

JMHS – Top-Level Overview for KS4 Curriculum

How to complete the Top-Level Overview:

1. Complete section 1 - Determine the endpoint for your KS4 Curriculum (using the National Curriculum) – what do students need to be able to know, do and understand by the end of Y11? Use the audit of the National Curriculum that you previously completed and your exam board specification.
2. Complete section 2 – Which topics will you be covering in each term?
3. Review – Are the topics in the correct order to sequence the curriculum? Do topics build upon previous learning? Do topics work towards the endpoint for the key stage? Does the order of topics allow opportunities to recap, revise and review previous learning?
4. If necessary, rearrange topics or create new topics.
5. Copy the topics, in your final order, into the table in section 3.
6. Complete section 3 – What are the endpoints for each individual topic?
7. Review – Do the endpoints work towards the overall endpoint for the key stage? Do the endpoints follow a logical order to build upon previous learning?
8. If necessary, change the endpoints for each topic. Carrying out the review of endpoints may lead to you changing the order of some topics or what is covered in a topic.

1. Endpoint for the end of KS4:

- Students develop secure knowledge with number, ratio and proportion, algebra, shape and measures, and data handling. They learn how to apply this knowledge fluently using suitable mathematical methods. They develop understanding by linking mathematical knowledge and methods to solve increasingly complex problems. They can apply their knowledge to a variety of problems with increasing sophistication. They use mathematical reasoning by following a line of enquiry and breaking down more complex problems into a series of simpler steps which leads to a solution.

2. Topic Overview

Year Group	Autumn Term	Spring Term	Summer Term
	Topics:	Topics:	Topics:
10	1. Number 2. Algebra 3. Interpreting and representing data 4. Fractions, ratio and proportion	1. Angles and trigonometry 2. Graphs 3. Area and volume 4. Transformations and constructions	1. Equations and inequalities 2. Probability 3. Multiplicative reasoning 4. Similarity and congruence 5. Further statistics
11	1. Equations and graphs 2. Circle theorems 3. More algebra 4. Vectors and geometric proof	1. More trigonometry 2. Proportion and graphs 3. Revision	1. Revision

3. End point Overview

Year Group	Autumn Term		Spring Term		Summer Term	
	Topics:	Endpoints:	Topics:	Endpoints:	Topics:	Endpoints:
10	1. Number 2. Algebra 3. Interpreting and representing data 4. Fractions, ratio and proportion	1. Be able to complete number skills, including rounding to significant figures, findings factors and multiples, using laws of indices, simplifying surds and rationalise denominators 2. Know key terms including equation, expression, identity and formula and be able to use, simplify and/or solve these. 3. Be able to define and use arithmetic, geometrics, Fibonacci and quadratic sequences 4. Be able to draw and interpret back-to-back team and leaf diagrams, frequency polygons, grouped frequency tables, time series graphs and scatter diagrams 5. Be able to simplify and use ratios and proportion problems 6. Understand and be able to calculate simple interest and VAT	1. Angles and trigonometry 2. Graphs 3. Area and volume 4. Transformations and constructions	1. Be able to calculate the interior and exterior angles of regular and irregular polygons 2. Be able to find missing angles and/or lengths of triangles using Pythagoras' theorem and trigonometry, including knowing exact trigonometric values 3. Be able to plot, identify and interpret linear equations (including velocity-time graphs), reciprocal functions, quadratic equations and cubic functions 4. Be able to calculate the perimeters areas of key 2D shapes (including sectors) and the volume and/or surface area of a cylinder, sphere, pyramid and cones 5. Be able to represent 3D shapes visually, including drawing plans, elevations and nets and be able to draw constructions, loci and bisectors 6. Be able to carry out and describe transformations, including enlargements	1. Equations and inequalities 2. Probability 3. Multiplicative reasoning 4. Similarity and congruence 5. Further statistics	1. Be able to solve quadratic equations graphically, by factorising and by completing the square 2. Be able to solve inequalities and represent them on a number line and using set notation 3. Understand probability language and be able to calculate probability using sample space diagrams, Venn-diagrams and tree diagrams 4. Be able to calculate compound interest, compound measures and use kinematics formulae 5. Be able to use direct and indirect proportion equations 6. Know when triangles are congruent and use this to solve problems, including with 2D and 3D shapes 7. Know key statistical terms and sampling techniques 8. Be able to draw and interpret statistical diagrams including cumulative frequency diagrams, box plots and histograms

11	- Equations and graphs - Circle theorems - More algebra - Vectors and geometric proof	- Be able to sketch and identify quadratic and cubic graphs and determine the number of roots of any equation - Know the circle theorems and be able to apply them in a range of problems - Be able to simplify and calculate with algebraic fractions, including rationalising the denominator - Understand function notation and complete direct and inverse functions - Be able to prove mathematical statements through the use of counter examples and algebraic representation of numbers - Understand vector terminology, notation and laws, including the triangles law and parallelogram law	- More trigonometry - Proportion and graphs - Revision	- Be able to identify and sketch trigonometric graphs and use these to solve trigonometric equations - Know and be able to use the sine and cosine rule - Be able to transform trigonometric graphs using functions - Be able to use proportionality equations and exponential functions - Know how to use transform graphs using functions	- Revision	
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KS4 Overview

Higher

Autumn Half Term 1

	Y1 Unit 1	1 Prior knowledge: Number	0h
	Y1 Unit 1	1.1 Number problems and reasoning	1h
	Y1 Unit 1	1.2 Place value and estimating	1h
	Y1 Unit 1	1.3 HCF and LCM	1h
	Y1 Unit 1	1.4 Calculating with powers (indices)	1h
	Y1 Unit 1	1.5 Zero, negative and fractional indices Prereq: Y1 Unit 1 1.4 Calculating with powers (indices)	2h
	Y1 Unit 1	1.6 Powers of 10 and standard form Prereq: Y1 Unit 1 1.5 Zero, negative and fractional indices	2h
	Y1 Unit 1	1.7 Surds	3h
	Y1 Unit 2	2 Prior knowledge: Algebra	0h
	Y1 Unit 2	2.1 Algebraic indices Prereq: Y1 Unit 1 1.5 Zero, negative and fractional indices	1h
	Y1 Unit 2	2.2 Expanding and factorising	1h
	Y1 Unit 2	2.3 Equations Prereq: Y1 Unit 2 2.2 Expanding and factorising	1h
	Y1 Unit 2	2.4 Formulae Prereq: Y1 Unit 2 2.3 Equations	2h
	Y1 Unit 2	2.5 Linear sequences	1h
	Y1 Unit 2	2.6 Non-linear sequences Prereq: Y1 Unit 2 2.4 Formulae	2h
	Y1 Unit 2	2.7 More expanding and factorising Prereq: Y1 Unit 2 2.2 Expanding and factorising	2h
	Revision	Revision	1h
	Assessment	End of Unit 1: Number	1h
	Assessment	End of Unit 2: Algebra	1h
	Y1 Unit 1	1 Check up, Strengthen and Extend	0.5h
	Y1 Unit 2	2 Check up, Strengthen and Extend	0.5h

Autumn Half Term 2

Y1 Unit 3	3 Prior knowledge: Interpreting and representing data	0h
Y1 Unit 3	3.1 Statistical diagrams 1	3h
Y1 Unit 3	3.2 Time series	1h
Y1 Unit 3	3.3 Scatter graphs	1h
Y1 Unit 3	3.4 Line of best fit Prereq: Y1 Unit 3 3.3 Scatter graphs	1h
Y1 Unit 3	3.5 Averages and range Prereq: Y1 Unit 3 3.1 Statistical diagrams 1	2h
Y1 Unit 3	3.6 Statistical diagrams 2 3 Prereqs	1h
Y1 Unit 4	4 Prior knowledge: Fractions, ratio and percentages	0h
Y1 Unit 4	4.1 Fractions	1h
Y1 Unit 4	4.2 Ratios Prereq: Y1 Unit 4 4.1 Fractions	1h
Y1 Unit 4	4.3 Ratio and proportion Prereq: Y1 Unit 4 4.2 Ratios	1h
Y1 Unit 4	4.4 Percentages Prereq: Y1 Unit 4 4.2 Ratios	2h
Y1 Unit 4	4.5 Fractions, decimals and percentages Prereq: Y1 Unit 4 4.1 Fractions	1h
Revision	Revision	1h
Assessment	End of Unit 3: Interpreting and representing data	1h
Assessment	End of Unit 4: Fractions, ratio and percentages	1h
Y1 Unit 3	3 Check up, Strengthen and Extend	0.5h
Y1 Unit 4	4 Check up, Strengthen and Extend	0.5h
Y1 Unit 5	5 Prior knowledge: Angles and trigonometry	0h
Y1 Unit 5	5.1 Angle properties of triangles and quadrilaterals	1h
Y1 Unit 5	5.2 Interior angles of a polygon Prereq: Y1 Unit 5 5.1 Angle properties of triangles and quadrilaterals	1h
Y1 Unit 5	5.3 Exterior angles of a polygon Prereq: Y1 Unit 5 5.2 Interior angles of a polygon	1h
Y1 Unit 5	5.4 Pythagoras' theorem 1 Prereq: Y1 Unit 1 1.7 Surds	1h
Y1 Unit 5	5.5 Pythagoras' theorem 2 2 Prereqs	1h
Y1 Unit 5	5.6 Trigonometry 1 Prereq: Y1 Unit 5 5.5 Pythagoras' theorem 2	1h
Y1 Unit 5	5.7 Trigonometry 2 Prereq: Y1 Unit 5 5.6 Trigonometry 1	2h

Spring Half Term 1

Y1 Unit 6	6 Prior knowledge: Graphs	0h
Y1 Unit 6	6.1 Linear graphs Prereq: Y1 Unit 2 2.4 Formulae	2h
Y1 Unit 6	6.2 More linear graphs Prereq: Y1 Unit 6 6.1 Linear graphs	1h
Y1 Unit 6	6.3 Graphing rates of change Prereq: Y1 Unit 6 6.1 Linear graphs	2h
Y1 Unit 6	6.4 Real-life graphs Prereq: Y1 Unit 6 6.1 Linear graphs	1h
Y1 Unit 6	6.5 Line segments 2 Prereqs	1h
Y1 Unit 6	6.6 Quadratic graphs Prereq: Y1 Unit 6 6.1 Linear graphs	2h
Y1 Unit 6	6.7 Cubic and reciprocal graphs Prereq: Y1 Unit 6 6.6 Quadratic graphs	2h
Y1 Unit 6	6.8 More graphs 4 Prereqs	1h
Revision	Revision	1h
Assessment	End of Unit 5: Angles and trigonometry	1h
Assessment	End of Unit 6: Graphs	1h
Y1 Unit 5	5 Check up, Strengthen and Extend	0.5h
Y1 Unit 6	6 Check up, Strengthen and Extend	0.5h
Y1 Unit 7	7 Prior knowledge: Area and volume	0h
Y1 Unit 7	7.1 Perimeter and area	2h
Y1 Unit 7	7.2 Units and accuracy	1h
Y1 Unit 7	7.3 Prisms 2 Prereqs	3h
Y1 Unit 7	7.4 Circles 2 Prereqs	1h
Y1 Unit 7	7.5 Sectors of circles Prereq: Y1 Unit 7 7.4 Circles	1h
Y1 Unit 7	7.6 Cylinders and spheres 2 Prereqs	2h
Y1 Unit 7	7.7 Pyramids and cones 2 Prereqs	2h

Spring Half Term 2

Y1 Unit 8	8 Prior knowledge: Transformations and constructions	0h
Y1 Unit 8	8.1 3D solids	1h
Y1 Unit 8	8.2 Reflection and rotation	2h
Y1 Unit 8	8.3 Enlargement	2h
Y1 Unit 8	8.4 Transformations and combinations of different transformations 2 Prereqs	1h
Y1 Unit 8	8.5 Scale drawings and bearings Prereq: Y1 Unit 5 5.1 Angle properties of triangles and quadrilaterals	2h
Y1 Unit 8	8.6 Constructions 1 Prereq: Y1 Unit 8 8.5 Scale drawings and bearings	1h
Y1 Unit 8	8.7 Constructions 2 Prereq: Y1 Unit 8 8.6 Constructions 1	1h
Y1 Unit 8	8.8 Loci Prereq: Y1 Unit 8 8.7 Constructions 2	1h
Revision	Revision	1h
Assessment	End of Unit 7: Area and volume	1h
Assessment	End of Unit 8: Transformations and constructions	1h
Y1 Unit 7	7 Check up, Strengthen and Extend	0.5h
Y1 Unit 8	8 Check up, Strengthen and Extend	0.5h

Summer Half Term 1

Y1 Unit 9	9 Prior knowledge: Equations and inequalities	0h
Y1 Unit 9	9.1 Solving linear inequalities Prereq: Y1 Unit 2 2.3 Equations	1h
Y1 Unit 9	9.2 Solving quadratic equations 1 3 Prereqs	1h
Y1 Unit 9	9.3 Solving quadratic equations 2 3 Prereqs	1h
Y1 Unit 9	9.4 Completing the square Prereq: Y1 Unit 9 9.3 Solving quadratic equations 2	2h
Y1 Unit 9	9.5 Solving simple simultaneous equations Prereq: Y1 Unit 2 2.4 Formulae	2h
Y1 Unit 9	9.6 More simultaneous equations Prereq: Y1 Unit 9 9.5 Solving simple simultaneous equations	1h
Y1 Unit 9	9.7 Solving linear and quadratic simultaneous equations 2 Prereqs	2h
Y1 Unit 10	10 Prior knowledge: Probability	0h
Y1 Unit 10	10.1 Combined events Prereq: Y1 Unit 1 1.1 Number problems and reasoning	1h
Y1 Unit 10	10.2 Mutually exclusive events	1h
Y1 Unit 10	10.3 Experimental probability	1h
Y1 Unit 10	10.4 Independent events and tree diagrams 3 Prereqs	1h
Y1 Unit 10	10.5 Conditional probability Prereq: Y1 Unit 10 10.4 Independent events and tree diagrams	1h
Y1 Unit 10	10.6 Venn diagrams and set notation Prereq: Y1 Unit 10 10.5 Conditional probability	2h
Revision	Revision	1h
Assessment	End of Unit 9: Equations and inequalities	1h
Assessment	End of Unit 10: Probability	1h
Y1 Unit 9	9 Check up, Strengthen and Extend	0.5h
Y1 Unit 10	10 Check up, Strengthen and Extend	0.5h
Y1 Unit 11	11 Prior knowledge: Multiplicative reasoning	0h
Y1 Unit 11	11.1 Growth and decay Prereq: Y1 Unit 4 4.4 Percentages	1h
Y1 Unit 11	11.2 Compound measures 3 Prereqs	1h
Y1 Unit 11	11.3 More compound measures 3 Prereqs	1h
Y1 Unit 11	11.4 Ratio and proportion 4 Prereqs	1h

Summer Half Term 2

Y1 Unit 12	12 Prior knowledge: Similarity and congruence	0h
Y1 Unit 12	12.1 Congruence 2 Prereqs	1h
Y1 Unit 12	12.2 Geometric proof and congruence Prereq: Y1 Unit 12 12.1 Congruence	1h
Y1 Unit 12	12.3 Similarity 3 Prereqs	1h
Y1 Unit 12	12.4 More similarity 2 Prereqs	1h
Y1 Unit 12	12.5 Similarity in 3D solids Prereq: Y1 Unit 12 12.4 More similarity	1h
Revision	Revision	1h
Assessment	End of Unit 11: Multiplicative reasoning	1h
Assessment	End of Unit 12: Similarity and congruence	1h
Y1 Unit 11	11 Check up, Strengthen and Extend	0.5h
Y1 Unit 12	12 Check up, Strengthen and Extend	0.5h
Y1 Unit 14	14 Prior knowledge: Further statistics	0h
Y1 Unit 14	14.2 Cumulative frequency Prereq: Y1 Unit 3 3.5 Averages and range	1h
Y1 Unit 14	14.1 Sampling Prereq: Y1 Unit 2 2.3 Equations	1h
Y1 Unit 14	14.3 Box plots Prereq: Y1 Unit 14 14.2 Cumulative frequency	1h
Y1 Unit 14	14.4 Drawing histograms Prereq: Y1 Unit 3 3.1 Statistical diagrams 1	1h
Y1 Unit 14	14.5 Interpreting histograms 3 Prereqs	1h
Y1 Unit 14	14.6 Comparing and describing distributions 2 Prereqs	1h
Revision	Revision	1h
Assessment	End of Unit 14: Further statistics	1h
Y1 Unit 14	14 Check up, Strengthen and Extend	0.5h

Year 10 Mocks to take place in Summer Half Term 1 date TBC

UNIT 12 - ICT unit of 4 lessons to take place immediately following the mocks.

1. Substitution into Formulae

Rationale: Be able to explain what an algorithm is.

2. Creating Formulae

Rationale: Be able to create an algorithm to solve set problems.

3. Prime Factor Decomposition

Rationale: Be able to explain what decomposition is.

4. HCF and LCM problems

Rationale: Be able to apply decomposition to solve set problems.

Year 11

Higher

Autumn Half Term 1

Y1 Unit 15	15 Prior knowledge: Equations and graphs	0h
Y1 Unit 15	15.1 Solving simultaneous equations graphically 4 Prereqs	1h
Y1 Unit 15	15.2 Representing inequalities graphically 3 Prereqs	2h
Y1 Unit 15	15.3 Quadratic equations 2 Prereqs	2h
Y1 Unit 15	15.4 Using quadratic graphs 2 Prereqs	1h
Y1 Unit 15	15.5 Cubic equations 2 Prereqs	1h
Y1 Unit 15	15.6 Using iteration to solve equations Prereq: Y1 Unit 15 15.5 Cubic equations	2h
Y2 Unit 16	16 Prior knowledge: Circle theorems	0h
Y2 Unit 16	16.1 Radii and chords 4 Prereqs	1h
Y2 Unit 16	16.2 Tangents 2 Prereqs	1h
Y2 Unit 16	16.3 Angles in circles 1 2 Prereqs	1h
Y2 Unit 16	16.4 Angles in circles 2 Prereq: Y2 Unit 16 16.3 Angles in circles 1	1h
Y2 Unit 16	16.5 Applying circle theorems 2 Prereqs	2h
Revision	Revision	1h
Assessment	End of Unit 15: Equations and graphs	1h
Assessment	End of Unit 16: Circle theorems	1h
Y1 Unit 15	15 Check up, Strengthen and Extend	0.5h
Y2 Unit 16	16 Check up, Strengthen and Extend	0.5h

Autumn Half Term 2

▶	Y2 Unit 17	17 Prior knowledge: More algebra	0h
▶	Y2 Unit 17	17.1 Rearranging formulae Prereq: Y1 Unit 2 2.4 Formulae	1h
▶	Y2 Unit 17	17.2 Algebraic fractions 3 Prereqs	1h
▶	Y2 Unit 17	17.3 Simplifying algebraic fractions 2 Prereqs	1h
▶	Y2 Unit 17	17.4 More algebraic fractions Prereq: Y2 Unit 17 17.3 Simplifying algebraic fractions	1h
▶	Y2 Unit 17	17.5 Proof 2 Prereqs	2h
▶	Y2 Unit 17	17.6 Surds 2 Prereqs	3h
▶	Y2 Unit 17	17.7 Solving algebraic fraction equations Prereq: Y2 Unit 17 17.4 More algebraic fractions	1h
▶	Y2 Unit 17	17.8 Functions 2 Prereqs	1h
▶	Y2 Unit 18	18 Prior knowledge: Vectors and geometric proof	0h
▶	Y2 Unit 18	18.1 Vectors and vector notation 2 Prereqs	1h
▶	Y2 Unit 18	18.2 Vector arithmetic 3 Prereqs	2h
▶	Y2 Unit 18	18.3 More vector arithmetic Prereq: Y2 Unit 18 18.2 Vector arithmetic	1h
▶	Y2 Unit 18	18.4 Parallel vectors and collinear points Prereq: Y2 Unit 18 18.3 More vector arithmetic	1h
▶	Y2 Unit 18	18.5 Solving geometric problems 2 Prereqs	2h
▶	Revision	Revision	1h
▶	Assessment	End of Unit 17: More algebra	1h
▶	Assessment	End of Unit 18: Vectors and geometric proof	1h
▶	Y2 Unit 17	17 Check up, Strengthen and Extend	0.5h
▶	Y2 Unit 18	18 Check up, Strengthen and Extend	0.5h

Spring Half Term 1

Year 11 Mocks to take place immediately in Spring Half Term 1 date.

UNIT 19 - ICT unit of 4 lessons to take place immediately following the mocks.

1. Context based Number Problems

Rationale: Be able to explain what abstraction is.

2. Surface area problems

Rationale: Be able to apply abstraction to solve set problems.

3. Finding the nth term of Linear and Quadratic Sequences

Rationale: Be able to explain what pattern recognition is.

4. Solving Sequences Problems

Rationale: Be able to apply pattern recognition to solve set problems.

– SOW to start mid-January as below.

Y1 Unit 13	13 Prior knowledge: More trigonometry	0h
Y1 Unit 13	13.1 Accuracy 2 Prereqs	1h
Y1 Unit 13	13.2 Graph of the sine function 2 Prereqs	1h
Y1 Unit 13	13.3 Graph of the cosine function 2 Prereqs	1h
Y1 Unit 13	13.4 Graph of the tangent function 2 Prereqs	1h
Y1 Unit 13	13.5 Calculating areas and the sine rule 4 Prereqs	1h
Y1 Unit 13	13.6 The cosine rule and 2D trigonometric problems Prereq: Y1 Unit 13 13.5 Calculating areas and the sine rule	1h
Y1 Unit 13	13.7 Solving problems in 3D 2 Prereqs	1h
Y1 Unit 13	13.8 Transforming trigonometric graphs 1 3 Prereqs	1h
Y1 Unit 13	13.9 Transforming trigonometric graphs 2 3 Prereqs	1h
Y2 Unit 19	19 Prior knowledge: Proportion and graphs	0h
Y2 Unit 19	19.1 Direct proportion Prereq: Y1 Unit 11 11.4 Ratio and proportion	1h
Y2 Unit 19	19.2 More direct proportion 2 Prereqs	1h
Y2 Unit 19	19.3 Inverse proportion Prereq: Y2 Unit 19 19.2 More direct proportion	1h
Y2 Unit 19	19.4 Exponential functions 2 Prereqs	2h
Y2 Unit 19	19.5 Non-linear graphs 5 Prereqs	1h
Y2 Unit 19	19.6 Translating graphs of functions 3 Prereqs	1h
Y2 Unit 19	19.7 Reflecting graphs of functions Prereq: Y2 Unit 19 19.6 Translating graphs of functions	1h
Revision	Revision	1h
Assessment	End of Unit 13: More trigonometry	1h
Assessment	End of Unit 19: Proportion and graphs	1h
Y1 Unit 13	13 Check up, Strengthen and Extend	0.5h
Y2 Unit 19	19 Check up, Strengthen and Extend	0.5h

Aim to End SOW approx. Early March.