



# TeeJay Maths

## National Curriculum

### Course Planner - Key Stage 3 Book 1

Part A

To help schools develop their courses, TeeJay Publishers has produced a Course Planner for the National Curriculum Key Stage 3.

This Planner for our Book 1 (of 3) from TeeJay provides substance to what the content of each year includes, and gives an indication as to what is required on that year, with some basic examples where necessary.

It provides the basis of a course based on TeeJay's KS 3 Book 1 and includes a final column which will allow planners to list practical activities, ICT Resources and specific methodologies. (These can be typed into the boxes provided).

The Planner comes in 2 parts.

Part A lists all the National Curriculum Outcomes in order for that year as listed in the official document for all 3 books.

Part B lists the chapters from KS 3 Book 1 in the order we recommend schools should follow.

Note :-

- All of the work for the first third of the National Curriculum (Key Stage 3) appears in our Book 1.
- TeeJay suggests that it would be preferable to progress through the book (in the order of your choice) and use this document as a checklist to make sure that the work of the appropriate work from the Curriculum has been covered.
- At the beginning of the KS3 Book 1, there is a Chapter 0 which revises and consolidates all the work completed in TeeJay's Year 6 Book 6.
- Each book contains a set of answers for all the exercises. This allows for pupil self checking or peer marking.
- At the end of each Chapter of each book is a "Revisit-Review-Revise" exercise. These could be used as diagnostic tools either before starting or after completing a topic.
- Each of our books can be supplemented by using our Homework Packs.
- The course is also supplemented and supported by TeeJay's KS 3 Year 1 Assessment/Diagnostics Pack. (Assessments are listed in purple).

# Number

## page 1

Outcome	Contents (Statutory)	Key Stage 3 Book 1		Key Stage 3 Book 2		Key Stage 3 Book 3		
	Pupils should be taught to :	Chapter	Pages	Chapter	Pages	Chapter	Pages	Extension
Number and Place Value	• understand place value in whole numbers (Rev <sup>n</sup> )	1	10-11	1	9-10 (R)			
	• round any number	1	12	1	11 (R)			
	• round a number to a required number of significant figures	1	12-15	1	11 (R)			
	• change a whole number to Standard Form (Scientific Notation)			1	12-14	1	1-13	
	• handle integers in context (Rev <sup>n</sup> )	2	17-19	2	16-17 (R)			
	• calculate intervals across zero	2	19-21	2	18-19 (R)			
	• handle all 4 operations including double negatives	2	20-23	2	18-19 (R)			Bk 2 20-21
	• solve practical questions involving integers	2	24	2	22 (R)			
	• order integers on the number line	2	20	2	17 (R)			
	• deal with multiples, lowest common multiple, factors and highest common factor	6	54-57	5	55-56 (R)			
	• recognise what a prime number is	6	58-59	6	57 (R)			
	• apply prime factorisation technique			6	58			
	• understand the unique factorisation theory			6	58			
	• handle powers 2 <sup>3</sup> , 5 <sup>2</sup> , 3 <sup>6</sup> etc (Rev <sup>n</sup> )	11	102-103					
	• handle roots of perfect squares, cubes etc.	11	104	11	94-95 (R)			
	• use irrationals like $\sqrt{2}$ and know difference between $\sqrt{2}$ and 1.414...			11	96			

# Number

## page 2

Outcome	Contents (Statutory)	Key Stage 3 Book 1		Key Stage 3 Book 2		Key Stage 3 Book 3		
<b>Addition and Subtraction</b>	<b>Pupils should be taught to :</b>	<b>Chapter</b>	<b>Pages</b>	<b>Chapter</b>	<b>Pages</b>	<b>Chapter</b>	<b>Pages</b>	<b>Extension</b>
	<ul style="list-style-type: none"> <li>add &amp; subtract all whole numbers in the context of problems</li> </ul>	4	37-39	4	39-41 (R)	3	25-26 (R)	
<b>Multiplication and Division</b>	<b>Pupils should be taught to :</b>	<b>Chapter</b>	<b>Pages</b>	<b>Chapter</b>	<b>Pages</b>	<b>Chapter</b>	<b>Pages</b>	<b>Extension</b>
	<ul style="list-style-type: none"> <li>work with all 4 operations</li> </ul>	4	37-39	4	39-41 (R)	3	25-26 (R)	
	<ul style="list-style-type: none"> <li>divide by 1 digit giving remainder as whole number, fraction or as a decimal</li> </ul>	4	40-41	4	39-41 (R)	3	25-26 (R)	
	<ul style="list-style-type: none"> <li>multiply and divide by 10, 100, 1000 etc</li> </ul>	4	42-43	4	39-41 (R)	3	25-26 (R)	
	<ul style="list-style-type: none"> <li>multiply and divide by 20, 300, 4000 etc</li> </ul>			4	44-45			
	<ul style="list-style-type: none"> <li>multiply by 2 digits</li> </ul>	4	44-45	4	42-43 (R)			
	<ul style="list-style-type: none"> <li>divide by 2 digits</li> </ul>					3	28	
	<ul style="list-style-type: none"> <li>Multiplication and division of numbers in Standard Form (calculator)</li> </ul>					1	14-15	Bk 6 16-17
<ul style="list-style-type: none"> <li>understand and use Bomdas including powers, roots and reciprocals</li> </ul>	4	46	4	46				

Outcome	Contents (Statutory)	Key Stage 3 Book 1		Key Stage 3 Book 2		Key Stage 3 Book 3		
Decimals	Pupils should be taught to :	Chapter	Pages	Chapter	Pages	Chapter	Pages	Extension
	• understand place value in decimals	7	61-62			5	43	
	• round to any number of decimal places and	7	63-65	7	63 (R)			
	• round to any number of significant figures and find resulting errors in the form $A < x \leq B$	7	63-66			5	43	
	• use all 4 operations including multiplication in decimals	7	67-70	7	60-62 (R)	5	39-41 (R)	
	• multiply by 10, 100, 1000 etc	7	71	7	63 (R)	5	39-41 (R)	
	• divide by 10, 100, 1000 etc	7	72	7	63 (R)	5	39-41 (R)	
	• multiply by 20, 300, 4000 etc			7	64	5	39-41 (R)	
	• divide by 20, 300, 4000 etc			7	65	5	39-41 (R)	
	• multiply decimals $0.32 \times 0.5$			7	66	5	42 (R)	
• divide decimals $2.85 \div 0.05$			7	67	5	42 (R)		
• order decimals on the number line			7	61-62				

Outcome	Contents (Statutory)	Key Stage 3 Book 1		Key Stage 3 Book 2		Key Stage 3 Book 3		Extension
Fractions	Pupils should be taught to :	Chapter	Pages	Chapter	Pages	Chapter	Pages	
	• add, subtract fractions and multiply basic fractions	9	89-93	9	80-81 (R)	7	53-55 (R)	
	• find a fraction of a quantity	9	87-88	9	80-81 (R)	7	53-55 (R)	
	• divide simple fractions			9	83	7	53-55 (R)	
	• multiply mixed numbers			9	82	7	53-55 (R)	
	• divide mixed numbers			9	84	7	53-55 (R)	
	• order fractions on a number line	9	84-86			7	53-55 (R)	
Percentages	Pupils should be taught to :	Chapter	Pages	Chapter	Pages	Chapter	Pages	Extension
	• understand what a percentage is	13	112-113	13	109-111 (R)	9	65-66 (R)	
	• convert between Percentages <-> Decimals <-> Fractions e.g $\frac{3}{8} = 0.375 = 37.5\%$	13	114	13	109-111 (R)	9	65-66 (R)	
	• find a percentage of a quantity by converting to equivalent fraction or by using a calculator where appropriate	13	115-119	13	109-111 (R)	9	65-66 (R)	
	• calculate percentage rise and fall			13	112-114	9	66-67 (R)	
	• express A as a percentage of B			13	115-116	9	68-69 (R)	
	• compare quantities using %ages					9	70	
	• perform simple interest calculations					9	71-72	
• handle original Value Problems					9	73-74		

Outcome	Contents (Statutory)	Key Stage 3 Book 1		Key Stage 3 Book 2		Key Stage 3 Book 3		
<p><b>Ratio and Proportion</b></p>	<p><b>Pupils should be taught to :</b></p>	Chapter	Pages	Chapter	Pages	Chapter	Pages	Extension
	<ul style="list-style-type: none"> <li>• convert units of time, length, volume/capacity</li> </ul>	15	134-136					
	<ul style="list-style-type: none"> <li>• scale up/down figures using scales and maps</li> </ul>	18	151-157	19	163-169 (R)	4	30-31 (R)	
	<ul style="list-style-type: none"> <li>• be aware of the connection between fractions and ratios</li> </ul>	17	143-145	18	155-156 (R)			
	<ul style="list-style-type: none"> <li>• simplify a ratio</li> </ul>	17	143-145	18	155-156 (R)			
	<ul style="list-style-type: none"> <li>• Share equally in given ratio part:part or part:whole</li> </ul>	17	146-149	18	155-156 (R)			
	<ul style="list-style-type: none"> <li>• use direct proportion &amp; its graph</li> </ul>			18	157-161	11	84-87 (R)	
	<ul style="list-style-type: none"> <li>• understand and use inverse proportion, including the graph.</li> </ul>					11	88-92	
<ul style="list-style-type: none"> <li>• handle problems involving :-                             <ul style="list-style-type: none"> <li>• speed,</li> <li>• unit pricing (best buy)</li> <li>• density</li> </ul> </li> </ul>	various		various		various			

Outcome	Contents (Statutory)	Key Stage 3 Book 1		Key Stage 3 Book 2		Key Stage 3 Book 3		Extension
ALgebra	Pupils should be taught to :	Chapter	Pages	Chapter	Pages	Chapter	Pages	
	• know $a \times b = ab$ , $3 \times p = 3p$ $a \div b = \frac{a}{b}$ $a \times a = a^2$ , $a \times a \times a \times b \times b = a^3b^2$	5	49-50	5	48-49 (R)			
	• work with fraction coefficients like $\frac{1}{2}x + \frac{3}{4}y$					2	22-23	
	• multiply brackets $2a(a + 3b)$	5	51	5	50-51 (R)			
	• collect like terms and simplify expressions	5	51-52	5	50-51 (R)			
	• factorise (common factor only)			5	52-53			
	• solve basic equations like $x + 1 = 9$ , $2x = 14$ , $3x - 1 = 20$	10	95-100	10	88 (R)			
	• solve harder equations like :- $5x - 1 = 2x + 11$ , $3(2x + 1) - x = 7x$			10	89-92	2	19-23	
	• solve simple inequalities like $x - 1 < 8$ , $3x \geq 21$ , $6x - 3 \leq 3x + 24$			14	118-120	6	47-51	
	• substitute values in expressions.					8	57-58	
	• make up formulae from given info					8	59-60	
	• change the subject of a formula understand what a sequence is					8	61-63	
	• generate terms given formula like $u_n = n^2 + 1$					14	116-117	
	• generate terms given relationship between terms like $u_n = 3u_{n-1} + 1$ with $u_1 = 2$					14	118-119	
	• recognise an arithmetic sequence and find the $n^{\text{th}}$ term					14	120-121	
	• recognise a geometric sequence and find the $n^{\text{th}}$ term					14	122-123	





Outcome	Contents (Statutory)	Key Stage 3 Book 1		Key Stage 3 Book 2		Key Stage 3 Book 3		Extension
Geometric Properties of Shapes	<b>Pupils should be taught to :</b>	<b>Chapter</b>	<b>Pages</b>	<b>Chapter</b>	<b>Pages</b>	<b>Chapter</b>	<b>Pages</b>	
	• label sides and angles in triangle ABC and understand congruence	3	26-28	3	24-25 (R)			
	• use angle properties round a point, along a straight line	3	29-31	3	24-25 (R)			
	• use the properties of parallel lines to calculate corresponding,			3	26-28			
	• use the properties of parallel lines to calculate alternate,			3	29-32			
	• use the fact that the sum of angles in a triangle = $180^\circ$ to calculate sizes of missing angles	3	33-35	3	24-25 (R)			
	• determine the sum of angles in a polygon			3	33-36			
	• construct scale drawings including calculations (Triangles etc)			19	163-166	5	30-31 (R)	
	• construct congruent shapes and construct similar shapes by enlargement ( $>1$ ) with and without a coordinate grid	18	151-157					
• construct the following using ruler and compasses :- <ul style="list-style-type: none"> <li>• perpendicular bisector of a line</li> <li>• angle bisector</li> <li>• perpendicular from a point to a line and know this is the shortest distance from the point to the line</li> </ul>					4	32-33		
					4	34-35		
					4	36-37		

Outcome	Contents (Statutory)	Key Stage 3 Book 1		Key Stage 3 Book 2		Key Stage 3 Book 3		Extension
<p><b>Geometric Properties of Shapes (cont'd)</b></p>	<p><b>Pupils should be taught to :</b></p>	<p>Chapter      Pages</p>	<p>Chapter      Pages</p>	<p>Chapter      Pages</p>	<p>Extension</p>			
	<ul style="list-style-type: none"> <li>understand and use Pythagoras' Theorem in a right angled triangle to calculate hypotenuse</li> </ul>		<p>20            171-178</p>	<p>15    125-127, 128 (R)</p>				
	<ul style="list-style-type: none"> <li>calculate a shorter side</li> </ul>		<p>20            179-183</p>	<p>15            125-127 (R)</p>				
	<ul style="list-style-type: none"> <li>understand and use Basic right angle triangle Trigonometry (???) using tangent - side or angle</li> </ul>			<p>17            143-152</p>				
	<ul style="list-style-type: none"> <li>use sine to find side or angle</li> </ul>			<p>19            165-168</p>				
	<ul style="list-style-type: none"> <li>use cosine to find side or angle</li> </ul>			<p>19            169-172</p>				

Outcome	Contents (Statutory)	Key Stage 3 Book 1		Key Stage 3 Book 2		Key Stage 3 Book 3		Extension
		Chapter	Pages	Chapter	Pages	Chapter	Pages	
<b>Geometric Position and Direction</b>	<b>Pupils should be taught to :</b>							
	• apply translations, reflections and rotations to shapes in and not in a coordinate diagram	16	138-141	17	146-152			
	• handle coordinates in all 4 quadrants (Rev <sup>n</sup> )			17	146-147	12	98-100 (R)	
	• draw/recognise line like $y = 3x + 1$ and know that gradient $m = 3$ and that y-intercept is at (0, 1)					12	95-103	
	• rearrange $ax + by + c = 0$ to the form $y = mx + c$ , pick out gradient and y-intercept and sketch line					12	104-105	
	• Solve linear equation $ax + by + c = 0$ or $y = mx + c$ by replacing $x$ (or $y$ ) by a value and finding the value of the other variable					12	95-105	
	• draw two given lines and solve the simultaneous equations <u>graphically</u>					12	106-107	
	• draw quadratic graphs of form :- $y = ax^2 + bx + c$ by plotting points from a table (including scaling of $y$ or $x$ axis)					16	133-137	
	• use quadratic graphs to estimate the value of $y$ given $x$					16	133-137	
	• sketch or read from exponential graphs and reciprocal graphs and find approximate solutions for $y$ given $x$ and vice versa.					16	138-139	
• sketch or read piecewise graph & solve for $x$ or $y$ given the other					16	140-141		

Outcome	Contents (Statutory)	Key Stage 3 Book 1		Key Stage 3 Book 2		Key Stage 3 Book 3		
<b>Statistics</b>	<b>Pupils should be taught to :</b>	<b>Chapter</b>	<b>Pages</b>	<b>Chapter</b>	<b>Pages</b>	<b>Chapter</b>	<b>Pages</b>	<b>Extension</b>
	• construct/read from tables, charts, frequency tables, bar charts, pie charts, pictographs	14	121-125	15	122-125 (R)			
	• construct/read vertical line graphs (bar graphs) for grouped AND ungrouped data	14	121-125					
	• Construct/read stem and leaf diagrams			15	126-128			
	• construct/read scattergraphs	14	126-127					
	• calculate mean, mode, median from ungrouped data and find measure of spread (range) and outliers	19	159-164					
<b>Probability</b>	<b>Pupils should be taught to :</b>	<b>Chapter</b>	<b>Pages</b>	<b>Chapter</b>	<b>Pages</b>	<b>Chapter</b>	<b>Pages</b>	<b>Extension</b>
	• calculate the probability of an event happening as a decimal or fraction (percentage ?) $0 \leq P \leq 1$	20	166-172	21	179-180			
	• determine the probability of an event happening in real situations and predict how often an event will happen	20	166-172	21	181			
	• use Venn Diagrams, tables and grids to study the union and intersection of sets					18	158-163	
	• calculate theoretical probabilities involving single or combined events with equally likely, mutually exclusive outcomes			21	182-183	18	154-157	



# TeeJay Maths

Part B

## National Curriculum

### Key Stage 3 Course Planner - Following Book 1 order

Based on TeeJay's **Key Stage 3 Book 1** along with TeeJay's **Assessment Pack** for **KS3 Book 1**.

Book Chapters are listed **FIRST** and the associated National Curriculum Outcomes are then listed and a reference is made to the relevant chapters.

This time, to help schools develop their courses, **TeeJay Publishers** has produced a **Course Planner** for our **KS 3 Book 1**.

This version of the **Planner** from **TeeJay** provides substance to what the content of each level includes, and gives an indication as to what is required at that level, with some basic examples where necessary.

It provides the basis of a course based on TeeJay's **KS 3 Book 1** and includes a final column which will allow planners to list practical activities, ICT Resources and specific methodologies.

Ch	Heading	Pgs	Topics	KS3 Book 1	Comments/Methodology/Assessments
0	Revision	1-9	Revision of all Key Stage 2 work		
1	Whole No's 1	10-11 12 12-14 15 16	Understand place value up to 10 000 000 Rounding to the nearest 10, 100, 1000 etc Rounding using significant figures Estimating using significant figures Revisit-Revise-Review		
2	Negative Numbers (Integers)	17-19 20 21 22-23 24 25	Negative numbers in context and on the number line Adding and subtracting integers (with help from a thermometer) The double negative when subtracting Multiplying and dividing integers A mixture Revisit-Revise-Review		
3	Angles	26-27 27-28 29-30 31 32 33-35 36	Types of angles Naming angles Complementary and supplementary angles Angles round a point and along a line Vertically opposite angles Angles in a triangle Revisit-Revise-Review		
4	Whole No's 2	37-39 40-41 42 43 44-45 46 47-48	Revise add, subtract, multiply and divide whole numbers Division with remainder as a whole number, fraction or decimal Multiplication by 10, 100, 1000, etc Division by 10, 100, 1000, etc Multiplication by two digits BOMDAS including powers, roots, reciprocals Revisit-Revise-Review		

Ch	Heading	Pgs	Topics	KS3 Book 1	Comments/Methodology/Assessments
5	Algebra 1	49-50 51 52 53	Simplify algebraic expressions Removing brackets Removing brackets and simplifying expressions Revisit-Revise-Review		
6	Multiples and Factors	54-55 56-57 58-59 60	Revise multiples, common multiples and lowest common multiples Revise factors, common factors and highest common factors Re-introduce prime numbers and check if a number is prime Revisit-Revise-Review		
7	Decimals	61-62 63-65 66 67-68 69 70 71 72 73-74 75	Reading decimal scales Round to the nearest whole number and decimal places Estimating using significant figures Addition and subtraction of decimals Multiplication of a decimal by a whole number single digit Division of a decimal by a whole number single digit Multiplication by 10, 100, 1000, etc Division by 10, 100, 1000, etc Mixed problems Revisit-Revise-Review		
8	Length and Area	76 77-78 79-80 81-82 83	Revise area of a rectangle, square and right angled triangle Area of a triangle Area of a parallelogram A mixture including composite areas Revisit-Revise-Review		

Ch	Heading	Pgs	Topics	KS3 Book 1	Comments/Methodology/Assessments
9	Fractions	84 85-86 87-88 89 90-91 92 93 <b>94</b>	Equivalent Fractions Top heavy fractions and mixed numbers Find a fraction of a quantity Add and subtract basic fractions Add and subtract harder fractions A problem with subtraction Multiply one fractions by another (basic) <b>Revisit-Revise-Review</b>		
10	Algebra 2	95-96 97-98 99-100 <b>101</b>	Basic equation Solving basic equations Harder equations <b>Revisit-Revise-Review</b>		
11	Powers & Roots	102-103 104 <b>105</b>	Squares, cubes and powers Square roots and cube roots <b>Revisit-Revise-Review</b>		
12	Circle work (Circumference)	106 107-108 109-110 <b>111</b>	The circumference of a circle The circumference - a formula The circumference of a circle - problems <b>Revisit-Revise-Review</b>		
13	Percentages	112-113 114 115 116-117 118-119 <b>120</b>	What is a percentage ? Linking fractions, decimals and percentages Finding a percentage of a quantity without a calculator More percentages without a calculator Percentages using a calculator <b>Revisit-Revise-Review</b>		
14	Statistics 1	121-123 124-125 126-127 128 <b>129-130</b>	Interpret/draw pictographs, bar graphs and line graphs, Pie charts - revisited Scattergraphs Dot plots <b>Revisit-Revise-Review</b>		



Ch	Heading	Pgs	Topics	KS3 Book 1	Comments/Methodology/Assessments
15	Volume	131-133 134 135-136  137	Volumes of cubes and cuboids (Revision) Changing between litres and millilitres Liquid volume - capacity  Revisit-Revise-Review		
16	Reflection and Rotation	138-139 140-141  142	Line symmetry and creating symmetrical shapes Rotational Symmetry - Turn Symmetry  Revisit-Revise-Review		
17	Ratio	143-145 146-147 148-149  150	Ratios including simplifying Ratio calculations Sharing using ratios  Revisit-Revise-Review		
18	Scales and Scale Drawings	151-152 153-154 155-157  158	Enlarge and reduce shapes using a given scale Using a scale drawing to determine a length) Maps and scales  Revisit-Revise-Review		
19	Statistics 2	159-160 161-162 163-164  165	Using the mean and the range The median and the mode A mixture, of averages - range, mode, median and mean  Revisit-Revise-Review		
20	Probability	166 167-168 169-170 171-172  173	Chance - probability Probability Probability expressed as a ratio Probability expressed as a fraction  Revisit-Revise-Review		
21	Revision	174-1834	Revision of all Book 1 work		
	Answers	185-194	Answers		