Maths at Thomas Estley – A Support Guide for Students, Parents + Carers.

2019 Edition v1

At Thomas Estley we teach maths using a stage-not-age approach. This means work being done by our more able Year 8s might also be taught to moderate or lower ability Year 9 or 10 Students.

Very roughly, we break all the work required for GCSEs up into sections:

Grade 1 (Red)	Grade 5 (Dark Green)
Grade 2 (Orange)	Grade 6 (Light and Dark Blue)
Grade 3 (Yellow)	Grade 7+ (Purple).

Grade 4 (Light Green)

And we teach pupils according to set and current working grade. Through five years this looks roughly like so:

	Higher Ability	Middle Ability	Lower Ability
	KS2 Score 107 or Better	KS2 Score 97-106	KS2 score 96 or Fewer
Y7 Autumn Term	Red and Orange	Red and Half Orange	Red
Y7 Spring Term	Most Yellow	All Orange	Some Orange
Y7 Summer Term	All Yellow	Most Yellow	Most Orange
Y8 Autumn Term	Half Light Green	All Yellow	All Orange
Y8 Spring Term	All Light Green	Half Light Green	Some Yellow
Y8 Summer Term	Half Dark Green	Most Light Green	Half Yellow
Y9 Autumn Term	All Dark Green	All Light Green	Most Yellow
Y9 Spring Term	Half Light Blue	Half Dark Green	All Yellow
Y9 Summer Term	All Light Blue	Most Dark Green	Half Light Green
Y10 Autumn Term	Half Dark Blue	All Dark Green	Most Light Green
Y10 Spring Term	All Dark Blue	Half Light Blue	All Light Green
Y10 Summer Term	Some Violet	All Light Blue	Half Dark Green
Y11 Autumn Term	Most Violet	Half Dark Blue	Most Dark Green
Y11 Spring Term	All Violet	All Dark Blue	All Dark Green
Y11 Summer Term	Revision	Revision	Revision

Each colour is then split into topics (Algebra, Geometry etc) which are later in this guide. Each topic should take between 2-4 weeks and is concluded with a short review task.

From day 1 in year 7, all pupils need:

- A Scientific calculator the model sold by the school library is currently the Casio fx85-gtx version and it is this calculator which our guides and teaching are based on. We strongly recommend the Casio fx85 range for ease of following along in lessons.
- Protractor and Compass
- Usual school kit (Pen, Pencil, 30cm Ruler)
- A GCSE Foundation Revision Guide and Exam Practice Workbook*

* All pupils study grades 1-5 at varying speeds in Years 7-9, so even if a pupil will later sit higher tier these two books (available for £2.50 each from the school library) will cover them to the end of Year 9. **Higher** pupils would then purchase the **Higher GCSE Revision Guide and Exam Practice Workbook** to cover grades 4-9 during Year 10 and 11.



Assessments

For AP1

Years 7,8,9 and 10 will sit single paper exams in the week commencing 21st October.

Year 11 will sit full Mocks in the weeks commencing 25th November

For AP2

Years 7,8 and 10 will sit single paper exams in the week commencing 10th February.

Y9 Mid-year exams (three one hour papers) commence the week 27th January.

Y11 second round of mocks will take place before Easter (dates tbc)

For AP3

Years 7+ 8 will sit three 50-minute end of year papers in the week commencing 18th May

Year 9 sit end of year exams in the week commencing 18th May These are 3 GCSE Foundation papers - this allows us to decide which pupils should be aiming for higher tier – normally those who achieve a grade 4 in this exam

Y10 have full mocks in the weeks commencing 8th June.

Supporting learning

In addition to the regular review tasks, Years 7-10 undertake *weekly skills* tests, though these are not necessarily weekly! They contain common mathematical problems and photos/copies should be taken of any questions that pupils are not comfortable completing. Year 11 complete fortnightly mock papers which highlight areas for further practice.

In order to help pupils with independent learning – at the end of this document is a series of links to *Mymaths* lessons, supporting pages in the *exam practice book* and *revision guide*. These tasks should be completed outside of college, and are an integral part of study. Some tasks may be explicitly set as homework during topics, or if further practice is required.

Pupils who complete all these tasks independently during their study have significantly better progress over the five years. Please support pupils to complete them. If at any point you would like to know what topic is being studied right now – please do not hesitate to email your maths teacher or myself (ahutchinson@thomasestley.org.uk)

Please note *Hegarty Maths* is a resource we use with Key Stage 4 pupils – it is much more exam oriented and there is little need to use it during KS3.

Algebra –

Hegarty Clips	Mymaths Tasks	Foundation Revision Guide Pages	Foundation Exam Workbook Pages	Higher Revision Guide Pages	Higher Exam Workbook Pages	
196-198	G1 Sequences					A1 - Sequences
156-159	G23 Simplifying 1 and 2	25	21			A2 - Simplifying
	Algebra - Expressions and Formulae					A3 - Formulae
155	G23 Substitution 1					A4 - Substitution
160,161	G23 Single Brackets	25,26	22,23	16,18	16	A5 - Simplifying and Single Brackets
	G23 Plotting Graphs 1 and 2 Gradient and Intercept G45 y=mx+c	42, 43,44,45,46 ,47,	38,39,40,41	43,44,45,46		A6 - Straight line graphs 1
176-188	G1 equations 1 1step G23 Equations 2 multi-step G45 equations 3 Both sides	29,30,31	25,26,28,29 ,30	21,22	14,19,20	A7 - Equations
780-789	G23 substitution 2		27			A8 - Harder substitution
261-264	G23 Arithmetic Sequences G23 Generating Sequences G45 Geometric Sequences G45 Recognising sequences	35,36	32,33	31,32	27,28,29	A9 - Sequences
280-287	G45 Rearranging 1	32,33,34	31	21,23,24	21,22	A10 - Rearranging formulae
	G23 Real life Graphs	51,52,53,	45,46	47,54,55,57	47,48,49,	A11 - Graphs of real-world context
265-272	G45 Inequations G45 Negative Inequations	37,	34	33,34,	30	A12 - Inequalities 1

Hegarty Clips	Mymaths Tasks	Foundation Revision Guide Pages	Foundation Exam Workbook Pages	Higher Revision Guide Pages	Higher Exam Workbook Pages	
222	G45 Brackets	27	23	18,		A13 - Double brackets
190-195	G45 Simultaneous 1,2,3 and Negatives	39,	36	37,	34,35	A14 - Simultaneous equations
168-171	G23 Factorising—Linear G45 Factorising Quadratics 1	28	24	19,	17	A15 - Factorising
199-216	G45 Equation of a line 2,3	42, 43,44,45,46 ,47,	44		38,39	A16 - Straight line 2
251-260	G23 Plotting Graphs 3 Quadratics	48, 49	35,42,43	29,48,49	40,41	A17 - Quadratic graphs
223-228	G67 Quadratic Equations 2 G67 Completing the square G67 Quadratic Formula	38,	24	25,26,27,28 ,29	23,24,25	A18 - Harder factorising and solving quadratics
247-260	G45 Geometric Sequences 1 G67 Geometric Sequences 2 and Quadratic Sequences					A19 - Harder sequences
269-276	G67 Shading Inequalities G89 Quadratic Inequalities			34,35	31	A20 - Inequalities 2
	G67 Cancelling Algebraic Fractions G89 Adding Algebraic Fractions		37	30,3940,	26,36	A21 - Algebraic Proof and fractions
288-297	G89 Functions 2			41	37,	A22 - Functions
246	G89 Quadratic Simultaneous equations G89 Iterative Methods			38	34,35	A23- Simultaneous equations 2
298-313				50,51,53	42,43,44,45 ,46	A24 - More graphs
341-320				49,		A25 - Equations of circles

Number

Hegarty Clips	Mymaths Tasks	Foundation Revision Guide Pages	Foundation Exam Workbook Pages	Higher Revision Guide Pages	Higher Exam Workbook Pages	
14	G1 Comparing Numbers G1 Ordering Whole numbers					N1 - Comparing numbers
15	G1 Rounding to 10, 100 etc	16,17,19	16,17	10		N2 - Rounding to whole numbers and decimals
16	G1 Multiplying by 10 and 100 G1 Dividing by 10 and 100	4				N3 - Multiplying and dividing by powers of 10
18-23	G23 Order of Operations	5	4,5,6,7			N4 -Operations (whole numbers)
37-43	G1 Negative numbers 1 G23 Negative numbers 2	7	8			N5 - Negative Numbers
24,44		2	3	2	3	N6 - Order of operations
27-36	G1 Multiples G1 Factors and Primes	8,9	9,10	3	4	N7 - Multiples, Factors and Primes
52	G1 Fractions to decimals G1 Simple Equivalent Fractions G1 Improper and mixed Fractions	15	15	7		N8 - Simple FDP, inc top heavy and mixed
47-51	G1 Ordering Decimals G23 Any activity on the Number list	6				N9 - Operations with decimals
65-70	See N9	12,13,14	12,13,14	5,6	6,7	N10 - Four Operations with Fractions
84- 88,93	G1 Percentage of amounts 1 to 4	61,62,63,64 ,65	53,54	64,	56-58	N11 - Percentages 1
84-87						N12- Quantities of amounts

Hegarty Clips	Mymaths Tasks	Foundation Revision Guide Pages	Foundation Exam Workbook Pages	Higher Revision Guide Pages	Higher Exam Workbook Pages	
52-55	G1 Frac Dec Perc 1 and 2			7		N13 - FDP (non- recurring)
121-128	G23 Standard Form Large, Small and Calcs	22,23	20	13,14	12,13	N14 - Standard Form
99-101						N15 - Sequences and Special numbers
90-98	G23 Percentage change 1 G45 Percentage Change 2 G23 Change as a percentage/Reverse Percentages	61,62,63,64 ,65	55	65,66,67	56- 58,59+60	N16 - Percentages 2
29-36	G1 Factors and Primes G23 HCF/LCM	10,11	10,11	3,4	4,5	N17 - Prime factors, HCF and LCM
102-110	Indices 1,2,3 and 4	20,21	19	17	15	N18 - Powers
130- 139,774- 777	G45 Error Intervals G67 Upper and lower bounds 1 and 2			12	9,10,11	N19 - Bounds and Rounding
53,54	G67 Recurring Decimals 1 and 2			8,9	8	N20 - Recurring decimals
111-119	G67 Surds 1 G89 Surds 2			20	18	N21 - Surds and irrational numbers
						N22 - Fractional and Negative Powers

Geometry

	G1 Perimeter					GM1 - Area and Perimeter
		87,88,				GM2 - Angles and Symmetry
	G1 Perimeter G1 Area of Rectangles G23 Volume of cuboids					GM3 - Area, Perimeter and Volume
	G1 Properties of Triangles/Parts of a circle G1 3D Shapes	72,73	61,69,70,71	84		GM4 - Properties of 2D and 3D shapes
455-461	G23 Angle Sums/Angles in Parallel lines/Measuring Angles		73,74	71		GM5 - Angles
637- 643,648 ,649	G23 Rotating/Reflecting/Tran slating and Enlarging shapes	76,77,	63,64	80,81		GM6 - Transformations 1
477-486	G23 Angle Reasoning/Sum of Angles in a Polygon	89,90,91	75,76	71,72,73,	64-67	GM7 -Angle Reasoning
	G23 Bearings/Scale Drawings/Map Scales	96,97,98	80,81	92	84	GM8 - Scales and Bearings
548-559	G23 Area of a Parallelogram/triangle/c ircle/trapezium G23 Circumference of a circle	78,79	65,66,67,68	82,83	75,76	GM9- Area and Perimeter of 2D shapes
	G23 Nets and Surface Area G23 Volume of Cuboids/Cylinders G1 Nets of 3D Shapes	81,82,83,84		84,85		GM10 - Surface Area and Volume
659- 669,674- 679		92,93	77	88		GM11 - Construction
644- 647,650- 658		76,77,		87	73,74,80	GM12 - Transformations 2
829,844	G45 Plans and Elevations	85	72,	87	77,78,79,81	GM13 - 3D, Plans and Elevations

Hegarty Clips	, Mymaths Ta	Foundati asks Revisio Guide Pa		Foundation Revision Guide Pages Pages		Higher Revision Guide Pages	Higher Exam Workbook Pages	
								GM14 -
659-679			94		78,79	89,90,91	82,83	Construction and Loci
497-507	G45 Pythagoras Theorem		99		82	95,	85	GM15 - Pythagoras
691-715	G23 Converting Units/Metric Conversion/Converting measures	66	,67,68,	56,	57,58,59,60	68	61,62,63	GM16 - Converting Units
680-690	G45 Similar Triangles/Congruent Triangles	7	4,75		62	78,79	71,72	GM17 - Similarity & Congruency
	G23 Volume of prisms G45 Volume of cones and Spheres G45 Complex surface areas					84,85,86		GM18 - APV Problems
508-515	G45 Trig Missing Angles/Sides/special angles/Angles of Elevation	100,	100,101,102		83,84	96,97,98	86	GM19 - Trigonometry Introduction
622-627	G45 Vectors 1	10)3,104		85,86	103	90,91	GM20 - Vectors
						78,79		GM21 - Geometric Proof 1
854-863	G67 Pythagoras 3D G67 3D Trigonometry					101,102		GM22 - Problems in 3D
								GM23 - Transformations 3D
594-606	G67 Circle Theorems					76,77	68-70	GM24a - Circle Theorems 1
816-820	G89 Circle Theorem Proof					76,77	68-70	GM24b- Circle Theorems 2
516-533	G89 Sine Rule/Cosine Rule Sides/Cosine Rule Angles					51,99100,	87,88,89	GM25 - Further Trigonometry
								GM26 - Geometric Proof 2
628-636	G67 Vectors 2					104,	90,91	GM27- Further Vectors

Statistics

Hegarty Clips	Mymaths Tasks	Foundation Revision Guide Pages	Foundation Exam Workbook Pages	Higher Revision Guide Pages	Higher Exam Workbook Pages	
	G1 Frequency Tables/Bar Charts and Pictograms					S1 - Reading information from charts and tables
	See Above	117	98, 99, 100			S2 - Constructing charts and tables
	G23 Reading Pie Charts	117				S3 - Interpreting Data
404-421	G23 Mean and Mode/Median and range/G23 Mean from Frequency Tables	116	96,97		102	S4 - Averages
425-429	G23 Drawing Pie Charts G45 Scatter Graphs	118,119,120	101,102,103			S5- Pie charts and scatter diagrams
		123		114,		S6 - Interpret and Discuss Misleading Data
	G23 Mean from Grouped Data 1/2	121,122	104	116,117,118	103	S7 - Working with Grouped Data
		114,115	95	114	101	S8 - Planning a survey
453,454	G45 Line of best fit	119,120	102,103	123	109,110	S9 - Scatter Diagrams and Lines of Best Fit
				122		S10 - Using Moving Averages to describe trends
434-440	G67 Cumulative Frequency 1/2			119,120	104,105,106	S11 - Cumulative Frequency and Quartiles
	G67 Box and Whisker Plots			124,125		S12 - Comparing two or more distributions
	G89 Histograms				109,110	S13 - Analysing data
442-449				121	107,108	S14 - Construct and Interpret Histograms

Probability

Hegarty Clips	Mymaths Tasks	Foundation Revision Guide Pages	Foundation Exam Workbook Pages	Higher Revision Guide Pages	Higher Exam Workbook Pages	
	G23 Probability Intro	107	87			P1 - Probability Scale
349-352	G23 Simple Probability	108	88,89			P2 - Theoretical probability
	G23 Listing Outcomes G23 Two-way Tables			106,107	92,93	P3 - Listing outcomes
356	G45 Experimental Probability	109,110	90,	108,109	94,95	P4 - Experimental probability
368,369 ,422- 424	G23 Frequency Trees	111	91			P5 - Two-way tables and frequency trees
357	G45 Relative Frequency					P6 - Relative Frequency
370-391	G23 Venn Diagrams 1/2	113	94	113	99,100	P7 - Venn Diagrams
361,362	G45 Making Tree Diagrams	112	92,93	110,111	96,97,98	P8 - Probability Tree Diagrams
						P9 - Complex Probability Problems
364-367	G67 Conditional Probability 1			112,	98	P10 - Conditional Probability

Ratio and Proportion

Hegarty Clips	Mymaths Tasks	Foundation Revision Guide Pages	Foundation Exam Workbook Pages	Higher Revision Guide Pages	Higher Exam Workbook Pages	
328-331	G1 Ratio Introduction	55	47	59,60		RP1 - Writing and Simplifying Ratios
332-338	G23 Ratio Dividing 1/2	56	47,48	59,60		RP2 - Dividing Into Ratios
739-742	G23 Unitary Method/Best Buys and value for money	57	48	60	51-53	RP3 - Proportional Reasoning and Unitary Method
			49	61	51-53	RP4 - Unit Ratios and Solving Ratio Problems
339-347	G45 Direct/Inverse Proportion	58,59,60	50,51,52	62,63	54,55	RP5 - Direct and Inverse Proportion
348					39,50	RP6 - Gradients
864-871	G67 Area/Volume Scale Factor					RP7 - Length, Area and Volume Scale Factors
343-347	G89 Direct and Inverse proportion			63		RP8 - Direct and Inverse Proportion 2