

Subject Content

- Number
- Algebra
- Ratio, Proportion, Rates of Change
- Geometry and Measures
- Probability and Statistics

Grades that will be examined:

Higher	1	2	3	4	5	6	7	8	9
Foundation	1	2	3	4	5				

You will find some formulas and information in this insert.

It will be very helpful to learn it all, off-by-heart for your exam.

Area of a circle = πr^2
Circumference of a circle = $2\pi r$



Grade 1

Place Value 1
Ordering Integers 2
Ordering Decimals 3
Reading Scales 4
Simple Mathematical Notation 5
Interpreting Real-Life Tables 6
Introduction to Algebraic Conventions ... 7
Coordinates 8
Simple Geometric Definitions 9
Polygons 10
Symmetries 11
Tessellations and Congruent Shapes ... 12
Names of Angles 13
The Probability Scale 14
Tally Charts and Bar Charts 15
Pictograms 16

Addition/Subtraction

$(++)$ becomes +	eg.
$(--)$ becomes +	$5 - (-3) = 5 + 3$
$(+-)$ becomes -	eg.
$(-+)$ becomes -	$5 + (-3) = 5 - 3$

Multiplication/Division

$(+) \times (+)$ becomes +	eg.
$(-) \times (-)$ becomes +	$(-5) \times (-3) = 15$
$(+) \times (-)$ becomes -	eg.
$(-) \times (+)$ becomes -	$(-5) \times 3 = -15$

Grade 2

Adding Integers and Decimals 17
Subtracting Integers and Decimals 18
Multiplying Integers 19
Dividing Integers 20
Inverse Operations 21
Money Questions 22
Negatives in Real Life 23
Introduction to Fractions 24
Equivalent Fractions 25
Simplifying Fractions 26
Half-Way Values 27
Factors, Multiples and Primes 28
Introduction to Powers/Indices 29
Multiply and Divide by Powers of 10 ... 30
Rounding to the Nearest 10, 100 etc ... 31
Rounding to Decimal Places 32
Simplifying - Addition and Subtraction .. 33
Simplifying - Multiplication 34
Simplifying - Division 35
Function Machines 36
Generating a Sequence - Term to Term .. 37
Introduction to Ratio 38
Using Ratio for Recipe Questions 39
Introduction to Percentages 40
Value for Money 41
Introduction to Proportion 42

Properties of Solids 43
Nets 44
Angles on a Line and at a Point 45
Measuring and Drawing Angles 46
Drawing a Triangle Using a Protractor .. 47
Reflections 48
Rotations 49
Translations 50
Plans and Elevations 51
Perimeters 52
Area of a Rectangle 53
Area of a Triangle 54
Area of a Parallelogram 55
Area of a Trapezium 56
Frequency Trees 57
Listing Outcomes 58
Calculating Probabilities 59
Mutually Exclusive Events 60
Two-Way Tables 61
Averages and the Range 62
Data - Discrete and Continuous 63
Vertical Line Charts 64
Frequency Tables and Diagrams 65

Prime Numbers

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, ...
Each prime number has exactly two factors.

Area of a triangle = $\frac{b \times h}{2}$

Area of trapezium = $\frac{1}{2}(a + b)h$

Grade 3

Multiplying Decimals 66
Dividing Decimals 67
Four Rules of Negatives 68
Listing Strategies 69
Comparing Fractions 70
Adding and Subtracting Fractions 71
Finding a Fraction of an Amount 72
Multiplying Fractions 73
Dividing Fractions 74
BODMAS/BIDMAS 75
Reciprocals 76
Calculator Questions 77
Product of Primes 78
Highest Common Factor (HCF) 79
Lowest Common Multiple (LCM) 80
Squares, Cubes and Roots 81
Working with Indices 82
Standard Form 83
Decimals and Fractions 84
Fractions, Percentages, Decimals 85
Percentage of an Amount (Calc.) 86
Percentage of an Amount (Non-Calc.) .. 87
Change to a Percentage (Calc.) 88
Change to a Percentage (Non-Calc.) ... 89
Rounding to Significant Figures 90
Estimating Answers 91
Using Place Value 92
Expanding Brackets 93
Simple Factorisation 94
Substitution 95
Straight Line Graphs 96
The Gradient of a Line 97
Drawing Quadratic Graphs 98

Sketching Functions 99
Solving Equations Using Flowcharts ... 100
Subject of a Formula Using Flowcharts 101
Generate a Sequence from n th Term ... 102
Finding the n th Term 103
Special Sequences 104
Exchanging Money 105
Sharing Using Ratio 106
Ratios, Fractions and Graphs 107
Increase/Decrease by a Percentage ... 108
Percentage Change 109
Reverse Percentage Problems 110
Simple Interest 111
Metric Conversions 112
Problems on Coordinate Axes 113
Surface Area of a Prism 114
Volume of a Cuboid 115
Circle Definitions 116
Area of a Circle 117
Circumference of a Circle 118
Volume of a Prism 119
Angles and Parallel Lines 120
Angles in a Triangle 121
Properties of Special Triangles 122
Angle Sum of Polygons 123
Bearings 124
Experimental Probabilities 125
Possibility Spaces 126
Venn Diagrams 127
Representing Data 128
Scatter Diagrams 129
Averages From a Table 130

Grade 4

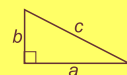
Index Notation 131
Introduction to Bounds 132
Midpoint of a Line on a Graph 133
Expanding and Simplifying Brackets ... 134
Solving Equations 135
Rearranging Simple Formulae 136
Forming Formulae and Equations 137
Inequalities on a Number Line 138
Solving Linear Inequalities 139
Simultaneous Equations Graphically ... 140
Fibonacci Sequences 141
Compound Units 142
Distance-Time Graphs 143
Similar Shapes 144
Constructions Using Compasses 145
Loci 146
Drawing a Triangle Using Compasses . 147
Enlargements 148
Tangents, Arcs, Sectors and Segments 149
Pythagoras' Theorem 150
Simple Tree Diagrams 151
Sampling Populations 152
Time Series 153

The Laws of Indices

$x^a \times x^b = x^{a+b}$
 $x^a \div x^b = x^{a-b}$
 $(x^a)^b = x^{ab}$
 $x^{-a} = \frac{1}{x^a}$

Pythagoras

$a^2 + b^2 = c^2$



Grade 5

Negative Indices 154
Error Intervals 155
Mathematical Reasoning 156
Factorising and Solving Quadratics ... 157
The Difference of Two Squares 158
Finding the Equation of a Straight Line. 159
Roots and Turning Points of Quadratics 160
Cubic and Reciprocal Graphs 161
Simultaneous Equations Algebraically . 162
Geometric Progressions 163
Compound Interest and Depreciation .. 164
Ratio Questions 165
Congruent Triangles 166
Sectors of a Circle 167
Trigonometry 168
Spheres 169
Pyramids 170
Cones 171
Frustums 172
Exact Trigonometric Values 173
Introduction to Vectors 174
Harder Tree Diagrams 175
Stratified Sampling 176

Trigonometry



Grade 6

Recurring Decimals to Fractions 177
Product of Three Binomials 178
Iteration - Trial and Improvement 179
Iterative Processes 180
Enlargement - Negative Scale Factor .. 181
Combinations of Transformations 182
Circle Theorems 183
Proof of Circle Theorems 184
Probability Using Venn Diagrams 185
Cumulative Frequency 186
Boxplots 187

Grade 7

Fractional Indices 188
Recurring Decimals - Proof 189
Rearranging Difficult Formulae 190
Solving Quadratics with the Formula .. 191
Factorising Hard Quadratics 192
Algebraic Proof 193
Exponential Functions 194
Trigonometric Graphs 195
Transformation of Functions 196
Equation of a Circle 197
Regions 198
Direct and Inverse Proportion 199
Advanced Ratio Questions 200
Similarity - Area and Volume 201
Sine and Cosine Rules 202
Area of a Triangle Using Sine 203
And and Or Probability Questions 204
Histograms 205

Grades 8 and 9

Upper and Lower Bounds 206
Surds 207
Perpendicular Lines 208
Completing the Square 209
Algebraic Fractions 210
Simultaneous Eqns with a Quadratic .. 211
Solving Quadratic Inequalities 212
Finding the n th Term of a Quadratic ... 213
Inverse Functions 214
Composite Functions 215
Interpreting Graphs 216
Pythagoras in 3D 217
Trigonometry in 3D 218
Vectors 219

Fractional Indices $x^{\frac{a}{b}} = (\sqrt[b]{x})^a$	Surds $\sqrt{a} \times \sqrt{a} = a$ $\sqrt{a \times b} = \sqrt{a} \times \sqrt{b}$
Quadratic Formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$
Sine Rule $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$	Histograms frequency density $= \frac{\text{frequency}}{\text{class width}}$
Cosine Rule $a^2 = b^2 + c^2 - 2bc \cos A$	

MATHSWATCH COVERS EVERY TOPIC ON THE GCSE SYLLABUS

Grades that will be examined: Grades that can be obtained:

Higher	1	2	3	4	5	6	7	8	9	Higher	4	5	6	7	8	9
Foundation	1	2	3	4	5					Foundation	1	2	3	4	5	

The Maths Grade 1 to 9 syllabus is split into 5 areas and 246 videos.

- Number - 65 videos
- Algebra - 64 videos
- Ratio and Proportion - 23 videos
- Geometry and Measures - 66 videos
- Probability and Statistics - 28 videos

How long will it take to revise?

The timings of our videos are:

- 0 to 5 mins 107 videos
- 5 to 10 mins 112 videos
- 10 to 15 mins 22 videos
- 15 to 20 mins 4 videos
- 20 to 25 mins 1 video