factorisation | **94** |
|  | Solving equations using flowcharts | **100** |
|  | Subject of a formula using flowcharts | **101** |
|  | Substitution | **95** |
|  | Generate a sequence from nth term | **102** |
|  | Finding the nth term | **103** |
|  | Special Sequences | **104** |
|  |  |  |
| **4** | Index Notation (algebraic) | **131** |
|  | Expanding and simplifying brackets | **134** |
|  | Solving equations (algebraically) | **135** |
|  | Rearranging Simple Formulae | **136** |
|  | Fibonacci Sequences | **141** |
|  |  |  |
| **5** | Factorising Quadratics (don’t need solving part yet) | **157** |
|  | Geometric Progressions (*non linear sequences)* | **163** |
|  |  |  |
| **8/9** | Finding the nth term of a Quadratic Sequence | **213** |

**Unit 3 Interpreting and Representing Data**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **2** | Two Way Tables | **61** |
|  | Averages and the Range | **62** |
|  | Frequency Tables and Diagrams | **65** |
|  |  |  |
| **3** | Pie Charts | **128** |
|  | Scatter Diagrams | **129** |
|  | Averages from a table | **130** |
|  |  |  |
| **4** | Time Series | **153** |
|  |  |  |

**Unit 4 Fractions, ratio and percentages**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **2** | Introduction to Fractions | **24** |
|  | Equivalent Fractions | **25** |
|  | Simplifying Fractions | **26** |
|  |  |  |
| **3** | Comparing Fractions | **70** |
|  | Adding and Subtracting Fractions | **71** |
|  | Finding a fraction of an Amount | **72** |
|  | Multiplying Fractions | **73** |
|  | Dividing Fractions | **74** |
|  | Reciprocals | **76** |
|  | Decimals and Fractions | **84** |
|  | Fractions, Percentages and Decimals | **85** |
|  | Percentage of an amount with a calculator | **86** |
|  | Percentage of and amount without a calculator | **87** |
|  | Change to a Percentage with a calculator | **88** |
|  | Change to a Percentage without a calculator | **89** |
|  | Exchanging Money | **105** |
|  | Sharing Using Ratio | **106** |
|  | Increase/Decrease by a percentage | **108** |
|  | Percentage Change | **109** |
|  | Reverse Percentage Problems | **110** |
|  | Simple Interest | **111** |
|  |  |  |
| **5** | Compound Interest and Depreciation | **164** |
|  |  |  |
| **6** | Recurring Decimals to Fractions | **177** |
|  |  |  |
| **7** | Direct Proportion (don’t need inverse yet) | **199** |
|  |  |  |

**Unit 5 Angles and Trigonometry**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **2** | Angles on a line and at a Point | **45** |
|  |  |  |
| **3** | Angles and Parallel Lines | **120** |
|  | Angles in a Triangle | **121** |
|  | Properties of Special Triangles | **122** |
|  | Angle Sum of Polygons | **123** |
|  |  |  |
| **4** | Pythagoras’ Theorem | **150** |
|  |  |  |
| **5** | Trigonometry | **168** |
|  |  |  |

**Unit 6 Graphs**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **3** | Straight Line Graphs | **96** |
|  | The gradient of a line | **97** |
|  | Drawing Quadratic Graphs | **98** |
|  | Sketching functions | **99** |
|  | Ratios, Fractions and Graphs | **107** |
|  |  |  |
| **4** | Midpoint of a line on a graph | **133** |
|  | Distance Time Graphs | **143** |
|  | Real Life Graphs | **No clip** |
|  | Conversion Graphs | **No clip** |
|  | Length of Line segment using Pythagoras’ Th | **150** |
|  |  |  |
| **5** | Finding the equation of a straight line | **159** |
|  | Roots and turning points of quadratics | **160** |
|  | Cubic and reciprocal graphs | **161** |
|  |  |  |
| **7** | Exponential Functions | **194** |
|  | Equation of a circle | **197** |
|  |  |  |
| **8/9** | Perpendicular Lines | **208** |
|  | Velocity Time Graphs | **216** |

**Unit 7 Area and Volume**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **2** | Perimeters | **52** |
|  | Area of Rectangle | **53** |
|  | Area of triangle | **54** |
|  | Area of Parallelogram | **55** |
|  | Area of Trapezium | **56** |
|  |  |  |
| **3** | Metric Conversions | **112** |
|  | Surface Area of a prism | **114** |
|  | Volume of a Cuboid | **115** |
|  | Volume of a Prism | **119** |
|  | Circle Definitions | **116** |
|  | Area of a circle | **117** |
|  | Circumference of a circle | **118** |
|  |  |  |
| **4** | Introduction to bounds | **132** |
|  | Tangents, Arcs, Sectors and Segments | **149** |
|  |  |  |
| **5** | Error intervals | **155** |
|  | Sectors of a circle | **167** |
|  | Volume and Surface Area of Spheres | **169** |
|  | Volume and Surface Area of Pyramids | **170** |
|  | Volume and Surface Area of Cones | **171** |
|  | Frustums | **172** |
|  |  |  |
| **8/9** | Upper and Lower bounds | **206** |
|  |  |  |

**Unit 8 Transformations and Constructions**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **2** | Plans and Elevations of 3D solids | **51** |
|  | Reflections | **48** |
|  | Rotations | **49** |
|  | Translations | **50** |
|  | Measuring and Drawing Angles | **46** |
|  | Drawing a triangle using a protractor | **47** |
|  |  |  |
| **3** | Bearings | **124** |
|  |  |  |
| **4** | Enlargements | **148** |
|  | Bisecting an angle | **145** |
|  | Constructing perpendiculars | **146** |
|  | Drawing a triangle using compasses | **147** |
|  |  |  |
| **5** | Introduction to vectors | **174** |
|  | Loci | **165** |
|  |  |  |
| **6** | Enlargements – negative scale factor | **181** |
|  | Combinations of transformations | **182** |
|  |  |  |

**Unit 9 Equations and Inequalities**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
|  |  |  |
| **4** | Inequalities on a number line | **138** |
|  | Solving linear inequalities | **139** |
|  | *Include set notation here* |  |
|  |  |  |
| **5** | Factorising and Solving Quadratics | **157** |
|  | The difference of two squares | **158** |
|  | Roots and turning points of quadratics | **160** |
|  | Simultaneous Equations Algebraically | **162** |
|  | Solving Simultaneous Equations in real life situations |  |
|  | Finding the equation of a straight line (through two given points) | **159** |
|  |  |  |
|  |  |  |
| **7** | Solving Quadratics with the formula | **191** |
|  | Factorising hard Quadratics | **192** |
|  |  |  |
| **8/9** | Completing the Square | **209** |
|  | Solving simultaneous equations with a quadratic | **211** |

**Unit 10 Probability**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **2** | Frequency Trees | **57** |
|  | Listing Outcomes | **58** |
|  | Calculating Probabilities | **59** |
|  | Mutually Exclusive Events | **60** |
|  | Two-Way Tables | **61** |
|  |  |  |
| **3** | Experimental Probabilities (relative frequency) | **125** |
|  | Possibilities Spaces (sample space diagrams) | **126** |
|  | Venn Diagrams | **127** |
|  |  |  |
| **4** | Simple Tree Diagrams | **151** |
|  |  |  |
|  |  |  |
|  |  |  |
| **5** | Harder Tree Diagrams (without replacement) | **175** |
|  |  |  |
| **6** | Probability Using Venn Diagrams | **185** |
|  |  |  |
| **7** | AND and OR probability questions | **204** |
|  |  |  |

**Unit 11 Multiplicative Reasoning**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **2** | Introduction to Ratio | **38** |
|  | Using Ratio for Recipe Questions | **39** |
|  | Value for Money | **41** |
|  | Introduction to proportion | **42** |
|  |  |  |
| **4** | Compound Units | **142** |
|  |  |  |
| **5** | Compound interest and Depreciation | **164** |
|  | Ratio Questions | **165** |
|  |  |  |
| **7** | Direct and Inverse Proportion | **199** |
|  | Advanced Ratio Questions | **200** |

**Unit 12 Similarity and Congruence**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **4** | Similar Shapes | **144** |
|  |  |  |
| **5** | Congruent Triangles | **166** |
|  |  |  |
| **7** | Similarity – Area and Volume | **200** |
|  |  |  |

**Unit 13 More Trigonometry**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
|  |  |  |
| **4** | Sectors of a circle (esp finding area of segment) | **167** |
|  |  |  |
| **5** | Exact Trigonometric Values | **173** |
|  |  |  |
| **7** | Trigonometric Graphs | **195** |
|  | Transformation of Functions  *(just Trig ones here )* | **196** |
|  | The Sine Rule | **201** |
|  | The Cosine Rule | **202** |
|  | Area of a Triangle using Sine Rule | **203** |
|  |  |  |
| **8/9** | Upper and lower bounds (revision) | **206** |
|  | Pythagoras in 3D | **217** |
|  | Trigonometry in 3D | **218** |

**Unit 14 Further Statistics**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **4** | Sampling Populations | **152** |
|  |  |  |
| **5** | Stratified Sampling | **176** |
|  |  |  |
| **6** | Cumulative Frequency | **186** |
|  | Box Plots | **187** |
|  | *Also need understanding of Stem and Leaf* |  |
|  | *Must be able to compare and describe populations using key statistics* |  |
|  |  |  |
| **7** | Histograms (Draw and Interpret) | **205** |
|  |  |  |

**Unit 15 Equations and Graphs**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **3** | Drawing Quadratic Graphs | **98** |
|  |  |  |
|  |  |  |
| **4** | Solving Simultaneously Graphically | **140** |
|  |  |  |
| **5** | Roots and Turning Points of Quadratics (*solving quadratic equations graphically)* | **160** |
|  | Cubic and Reciprocal Graphs  (*need also to sketch and find roots of cubic functions)* | **161** |
|  |  |  |
| **6** | Product of Three Binomials  (*expanding 3 brackets)* | **178** |
|  | Iteration – Trial and Improvement | **179** |
|  | Iterative Processes | **180** |
|  |  |  |
| **7** | Regions (*representing inequalities graphically*) | **198** |
|  |  |  |
| **8/9** | Solving Quadratic Inequalities | **212** |
|  |  |  |

**Unit 16 Circle Theorems**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **6** | Circle Theorems | **183** |
|  | Proof of Circle Theorems | **184** |
|  |  |  |

**Unit 17 More Algebra**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **4** | Rearranging Simple Formulae | **136** |
|  |  |  |
| **7** | Rearranging Difficult Formulae  *(subject may have power or appear twice or be in denominator)* | **190** |
|  | Algebraic Proof | **193** |
|  |  |  |
| **8/9** | Algebraic Fractions  *(simplify, add, subtract, multiply and divide, solve equations)* | **210** |
|  | Surds  (*expand and simplify expressions involving surds, rationalise denominator)* | **207** |
|  | Inverse Functions (*and notation)* | **214** |
|  | Composite Functions *(and notation)* | **215** |
|  |  |  |

**Unit 18 Vectors and Geometric Proof**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **5** | Introduction to Vectors | **174** |
|  |  |  |
| **8/9** | Vectors | **219** |
|  |  |  |

**Unit 19 Proportion and Graphs**

|  |  |  |
| --- | --- | --- |
| **GRADE** | **Topic** | **Clip Number** |
| **7** | Exponential Functions | **194** |
|  | Direct an Inverse Proportion | **199** |
|  | Transformation of Function | **196** |
|  |  |  |