# Checklist Comparison Table

## Below is an approximate checklist of where each covered topic is needed.

Each topic is also colour coded…

### Green for approx. GCSE grades 1-3

### Blue for approx. GCSE grades 4&5

### Purple for approx. GCSE grades 6-9

### Grey topics are being created and will be published shortly.

## NUMBER

| INTEGERS | Key Stage 3 | Functional Skills Level 1 | Functional Skills Level 2 | GCSE Foundation | GCSE Higher |
|---|:---:|:---:|:---:|:---:|:---:|
| N 1.1 Adding Integers | ✓ | ✓ | ✓ | ✓ | |
| N 1.2 Subtracting Integers | ✓ | ✓ | ✓ | ✓ | |
| N 1.3 Multiplying Integers | ✓ | ✓ | ✓ | ✓ | |
| N 1.4 Dividing Integers | ✓ | ✓ | ✓ | ✓ | |
| N 1.5 Order of Operations | ✓ | ✓ | ✓ | ✓ | |
| N 1.6 Prime Numbers & Prime Factor Decomposition | ✓ | | | ✓ | ✓ |
| N 1.7 Factors & Highest Common Factor (HCF) | ✓ | | | ✓ | ✓ |
| N 1.8 Multiples & Lowest Common Multiple (LCM) | ✓ | | | ✓ | ✓ |
| **NEGATIVE NUMBERS** | | | | | |
| N 2.1 Adding & Subtracting Negative Numbers | ✓ | ✓ | ✓ | ✓ | |
| N 2.2 Multiplying & Dividing Negative Numbers | ✓ | | | ✓ | |
| **DECIMALS** | | | | | |
| N 3.1 Place Value & Ordering Decimals | ✓ | ✓ | ✓ | ✓ | |
| N 3.2 Multiplying & Dividing by 10, 100, 1000 | ✓ | ✓ | | ✓ | |
| N 3.3 Adding & Subtracting Decimals | ✓ | ✓ | ✓ | ✓ | |
| N 3.4 Multiplying Decimals | ✓ | ✓ | ✓ | ✓ | |
| N 3.5 Dividing Decimals | ✓ | ✓ | ✓ | ✓ | |

| Topic | | | | | |
|---|---|---|---|---|---|
| **N 3.6 Related Calculations** | ✔ | ✔ | ✔ | ✔ | |
| **FRACTIONS** | | | | | |
| **N 4.1 Equivalent Fractions** | ✔ | ✔ | ✔ | ✔ | |
| **N 4.2 Mixed Numbers & Improper Fractions** | ✔ | ✔ | ✔ | ✔ | |
| **N 4.3 Ordering Fractions** | ✔ | ✔ | ✔ | ✔ | ✔ |
| **N 4.4 Adding & Subtracting Fractions** | ✔ | | ✔ | ✔ | ✔ |
| **N 4.5 Multiplying Fractions** | ✔ | | | ✔ | |
| **N 4.6 Dividing Fractions** | ✔ | | | ✔ | |
| **N 4.7 Fractions of an Amount** | ✔ | ✔ | | ✔ | |
| **FRACTIONS, DECIMALS & PERCENTAGES** | | | | | |
| **N 5.1 Converting between Fractions, Decimals & Percentages** | ✔ | ✔ | ✔ | ✔ | |
| **N 5.2 Ordering Fractions, Decimals & Percentages** | ✔ | ✔ | ✔ | ✔ | |
| **N 5.3 Recurring Decimals** | | | | | ✔ |
| **PERCENTAGES** | | | | | |
| **N 6.1 Expressing One Quantity as a Percentage of Another** | ✔ | | ✔ | ✔ | |
| **N 6.2 Percentages of an Amount (Non - Calculator)** | ✔ | ✔ | ✔ | ✔ | |
| **N 6.3 Percentages of an Amount (Calculator)** | ✔ | ✔ | ✔ | ✔ | |
| **N 6.4 Percentage Increase / Decrease** | ✔ | ✔ | ✔ | ✔ | |
| **N 6.5 Percentage Change** | ✔ | | ✔ | ✔ | ✔ |
| **N 6.6 Reverse Percentages** | ✔ | | ✔ | ✔ | ✔ |
| **N 6.7 Compound Interest** | | | ✔ | ✔ | ✔ |
| **ROUNDING** | | | | | |
| **N 7.1 Rounding - Nearest 10, 100, 1000** | ✔ | ✔ | | ✔ | |
| **N 7.2 Rounding - Nearest Whole Number & Decimal Places** | ✔ | ✔ | ✔ | ✔ | |
| **N 7.3 Rounding - Significant Figures** | ✔ | | | ✔ | |
| **N 7.4 Truncating** | | | | ✔ | ✔ |
| **N 7.5 Estimation** | ✔ | ✔ | ✔ | ✔ | ✔ |
| **N 7.6 Error Intervals** | ✔ | | | ✔ | ✔ |
| **N 7.7 Calculating with Upper & Lower Bounds** | | | | | ✔ |
| **INDICES** | | | | | |
| **N 8.1 Indices - Squares, Cubes & Powers** | ✔ | ✔ | | ✔ | |
| **N 8.2 Laws of Indices** | ✔ | | | ✔ | ✔ |
| **N 8.3 Fractional Indices** | | | | | ✔ |
| **STANDARD FORM** | | | | | |
| **N 9.1 Standard Form** | ✔ | | | ✔ | ✔ |
| **N 9.2 Calculating with Standard Form** | | | | ✔ | ✔ |

| SURDS | | | | | |
|---|---|---|---|---|---|
| N 10.1 Surds | | | | | ✔ |
| N 10.2 Rationalising the Denominator | | | | | ✔ |
| CALCULATIONS | | | | | |
| N 11.1 Using a Calculator | ✔ | ✔ | ✔ | ✔ | ✔ |
| N 11.2 Time | ✔ | ✔ | | ✔ | |
| N 11.3 Money | ✔ | ✔ | ✔ | ✔ | |
| N 11.4 Exchange Rates | ✔ | | | ✔ | |

# RATIO, PROPORTION & RATES OF CHANGE

| RATIO | Key Stage 3 | Functional Skills Level 1 | Functional Skills Level 2 | GCSE Foundation | GCSE Higher |
|---|---|---|---|---|---|
| R 1.1 Introduction to Ratio | ✔ | ✔ | ✔ | ✔ | |
| R 1.2 Simplifying Ratio | ✔ | ✔ | ✔ | ✔ | |
| R 1.3 Sharing in a Ratio | ✔ | ✔ | ✔ | ✔ | ✔ |
| R 1.4 Ratio Problems | ✔ | ✔ | ✔ | ✔ | ✔ |
| PROPORTION | | | | | |
| R 2.1 Introduction to Proportion | ✔ | ✔ | ✔ | ✔ | |
| R 2.2 Direct & Inverse Proportion | ✔ | | ✔ | ✔ | ✔ |
| R 2.3 Direct Proportion (Algebra) | | | | | ✔ |
| R 2.4 Inverse Proportion (Algebra) | | | | | ✔ |
| COMPOUND MEASURES | | | | | |
| R 3.1 Speed | ✔ | | ✔ | ✔ | |
| R 3.2 Density | ✔ | | ✔ | ✔ | ✔ |
| R 3.3 Pressure | | | | ✔ | ✔ |
| REAL-LIFE GRAPHS | | | | | |
| R 4.1 Conversion Graphs | ✔ | | ✔ | ✔ | |
| R 4.2 Other Real-Life Graphs | ✔ | | | ✔ | ✔ |
| R 4.3 Distance-Time Graphs | ✔ | | | ✔ | |
| R 4.4 Speed-Time Graphs (Straight Lines) | | | | | ✔ |
| R 4.5 Speed-Time Graphs (Curves) | | | | | ✔ |

# ALGEBRA

| CO-ORDINATES | Key Stage 3 | Functional Skills Level 1 | Functional Skills Level 2 | GCSE Foundation | GCSE Higher |
|---|---|---|---|---|---|
| A 1.1 Co-ordinates | ✔ | | ✔ | ✔ | |

| Topic | | | | | |
|---|---|---|---|---|---|
| A 1.2 Midpoint of a Line | ✓ | | | ✓ | ✓ |
| A 1.3 3D Co-ordinates | | | | | ✓ |
| **LINEAR GRAPHS** | | | | | |
| A 2.1 x = a, y = b Graphs | ✓ | | | ✓ | |
| A 2.2 Plotting Linear Graphs (y = mx + c) | ✓ | | | ✓ | |
| A 2.3 Equations of Linear Graphs (y = mx + c) | ✓ | | | ✓ | ✓ |
| A 2.4 Using y = mx + c to Draw Linear Graphs | ✓ | | | ✓ | ✓ |
| A 2.5 Using y = mx + c to Solve Problems | ✓ | | | ✓ | ✓ |
| A 2.6 Using Gradients and Co-ordinates to find y = mx + c | | | | ✓ | ✓ |
| A 2.7 Parallel & Perpendicular Lines | | | | PARALLEL ONLY | ✓ |
| **ALGEBRA** | | | | | |
| A 3.1 Algebraic Notation | ✓ | | ✓ | ✓ | |
| A 3.2 Collecting Like Terms | ✓ | | | ✓ | |
| A 3.3 Multiplying Terms | ✓ | | | ✓ | |
| A 3.4 Dividing Terms | ✓ | | | ✓ | |
| A 3.5 Expanding Single Brackets | ✓ | | | ✓ | |
| A 3.6 Factorising into Single Brackets | ✓ | | | ✓ | ✓ |
| A 3.7 Laws of Indices (Algebra) | ✓ | | | ✓ | ✓ |
| A 3.8 Function Machines | ✓ | ✓ | ✓ | ✓ | |
| A 3.9 Substitution | ✓ | | ✓ | ✓ | |
| A 3.10 Solving Linear Equations | ✓ | | | ✓ | |
| A 3.11 Solving Linear Equations (with the unknown on both sides) | ✓ | | | ✓ | ✓ |
| A 3.12 Changing the Subject | ✓ | | | ✓ | ✓ |
| A 3.13 Changing the Subject (Advanced) | | | | | ✓ |
| **QUADRATICS** | | | | | |
| A 4.1 Expanding Double Brackets | ✓ | | | ✓ | ✓ |
| A 4.2 Factorising Quadratics | | | | ✓ | ✓ |
| A 4.3 Factorising Quadratics (Advanced) | | | | | ✓ |
| A 4.4 Completing the Square | | | | | ✓ |
| A 4.5 Plotting Quadratic Graphs | ✓ | | | ✓ | ✓ |
| A 4.6 Solving Quadratics - Graphically | ✓ | | | ✓ | ✓ |
| A 4.7 Solving Quadratics - Graphically (Advanced) | | | | | ✓ |
| A 4.8 Solving Quadratics - Factorising | | | | ✓ | ✓ |
| A 4.9 Solving Quadratics - Factorising (Advanced) | | | | | ✓ |
| A 4.10 Solving Quadratics - Quadratic Formula | | | | | ✓ |
| A 4.11 Solving Quadratics - Completing the Square | | | | | ✓ |

| Topic | | | | | |
|---|---|---|---|---|---|
| **A 4.12 Solving Quadratics - All Methods** | | | | | ✓ |
| **A 4.13 Sketching Quadratic Graphs** | | | | | ✓ |
| **CUBICS** | | | | | |
| **A 5.1 Expanding Triple Brackets** | | | | | ✓ |
| **A 5.2 Cubic Graphs** | | | | ✓ | ✓ |
| **OTHER GRAPHS** | | | | | |
| **A 6.1 Reciprocal Graphs** | ✓ | | | ✓ | ✓ |
| **A 6.2 Exponential Graphs** | ✓ | | | | ✓ |
| **A 6.3 Equations of Tangents to Circles** | | | | | ✓ |
| **A 6.4 Trigonometric Graphs** | | | | | ✓ |
| **A 6.5 Transformations of Graphs** | | | | | ✓ |
| **INEQUALITIES** | | | | | |
| **A 7.1 Inequalities on a Number Line** | ✓ | | | ✓ | ✓ |
| **A 7.2 Solving Linear Inequalities** | | | | ✓ | ✓ |
| **A 7.3 Solving Linear Inequalities Graphically** | | | | | ✓ |
| **A 7.4 Solving Quadratic Inequalities** | | | | | ✓ |
| **ITERATION** | | | | | |
| **A 8.1 Trial & Improvement** | | | | | ✓ |
| **A 8.2 Iteration** | | | | | ✓ |
| **SIMULTANEOUS EQUATIONS** | | | | | |
| **A 9.1 Simultaneous Equations - Linear** | ✓ | | | ✓ | ✓ |
| **A 9.2 Simultaneous Equations – Non-Linear** | | | | | ✓ |
| **SEQUENCES** | | | | | |
| **A 10.1 Linear Sequences** | ✓ | | | ✓ | ✓ |
| **A 10.2 Quadratic Sequences** | | | | | ✓ |
| **A 10.3 Geometric & Fibonacci Sequences** | ✓ | | | ✓ | ✓ |
| **ALGEBRAIC FRACTIONS** | | | | | |
| **A 11.1 Algebraic Fractions - Simplify** | | | | | ✓ |
| **A 11.2 Algebraic Fractions - Add/Subtract** | | | | | ✓ |
| **A 11.3 Algebraic Fractions - Multiply/Divide** | | | | | ✓ |
| **FUNCTIONS** | | | | | |
| **A 12.1 Functions** | | | | | ✓ |
| **PROOF** | | | | | |
| **A 13.1 Algebraic Proof** | | | | | ✓ |

# GEOMETRY

| SHAPES | Key Stage 3 | Functional Skills Level 1 | Functional Skills Level 2 | GCSE Foundation | GCSE Higher |
|---|---|---|---|---|---|
| G 1.1 2D Shapes - Properties | ✓ | ✓ | ✓ | ✓ | |
| G 1.2 Symmetry | ✓ | ✓ | | ✓ | |
| G 1.3 3D Shapes - Properties | ✓ | ✓ | ✓ | ✓ | |
| G 1.4 Plans & Elevations | ✓ | ✓ | ✓ | ✓ | |
| PERIMETER & AREA | | | | | |
| G 2.1 Perimeter | ✓ | ✓ | ✓ | ✓ | |
| G 2.2 Area of Rectangles | ✓ | ✓ | ✓ | ✓ | |
| G 2.3 Area of Parallelograms | ✓ | | | ✓ | |
| G 2.4 Area of Triangles | ✓ | | ✓ | ✓ | |
| G 2.5 Area of Trapezia | ✓ | | | ✓ | |
| CIRCLES | | | | | |
| G 3.1 Circumference | ✓ | | ✓ | ✓ | |
| G 3.2 Arc Length | | | | ✓ | ✓ |
| G 3.3 Area of Circles | ✓ | | ✓ | ✓ | |
| G 3.4 Area of Sectors | | | | ✓ | ✓ |
| SURFACE AREA & VOLUME | | | | | |
| G 4.1 Surface Area - Prisms & Cylinders | ✓ | | ✓ | ✓ | ✓ |
| G 4.2 Surface Area – Spheres, Pyramids & Cones | | | | ✓ | ✓ |
| G 4.3 Volume - Prisms & Cylinders | ✓ | ✓ | ✓ | ✓ | |
| G 4.4 Volume – Spheres, Pyramids & Cones | | | | ✓ | ✓ |
| UNITS | | | | | |
| G 5.1 Reading Scales | ✓ | ✓ | | ✓ | |
| G 5.2 Converting Metric Units | ✓ | ✓ | ✓ | ✓ | |
| G 5.3 Converting Units - Area/Volume | ✓ | | | ✓ | ✓ |
| ANGLES | | | | | |
| G 6.1 Angles - Types, Measure & Draw | ✓ | ✓ | ✓ | ✓ | |
| G 6.2 Calculating Angles - Straight Lines & Full Turns | ✓ | | | ✓ | |
| G 6.3 Calculating Angles - Parallel Lines | ✓ | | | ✓ | |
| G 6.4 Calculating Angles - Triangles | ✓ | | ✓ | ✓ | |
| G 6.5 Calculating Angles - Polygons | ✓ | | ✓ | ✓ | |
| G 6.6 Bearings | ✓ | ✓ | | ✓ | ✓ |
| CONSTRUCTIONS | | | | | |
| G 7.1 Perpendicular Bisector & Angle Bisector | ✓ | | | ✓ | ✓ |

| | Key Stage 3 | Functional Skills Level 1 | Functional Skills Level 2 | GCSE Foundation | GCSE Higher |
|---|---|---|---|---|---|
| **G 7.2 Loci** | ✓ | | | ✓ | ✓ |
| **G 7.3 Constructing Triangles** | ✓ | | | ✓ | |
| **CONGRUENCE & SIMILARITY** | | | | | |
| **G 8.1 Congruence** | ✓ | | | ✓ | ✓ |
| **G 8.2 Similarity** | ✓ | | | ✓ | ✓ |
| **TRANSFORMATIONS** | | | | | |
| **G 9.1 Reflection** | ✓ | | | ✓ | |
| **G 9.2 Rotation** | ✓ | | | ✓ | |
| **G 9.3 Translation** | ✓ | | | ✓ | |
| **G 9.4 Enlargement** | ✓ | | | ✓ | ✓ |
| **G 9.5 Enlargement (Negative Scale Factors)** | | | | | ✓ |
| **PYTHAGORAS & TRIGONOMETRY** | | | | | |
| **G 10.1 Pythagoras' Theorem** | ✓ | | | ✓ | ✓ |
| **G 10.2 Trigonometry – Introduction** | ✓ | | | ✓ | ✓ |
| **G 10.3 Trigonometry – Further** | ✓ | | | ✓ | ✓ |
| **G 10.4 Trigonometry - Exact Values** | | | | ✓ | ✓ |
| **G 10.5 Sine Rule** | | | | | ✓ |
| **G 10.6 Cosine Rule** | | | | | ✓ |
| **G 10.7 Area of a Triangle** | | | | | ✓ |
| **VECTORS** | | | | | |
| **G 11.1 Vectors** | | | | ✓ | ✓ |
| **CIRCLE THEOREMS** | | | | | |
| **G 12.1 Circle Theorems** | | | | | ✓ |
| **G 12.2 Further Circle Theorems** | | | | | ✓ |

# STATISTICS

| DATA COLLECTION | Key Stage 3 | Functional Skills Level 1 | Functional Skills Level 2 | GCSE Foundation | GCSE Higher |
|---|---|---|---|---|---|
| **S 1.1 The Data Handling Cycle & Questionnaires** | | | | ✓ | |
| **S 1.2 Sampling & Capture, Recapture** | | | | ✓ | ✓ |
| **S 1.3 Types of Data** | ✓ | | | ✓ | |
| **S 1.4 Tally Charts** | ✓ | ✓ | | ✓ | |
| **S 1.5 Two - Way Tables** | ✓ | ✓ | ✓ | ✓ | |
| **AVERAGES** | | | | | |
| **S 2.1 Mean, Median, Mode, Range** | ✓ | ✓ | ✓ | ✓ | |
| **S 2.2 Averages from a Table** | ✓ | | ✓ | ✓ | ✓ |

| CHARTS & GRAPHS | Key Stage 3 | Functional Skills Level 1 | Functional Skills Level 2 | GCSE Foundation | GCSE Higher |
|---|---|---|---|---|---|
| S 3.1 Pictograms & Bar Charts | ✔ | ✔ | | ✔ | |
| S 3.2 Pie Charts | ✔ | ✔ | | ✔ | |
| S 3.3 Stem & Leaf Diagrams | ✔ | | | ✔ | |
| S 3.4 Frequency Polygons | ✔ | | | ✔ | |
| S 3.5 Time Series | ✔ | | | ✔ | |
| S 3.6 Scatter Graphs | ✔ | | ✔ | ✔ | ✔ |
| S 3.7 Cumulative Frequency Diagrams | | | | | ✔ |
| S 3.8 Box Plots | | | | | ✔ |
| S 3.9 Histograms | | | | | ✔ |

# PROBABILITY

| PROBABILITY | Key Stage 3 | Functional Skills Level 1 | Functional Skills Level 2 | GCSE Foundation | GCSE Higher |
|---|---|---|---|---|---|
| P 1.1 Basic Probability | ✔ | ✔ | ✔ | ✔ | |
| P 1.2 Relative Frequency | ✔ | | | ✔ | ✔ |
| COMBINED PROBABILITY | | | | | |
| P 2.1 Listing Outcomes & Sample Space | ✔ | | ✔ | ✔ | ✔ |
| P 2.2 Product Rule for Counting | | | | | ✔ |
| P 2.3 Frequency Trees | | | | ✔ | ✔ |
| P 2.4 Tree Diagrams | | | | ✔ | ✔ |
| P 2.5 Venn Diagrams | ✔ | | | ✔ | ✔ |