

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	<ol style="list-style-type: none">1. Number2. Algebra3. Graphs, tables and charts4. Fractions and percentages	<ol style="list-style-type: none">1. Equations, inequality and sequences2. Angles3. Averages and range4. Perimeter, area and volume	<ol style="list-style-type: none">1. Graphs2. Transformation3. Ratio and proportion4. Right Angles and triangles5. Probability
11	<ol style="list-style-type: none">1. Multiplicative reasoning2. Constructions, loci and bearings3. Quadratic equations and graphs4. Perimeter, area and volume	<ol style="list-style-type: none">1. Fractions, indices and standard form2. Congruence, similarity and vectors3. Algebra4. Revision	<ol style="list-style-type: none">1. Revision2. Revision

3. End point Overview

Year Group	Autumn Term		Spring Term		Summer Term	
	Topics:	Endpoints:	Topics:	Endpoints:	Topics:	Endpoints:
10	<ol style="list-style-type: none"> Number Algebra Graphs, tables and charts Fractions and percentages 	<ol style="list-style-type: none"> To know the definition of function and to be able to complete inverse functions To be able to round numbers to given decimal places and significant figures To be able to define and determine the highest common factor and lowest common multiple using common prime factors Be able to define key words, including term formula and expressions and be able to simplify and substitute into expressions Be able to draw and interpret statistical diagrams and charts including distance charts, two-way tables, comparative and composite bar charts, histograms, line graphs, time series graphs, stem and leaf diagrams, pie charts and scatter graphs To be able to compare and calculate with 	<ol style="list-style-type: none"> Equations, inequality and sequences Angles Averages and range Perimeter, area and volume 	<ol style="list-style-type: none"> To be able to solve one and two step equations, formulae and inequalities using the balancing method To be able to recognise and extend sequences, including be able to use the nth term of a sequence To be able to define, identify and use congruent and similar shapes To understand and be able to use angles in parallel lines, including alternate and corresponding To understand key terms such as interior angle, exterior angle, tessellation, regular polygon and irregular polygon and be able to calculate these using given information. Understand and be able to calculate the averages from a frequency table, grouped data and stem and leaf diagram. Understand the terms sample, population, random sample and bias To be able to define perimeter and area 	<ol style="list-style-type: none"> Graphs Transformation Ratio and proportion Right Angles and triangles Probability 	<ol style="list-style-type: none"> Be able to calculate the gradient of a straight line and find the midpoint of a line segment Be able to interpret a linear equation and use this to make predictions Be able to draw and interpret distance-time graphs, rate of change graphs and velocity-time graphs Be able to carry out and describe transformations, including translations, reflections, enlargements and rotations Be able to interpret and use ratios and proportion problems To be able to find missing lengths using Pythagoras' theorem Be able to identify the hypotenuse, opposite and adjacent sides on a triangle and use trigonometry to calculate missing angles, sides, angles of elevation and depression Understand probability language and be able to calculate the

		<p>fractions, including use of the reciprocal.</p> <ol style="list-style-type: none"> To be able to convert between fractions, decimals and percentages. To understand and calculate simple interest, percentage increase and percentage decrease 		<p>and be able to calculate the area of a rectangles, parallelogram, triangle, trapezium compound shapes and cut out shapes</p> <ol style="list-style-type: none"> Be able to calculate the surface area and volumes of 3D solids and be able to convert the units of areas and volumes 		<p>probability of outcomes</p> <ol style="list-style-type: none"> Understand set notation and be able to calculate probability from a Venn-diagram Be able to use tree diagrams to calculate the probability of events
11	<ol style="list-style-type: none"> Multiplicative reasoning Constructions, loci and bearings Quadratic equations and graphs Perimeter, area and volume 	<ol style="list-style-type: none"> Be able to calculate percentage change, and compound interest Be able to complete calculations involving density, speed or pressure and be able to use kinematics formulae Understand and be able to use direct and indirect proportion Be able to draw plans, elevations and nets Be able to draw constructions, loci and bisectors Be able to measure and draw bearings Understand and be able to plot and solve quadratic equations, including being able to identify roots and turning points Be able to label parts of a circle and solve problems involving circles and sectors Be able to calculate the surface area and/or volume of cylinders, pyramids, cones, spheres and hemispheres 	<ol style="list-style-type: none"> Fractions, indices and standard form Congruence, similarity and vectors Algebra Revision 	<ol style="list-style-type: none"> To know and be able to use laws of indices and standard form Be able to identify and apply knowledge on similar shapes and congruent shapes, including triangles Be able to carry out calculations involving column vectors and to understand the relevant notation Be able to identify cubic function, asymptotes and proportion graphs Be able to solve simultaneous equations graphically, by elimination and by substitution Be able to express integers as general terms using algebra 	<ol style="list-style-type: none"> Revision Revision 	<ol style="list-style-type: none">

KS4 Overview

Foundation

Autumn Half Term 1

Y1 Unit 1	1 Prior knowledge: Number	0h
Y1 Unit 1	1.1 Calculations	1h
Y1 Unit 1	1.2 Decimal numbers	2h
Y1 Unit 1	1.3 Place value Prereq: Y1 Unit 1 1.2 Decimal numbers	2h
Y1 Unit 1	1.4 Factors and multiples	2h
Y1 Unit 1	1.5 Squares, cubes and roots 2 Prereqs	1h
Y1 Unit 1	1.6 Index notation Prereq: Y1 Unit 1 1.5 Squares, cubes and roots	2h
Y1 Unit 1	1.7 Prime factors 2 Prereqs	2h
Y1 Unit 2	2 Prior knowledge: Algebra	0h
Y1 Unit 2	2.1 Algebraic expressions	1h
Y1 Unit 2	2.2 Simplifying expressions 2 Prereqs	1h
Y1 Unit 2	2.3 Substitution 2 Prereqs	1h
Y1 Unit 2	2.4 Formulae Prereq: Y1 Unit 2 2.3 Substitution	1h
Y1 Unit 2	2.5 Expanding brackets Prereq: Y1 Unit 2 2.2 Simplifying expressions	1h
Y1 Unit 2	2.6 Factorising 2 Prereqs	1h
Y1 Unit 2	2.7 Using expressions and formulae Prereq: Y1 Unit 2 2.4 Formulae	2h
Revision	Revision	1h
Assessment	End of Unit 1: Number	1h
Assessment	End of Unit 2: Algebra	1h
Y1 Unit 2	2 Check up, Strengthen and Extend	0.5h
Y1 Unit 1	1 Check up, Strengthen and Extend	0.5h

Autumn Half Term 2

Y1 Unit 3	3 Prior knowledge: Graphs, tables and charts	0h
Y1 Unit 3	3.1 Frequency tables	1h
Y1 Unit 3	3.2 Two-way tables	1h
Y1 Unit 3	3.3 Representing data 2 Prereqs	2h
Y1 Unit 3	3.4 Time series	2h
Y1 Unit 3	3.5 Stem and leaf diagrams	1h
Y1 Unit 3	3.6 Pie charts Prereq: Y1 Unit 3 3.1 Frequency tables	2h
Y1 Unit 3	3.7 Scatter graphs	1h
Y1 Unit 3	3.8 Line of best fit	1h
Y1 Unit 4	4 Prior knowledge: Fractions and percentages	0h
Y1 Unit 4	4.1 Working with fractions	2h
Y1 Unit 4	4.2 Operations with fractions Prereq: Y1 Unit 4 4.1 Working with fractions	1h
Y1 Unit 4	4.3 Multiplying fractions Prereq: Y1 Unit 4 4.2 Operations with fractions	1h
Y1 Unit 4	4.4 Dividing fractions Prereq: Y1 Unit 4 4.3 Multiplying fractions	1h
Y1 Unit 4	4.5 Fractions and decimals 2 Prereqs	1h
Y1 Unit 4	4.6 Fractions and percentages	1h
Y1 Unit 4	4.7 Calculating percentages 1 3 Prereqs	2h
Y1 Unit 4	4.8 Calculating percentages 2 Prereq: Y1 Unit 4 4.7 Calculating percentages 1	1h
Revision	Revision	1h
Assessment	End of Unit 3: Graphs, tables and charts	1h
Assessment	End of Unit 4: Fractions 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

Spring Half Term 1

Y1 Unit 5	5 Prior knowledge: Equations, inequalities and sequences	0h
Y1 Unit 5	5.1 Solving equations 1 Prereq: Y1 Unit 2 2.1 Algebraic expressions	1h
Y1 Unit 5	5.2 Solving equations 2 Prereq: Y1 Unit 5 5.1 Solving equations 1	1h
Y1 Unit 5	5.3 Solving equations with brackets 2 Prereqs	1h
Y1 Unit 5	5.4 Introducing inequalities Prereq: Y1 Unit 5 5.3 Solving equations with brackets	1h
Y1 Unit 5	5.5 More inequalities Prereq: Y1 Unit 5 5.4 Introducing inequalities	1h
Y1 Unit 5	5.6 Using formulae 2 Prereqs	2h
Y1 Unit 5	5.7 Generating sequences	1h
Y1 Unit 5	5.8 Using the n th term of a sequence 3 Prereqs	3h
Y1 Unit 6	6 Prior knowledge: Angles	0h
Y1 Unit 6	6.1 Properties of shapes	1h
Y1 Unit 6	6.2 Angles in parallel lines	1h
Y1 Unit 6	6.3 Angles in triangles	1h
Y1 Unit 6	6.4 Exterior and interior angles 2 Prereqs	1h
Y1 Unit 6	6.5 More exterior and interior angles Prereq: Y1 Unit 6 6.4 Exterior and interior angles	1h
Y1 Unit 6	6.6 Geometrical problems 2 Prereqs	1h
Revision	Revision	1h
Assessment	End of Unit 5: Equations, inequalities and sequences	1h
Assessment	End of Unit 6: Angles	1h
Y1 Unit 5	5 Check up, Strengthen and Extend	0.5h
Y1 Unit 6	6 Check up, Strengthen and Extend	0.5h

Spring Half Term 2

Y1 Unit 7	7 Prior knowledge: Averages and range	0h
Y1 Unit 7	7.1 Mean and range Prereq: Y1 Unit 3 3.1 Frequency tables	1h
Y1 Unit 7	7.2 Mode, median and range 2 Prereqs	1h
Y1 Unit 7	7.3 Types of average 2 Prereqs	1h
Y1 Unit 7	7.4 Estimating the mean Prereq: Y1 Unit 7 7.1 Mean and range	1h
Y1 Unit 7	7.5 Sampling Prereq: Y1 Unit 4 4.2 Operations with fractions	1h
Y1 Unit 8	8 Prior knowledge: Perimeter, area and volume 1	0h
Y1 Unit 8	8.1 Rectangles, parallelograms and triangles	1h
Y1 Unit 8	8.2 Trapezia and changing units 3 Prereqs	1h
Y1 Unit 8	8.3 Area of compound shapes Prereq: Y1 Unit 8 8.2 Trapezia and changing units	1h
Y1 Unit 8	8.4 Surface area of 3D solids Prereq: Y1 Unit 8 8.2 Trapezia and changing units	2h
Y1 Unit 8	8.5 Volume of prisms Prereq: Y1 Unit 8 8.2 Trapezia and changing units	1h
Y1 Unit 8	8.6 More volume and surface area 2 Prereqs	1h
Revision	Revision	1h
Assessment	End of Unit 7: Averages and range	1h
Assessment	End of Unit 8: Perimeter, area and volume 1	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: Graphs	0h
Y1 Unit 9	9.1 Coordinates	2h
Y1 Unit 9	9.2 Linear graphs 2 Prereqs	1h
Y1 Unit 9	9.3 Gradient Prereq: Y1 Unit 9 9.2 Linear graphs	1h
Y1 Unit 9	9.4 $y = mx + c$ Prereq: Y1 Unit 9 9.3 Gradient	2h
Y1 Unit 9	9.5 Real-life graphs Prereq: Y1 Unit 9 9.4 $y = mx + c$	1h
Y1 Unit 9	9.6 Distance-time graphs	1h
Y1 Unit 9	9.7 More real-life graphs Prereq: Y1 Unit 9 9.5 Real-life graphs	1h
Y1 Unit 10	10 Prior knowledge: Transformations	0h
Y1 Unit 10	10.1 Translation	1h
Y1 Unit 10	10.2 Reflection Prereq: Y1 Unit 9 9.1 Coordinates	0h
Y1 Unit 10	10.3 Rotation	2h
Y1 Unit 10	10.4 Enlargement	1h
Y1 Unit 10	10.5 Describing enlargements Prereq: Y1 Unit 10 10.4 Enlargement	1h
Y1 Unit 10	10.6 Combining transformations 4 Prereqs	1h
Revision	Revision	1h
Assessment	End of Unit 9: Graphs	1h
Assessment	End of Unit 10: Transformations	1h
Y1 Unit 9	9 Check up, Strengthen and Extend	0.5h
Y1 Unit 10	10 Check up, Strengthen and Extend	0.5h

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

UNIT 11 - 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.

Summer Half Term 2

Y1 Unit 11	11 Prior knowledge: Ratio and proportion	0h
Y1 Unit 11	11.1 Writing ratios	1h
Y1 Unit 11	11.2 Using ratios 1 <small>Prereq: Y1 Unit 11 11.1 Writing ratios</small>	1h
Y1 Unit 11	11.3 Ratios and measures <small>Prereq: Y1 Unit 11 11.2 Using ratios 1</small>	1h
Y1 Unit 11	11.4 Using ratios 2 <small>Prereq: Y1 Unit 11 11.2 Using ratios 1</small>	1h
Y1 Unit 11	11.5 Comparing using ratios <small>Prereq: Y1 Unit 11 11.4 Using ratios 2</small>	1h
Y1 Unit 11	11.6 Using proportion <small>2 Prereqs</small>	1h
Y1 Unit 11	11.7 Proportion and graphs <small>2 Prereqs</small>	1h
Y1 Unit 11	11.8 Proportion problems <small>Prereq: Y1 Unit 11 11.7 Proportion and graphs</small>	1h
Y1 Unit 12	12 Prior knowledge: Right-angled triangles	0h
Y1 Unit 12	12.1 Pythagoras' theorem 1 <small>2 Prereqs</small>	1h
Y1 Unit 12	12.2 Pythagoras' theorem 2 <small>2 Prereqs</small>	1h
Y1 Unit 12	12.3 Trigonometry: the sine ratio 1 <small>3 Prereqs</small>	1h
Y1 Unit 12	12.4 Trigonometry: the sine ratio 2 <small>Prereq: Y1 Unit 12 12.3 Trigonometry: the sine ratio 1</small>	1h
Y1 Unit 12	12.5 Trigonometry: the cosine ratio <small>3 Prereqs</small>	1h
Y1 Unit 12	12.6 Trigonometry: the tangent ratio <small>3 Prereqs</small>	1h
Y1 Unit 12	12.7 Finding lengths and angles using trigonometry <small>3 Prereqs</small>	1h
Revision	Revision	1h
Assessment	End of Unit 11: Ratio and proportion	1h
Assessment	End of Unit 12: Right-angled triangles	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 13	13 Prior knowledge: Probability	0h
Y1 Unit 13	13.1 Calculating probability <small>2 Prereqs</small>	1h
Y1 Unit 13	13.2 Two events <small>Prereq: Y1 Unit 13 13.1 Calculating probability</small>	1h
Y1 Unit 13	13.3 Experimental probability <small>2 Prereqs</small>	1h
Y1 Unit 13	13.4 Venn diagrams <small>Prereq: Y1 Unit 13 13.1 Calculating probability</small>	1h
Y1 Unit 13	13.5 Tree diagrams <small>Prereq: Y1 Unit 13 13.2 Two events</small>	1h
Y1 Unit 13	13.6 More tree diagrams <small>Prereq: Y1 Unit 13 13.5 Tree diagrams</small>	1h
Revision	Revision	1h
Assessment	End of Unit 13: Probability	1h
Y1 Unit 13	13 Check up, Strengthen and Extend	1h

Year 11

Foundation

Autumn Half Term 1

Term 4		67h
Y1 Unit 14	14.1 Percentages Prereq: Y1 Unit 4 4.8 Calculating percentages 2	1h
Y1 Unit 14	14.2 Growth and decay Prereq: Y1 Unit 4 4.8 Calculating percentages 2	2h
Y1 Unit 14	14.3 Compound measures 2 Prereqs	1h
Y1 Unit 14	14.4 Distance, speed and time 3 Prereqs	1h
Y1 Unit 14	14.5 Direct and inverse proportion 2 Prereqs	2h
Y1 Unit 15	15.1 3D solids	1h
Y1 Unit 15	15.2 Plans and elevations	1h
Y1 Unit 15	15.3 Accurate drawings 1 Prereq: Y1 Unit 6 6.1 Properties of shapes	1h
Y1 Unit 15	15.4 Scale drawings and maps Prereq: Y1 Unit 11 11.3 Ratios and measures	1h
Y1 Unit 15	15.5 Accurate drawings 2 3 Prereqs	1h
Y1 Unit 15	15.6 Constructions	1h
Y1 Unit 15	15.7 Loci and regions 2 Prereqs	1h
Y1 Unit 15	15.8 Bearings 2 Prereqs	2h
Revision	Revision	1h
Assessment	End of Unit 14: Multiplicative reasoning	1h
Assessment	End of Unit 15: Constructions, loci and bearings	1h
Y1 Unit 14	14 Check up, Strengthen and Extend	0.5h
Y1 Unit 15	15 Check up, Strengthen and Extend	0.5h
Y2 Unit 16	16 Prior knowledge: Quadratic equations and graphs	0h
Y2 Unit 16	16.1 Expanding double brackets Prereq: Y1 Unit 2 2.5 Expanding brackets	1h
Y2 Unit 16	16.2 Plotting quadratic graphs 4 Prereqs	1h
Y2 Unit 16	16.3 Using quadratic graphs Prereq: Y2 Unit 16 16.2 Plotting quadratic graphs	1h
Y2 Unit 16	16.4 Factorising quadratic expressions 2 Prereqs	2h
Y2 Unit 16	16.5 Solving quadratic equations algebraically 2 Prereqs	1h

Autumn Half Term 2

Y2 Unit 17	17 Prior knowledge: Perimeter, area and volume 2	0h
Y2 Unit 17	17.1 Circumference of a circle 1 3 Prereqs	1h
Y2 Unit 17	17.2 Circumference of a circle 2 2 Prereqs	1h
Y2 Unit 17	17.3 Area of a circle Prereq: Y2 Unit 17 17.2 Circumference of a circle 2	1h
Y2 Unit 17	17.4 Semicircles and sectors 2 Prereqs	2h
Y2 Unit 17	17.5 Composite 2D shapes and cylinders 5 Prereqs	2h
Y2 Unit 17	17.6 Pyramids and cones 2 Prereqs	2h
Y2 Unit 17	17.7 Spheres and composite solids Prereq: Y2 Unit 17 17.6 Pyramids and cones	2h
Revision	Revision	1h
Assessment	End of Unit 16: Quadratic equations and graphs	1h
Assessment	End of Unit 17: Perimeter, area and volume 2	1h
Y2 Unit 16	16 Check up, Strengthen and Extend	0.5h
Y2 Unit 17	17 Check up, Strengthen and Extend	0.5h
Y2 Unit 18	18 Prior knowledge: Fractions, indices and standard form	0h
Y2 Unit 18	18.1 Multiplying and dividing fractions Prereq: Y1 Unit 4 4.4 Dividing fractions	1h
Y2 Unit 18	18.2 The laws of indices 2 Prereqs	1h
Y2 Unit 18	18.3 Writing large numbers in standard form 2 Prereqs	1h
Y2 Unit 18	18.4 Writing small numbers in standard form Prereq: Y2 Unit 18 18.3 Writing large numbers in standard form	1h
Y2 Unit 18	18.5 Calculating with standard form Prereq: Y2 Unit 18 18.4 Writing small numbers in standard form	2h

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.

Y2 Unit 19	19 Prior knowledge: Congruence, similarity and vectors	0h
Y2 Unit 19	19.1 Similarity and enlargement 2 Prereqs	1h
Y2 Unit 19	19.2 More similarity 4 Prereqs	1h
Y2 Unit 19	19.3 Using similarity Prereq: Y2 Unit 19 19.2 More similarity	1h
Y2 Unit 19	19.4 Congruence 1 3 Prereqs	1h
Y2 Unit 19	19.5 Congruence 2 2 Prereqs	1h
Y2 Unit 19	19.6 Vectors 1 Prereq: Y1 Unit 10 10.1 Translation	1h
Y2 Unit 19	19.7 Vectors 2 Prereq: Y2 Unit 19 19.6 Vectors 1	1h
Revision	Revision	1h
Assessment	End of Unit 18: Fractions, indices and standard form	1h
Assessment	End of Unit 19: Congruence, similarity and vectors	1h
Y2 Unit 18	18 Check up, Strengthen and Extend	0.5h
Y2 Unit 19	19 Check up, Strengthen and Extend	0.5h
Y2 Unit 20	20 Prior knowledge: More algebra	0h
Y2 Unit 20	20.1 Graphs of cubic and reciprocal functions Prereq: Y2 Unit 16 16.3 Using quadratic graphs	1h
Y2 Unit 20	20.2 Non-linear graphs 2 Prereqs	1h
Y2 Unit 20	20.3 Solving simultaneous equations graphically 2 Prereqs	1h
Y2 Unit 20	20.4 Solving simultaneous equations algebraically 2 Prereqs	2h
Y2 Unit 20	20.5 Rearranging formulae Prereq: Y1 Unit 5 5.6 Using formulae	1h
Y2 Unit 20	20.6 Proof 4 Prereqs	1h
Assessment	End of Unit 20: More algebra	1h
Y2 Unit 20	20 Check up, Strengthen and Extend	1h

End SOW approx. early March.