IWEF Maths Curriculum Map

Week		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
		Autumn 1							**Autumn 2**							**Spring 3**						**Spring 4**						**Summer 5**					**Summer 6**							
YEAR 7	EME	**Number** Place Value					**Number** Addition & Subtraction		**Measure** Length & Perimeter		**Number** Multiplication & Division					**Number** Multiplication & Division			**Measure** Area		**Number** Fractions					**Number** Decimals					**Number** Decimals	**Measure** Money		**Measure** Time	**Stats**	**Geometry** Properties of shape		**Geometry** Position & Direction			**Consolidation**
	MAIN	**Algebraic Thinking** • Sequences • Understanding & use notation • Equality and Equivalence							**Place Value & Proportion** • Ordering integers & decimals • FDP Equivalence							**Applications of Number** • Solving problems with addition & subtraction • Solving problems with multiplication & division • Fractions and Percentages						**Directed Number** Four operations with directed number					**Fractional Thinking** Addition and subtraction of fractions					**Lines and Angles** • Constructing, measuring and using geometric notation • Developing geometric reasoning					**Reasoning with Number** • Developing number sense • Sets and probability • Prime numbers and proof						
YEAR 8	EME	**Number** Place value			**Number** Addition & subtraction		**Statistics**		**Number** Multiplication & Division			**Measure** Perimeter & Area				**Number** Multiplication & Division			**Number** Fractions							**Number** Decimals & Percentages					**Number** Decimals		**Geometry** Properties of shape			**Geometry** Position & direction		**Measure** Converting		**Measure** Volume		**Consolidation**
	MAIN	**Proportional Reasoning** • Ratio and scale • Multiplicative change • Multiply/Divide fractions							**Representation** • Working in the Cartesian plane • Representing Data • Tables & Probability							**Algebraic Techniques** • Brackets, equations & inequalities • Sequences • Indices						**Developing Number** • Fractions & Percentages • Standard index form • Number sense							**Developing Geometry** • Angles in parallel lines & polygons • Area of trapezia & circles • Line of symmetry					**Reasoning with Data** • The data handling cycle • Measures of location						
YEAR 9	EME	**Number** Place value			**Number** Four operations				**Number** Fractions			**Geometry** Position and direction				**Number** Decimals			**Number** Percentages			**Number** Algebra				**Measure** Converting Unit					**Measure** Perimeter Area Volume					**Number** Ratio					**Measure** Properties Shape					**Problem Solving**		**Statistics**		**Investigation/ Consolidation**
	MAIN	**Reasoning with Algebra** • Straight line graphs • Forming and solving Eqns • Testing conjectures							**Constructing in 2&3 Dimensions** • **Construction** • **Congruency**							**Reasoning with number** • Numbers • Using percentages • Maths and money						**Reasoning with Geometry** • Deduction • Rotation and translation • Pythaoras` Theorem							**Reasoning with Proportion** • Enlargement and similarity • Solving ratio & proportion problems • Rates					**Representation** • Probability • Algebraic						
YEAR 10	MAIN	**Similarity** • Congruence, similarity and enlargement • Trigonometry							**Developing Algebra** • Representing solutions of eqns and inequalities • Simultaneous equations							**Geometry** • Angles and bearings • Working with circles • Vectors						**Proportions and Proportional Change** • Ratios and fractions • Percentages & Interest • Probability							**Delving into Data** • Collecting, representing & interpreting data					**Using Number** • Non-calculator methods • Types of number and sequences • Indices and Roots						

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
	Autumn 1							**Autumn 2**							**Spring 3**						**Spring 4**					
YEAR 11	**Graphs:** Gradients and Lines		**Graphs:** Non-Linear Graphs		**Graphs:** Real Life Graphs		**Algebra:** Expanding and Factorising		**Algebra:** Changing the Subject		**Algebra:** Functions		**Reasoning:** Multiplicative Reasoning		**Reasoning:** Geometric Reasoning		**Reasoning:** Algebraic Reasoning		**Revision and Communication:** Transforming and Construction		**Revision and Communication:** Listing and Describing		**Revision and Communication:** Show That		**Revision and Examinations**	

IWEF Maths Curriculum Map

	NC STATEMENT *Key Knowledge*	SOME KEY STRANDS **This is an example of where these skills are utilised and developed.* *Five Year Curriculum Map*	SOME KEY BLOCKS *The SOW is cyclical in nature so all topics link to prior learning. *Five Year Curriculum Map*	SOME KEY WORDS *Not an exhaustive list *Complete List of Key Words*
DEVELOPING FLUENCY KS3	Consolidate numerical/mathematical capability from KS2 and extend their understanding of the number system and place value to include decimals, fractions, powers and roots.	• Number: Understand and represent number • Number: Calculations • Number: Understand fractions and decimals	• Y7 Autumn 4 to 5 - Place Value and Proportion • Y8 Spring 4 to 6 - Developing Number • Y9 Spring 1 to 3 - Reasoning with number	Scale Significant figure Compare Percentages Decimal
	Select and use appropriate calculations strategies to solve increasingly complex problems.	• Number: Calculations	• Y7 Spring 1 to 3 - Application of Number • Y8 Spring 4 to 6 - Developing Number • Y9 Spring 1 to 3 - Reasoning with Algebra	Square root Standard form Sequences
	Use algebra to generalise the structure of arithmetic, including to formulate mathematical relationships.	• Algebra: Understand Notation and Substitute	• Y7 Autumn 1 to 3 - Algebraic thinking • Y8 Spring 1 to 3 - Algebraic techniques • Y9 Autumn1 to 3 - Reasoning with Algebra	Forming Equations Solving Equations Conjecture
	Substitute values in expressions, rearrange and simplify expressions and solve equations.	• Algebra: Understand Notation and Substitute • Algebra: Equivalence and Proof • Algebra: Solve equations	• Y7 Autumn 1 to 3 - Algebraic thinking • Y8 Spring 1 to 3 - Algebraic techniques • Y9 Autumn1 to 3 - Reasoning with Algebra	Expressions Rearranging Proof
	Move freely between different numerical, algebraic, graphical and diagrammatic representations.	• Number: Fractions and Decimals • Algebra: Linear Graphs • Algebra: Non-linear Graphs	• Y7 Spring 5 - Fractional Thinking • Y8 Autumn 4 to 6 - Representations • Y9 Autumn 1 to 3 - Reasoning with Algebra	Denominator Linear Quadratic Substitution
	Develop algebraic and graphical fluency, including understanding linear and simple quadratic functions.	• Algebra: Linear Graphs • Algebra: Non-linear Graphs	• Y7 Autumn 1 to 3 - Algebraic thinking • Y8 Autumn 4 - Working with the Cartesian plane • Y9 Autumn 1 to 3 - Reasoning with Algebra	Inverse Midpoint Gradient Parallel Perpendicular
	Use language and properties precisely to analyse numbers, algebraic expressions, 2D and 3D shapes, probability, and statistics.	• Number: Understand and represent number • Algebra: Understand Notation and Substitute • Geometry and Measures: Shape and properties • Probability • Statistics: Represent and Interpret data	• Y7 Spring 4 to 6 - Reasoning with Number • Y8 Spring 4 to 5 - Reasoning with Data • Y9 Spring 5 - Probability	Indices Equivalence Negative Mixed Number Relative Frequency

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REASON MATHEMATICALLY - KS3	Extend their understanding of the number system; make connections between number relationships, make their algebraic and graphical representations.	• Number: Understand and represent number • Algebra: Understanding Notation and Substitute • Algebra: Linear graphs • Algebra: Non-linear graphs	• Y7 Autumn 4 to 5 - Place Value and Proportion • Y7 Autumn 1 to 3 - Algebraic thinking • Y8 Autumn 4 - Working with Cartesian plane • Y9 Autumn 1 to 3 - Reasoning with Algebra	Integer Scale Coordinate X/Y axis
	Extend and formalise their knowledge of ratio and proportion in working with measure and geometry and in formulating proportional relationships algebraically.	• Ratio, Proportion, rates of change: Multiplicative reasoning • Geometry and Measures: Construct and transform geometric figures	• Y8 Autumn 1 to 2 - Proportional reasoning • Y9 Summer 1 to 3 - Reasoning with proportion	Proportion Multiplier Ratio Enlarge
	Identify variables and express relations between variables algebraically and graphically.	• Algebra: Solve equations and inequalities • Algebra: Linear graphs • Algebra: Non-linear graphs • Algebra: Sequences	• Y7 Autumn 1 to 3 - Algebraic thinking • Y8 Spring 1-3 - Algebraic techniques • Y9 Autumn 1 to 3 - Reasoning with Algebra	Equation Expression Term
	Make and test conjectures about patterns and relationships; look for proofs or counter examples	• Algebra: Equivalence and proof • Algebra: Sequences	• Y7 Spring 4 to 6 - Reasoning with Number • Y8 Summer 1 - Angles in parallel lines and polygons • Y9 Autumn 1 to 3 - Reasoning with Algebra	Sum Product Evaluate
	Begin to reason deductively in geometry, numbers and algebra, including using geometrical constructions.	• Geometry and Measures: Construct and Transform geometric figures • Geometry and Measures: Shape properties • Geometry: Geometrical proof	• Y7 Summer 2 - Geometric reasoning • Y8 Summer 1 to 3 - Developing Geometry • Y9 Spring 4 to 6 - Reasoning with Geometry	Angles Proof Parallel Corresponding Alternate
	Interpret when the structure of a numerical problem requires additive, multiplicative or proportional reasoning.	• Number: Calculations • Ratio, Proportion, rates of change: Multiplication relationships • Ratio, Proportion, rates of change: Ratio and rates	• Y7 Spring 1 to 3 - Application of Number • Y8 Autumn 1 to 3 - Proportional reasoning • Y9 Summer 1 to 3 - Reasoning with Proportion	Percentage Compound Interest Depreciation
	Explore what can and cannot be inferred in statistical settings, and begin to express their arguments formally.	• Statistics: Represent and Interpret data • Statistics: Statistical Measures • Probability	• Y7 Summer 4 - Sets and Probability • Y8 Autumn 5 - Representing Data • Y8 Summer 4 to 5 - Reasoning with Data • Y9 Summer 6 - Revision	Venn Union Intersection Prime Scatter graph Mean Median Mode

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SOLVE PROBLEMS KS3	Develop their mathematical knowledge, in part through solving problems and evaluating the outcomes, including multi-step problems	• Number: Calculations • Number: Percentages • Algebra: Solve equations and Inequalities • Geometry and Measures: Perimeter, are and Volume • Geometry and Measures: Angles	• Y7 Spring 1 to 3 - Application of Number • Y7 Spring 4 - Direct Number • Y7 Summer 2 - Geometric Reason • Y8 Summer 4 to 6 - Developing Number • Y9 Spring 4 to 6 - Reasoning with Geometry	Negative Sum Product Evaluate Angle sum
	Develop their use of formal mathematical knowledge to interpret and solve problems, including in financial mathematical	• Number: Calculations • Number: Percentages • Geometry: Geometrical Proof • Algebra: Equivalence and Proof • Probability	• Y7 Spring 1 to 3 - Application of Number • Y7 Summer 2 - Geometric Reasoning • Y8 Summer 4 to 6 - Developing Number • Y9 Spring 1 to 3 - Reasoning with Number	Evaluate Divide
	Begin to model situations mathematically and express the results using a range of formal mathematical representations	• Algebra:Solve equations and inequalities • Ratio, Proportion, rates of change: Multiplicative relationships • Ratio, Proportion, rates of change: Ratio and rates • Algebra: Linear Graphs • Algebra: Non-Linear Graphs	• Y7 Autumn 1 to 3 - Algebraic thinking • Y8 Spring 1-3 - Proportional Reasoning • Y8 Spring 1-3 - Algebraic Techniques • Y9 Summer 1 to 3 - Reasoning with Algebra • Y9 Summer 5 - Algebraic Representation	Non-Linear Ascending Descending Bar model Bracket
	Select appropriate concepts, methods, and techniques to apply to unfamiliar and non-routine problems; interpret their solution in the context of the given problem.	• Number: Calculations • Number: Percentages • Algebra: Solve equations and Inequalities • Statistics: Represent and Interpret data • Statistics: Statistical Measures • Statistics: Bivariate Data	• Y7 Spring 1 to 3 - Application of Number • Y7 Spring 4 to 6 - Reasoning with number • Y8 Summer 4 to 6 - Developing Number • Y8 Summer 4 to 6 - Reasoning Data • Y9 Summer 1 to 3 - Reasoning with proportion	Evaluate Add Subtract Decimal Place value Averages

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DEVELOPING FLUENCY KS4	Consolidate numerical/mathematical capability from KS3 and extend their understanding of the number system to include powers and roots. **(and Fractional indices)**	• Number: Understand and represent • Number: Calculations • Number: Percentages • Understand fractions and decimals	• Y10 Summer 2 to 4 - Using Number • Y11 Summer 1 - Revision	Percentage Original Annual
	Select and use appropriate calculations strategies to solve increasingly complex problems, including exact calculations involving multiples of π **(and surds),** use of standard form and application and interpretation of limits of accuracy	• Number: Understand and represent number • Number: Calculations • Number: Percentages • Geometry and Measures: Perimeter, area, number and volume • Geometry and Measures: Pythagoras and Trigonometry	• Y10 Autumn 2 - Trigonometry • Y10 Spring 2 - Working with Circles • Y10 Summer 2 to 4 - Using Number • Y11 Spring 1 - Multiplicative Reasoning • Y11 Summer 1 - Revision	Sine/Cosine/Tangent Radius Diameter Proportion Scale
	Consolidate their algebraic capability from KS3, and extend their understanding of algebraic simplification and manipulation to include quadratic expressions, **(and expressions involving surds and algebraic fractions)**	• Algebra: Understand notation and substitute • Algebra: Equivalence and Proof • Number: Percentages • Algebra: Linear Graphs • Algebra: Non-linear Graphs •	• Y10 Autumn 3 and 4 - Developing Algebra • Y11 Autumn 3 to 5 - Algebra • Y11 Spring 3 - Algebraic Reasoning	Sequence Simplify Solve Proof
	Extend fluency with expressions and equations from KS3, to include quadratic and simultaneous equations and inequalities	• Algebra: Equivalence and Proof • Algebra: Solve equations and Inequalities	• Y10 Autumn 3 and 4 - Developing Algebra • Y11 Autumn 3 to 5 - Algebra • Y11 Spring 3 - Algebraic Reasoning	Substitute Expression Equation Linear
	Move freely between different numerical, algebraic, graphical and diagrammatic representations, including of linear, quadratic, reciprocal **(exponential and trigonometric)** functions.	• Algebra: Linear Graphs • Algebra: Non-Linear Graphs • Geometry and Measures: Pythagoras and Trigonometry •	• Y10 Autumn 3 and 4 - Developing Algebra • Y11 Autumn 1 to 3 Graphs	Quadratic Cubic Inverse Plot
	Use mathematical language and properties precisely.	• Geometry and Measures: Shape properties • Geometry and Measures: Pythagoras and Trigonometry • Statistics:Represent and Interpret Data	• Y10 Spring 1 to 3 - Geometry • Y10 Summer 1 - Delving into Data • Y11 4 to 6 - Revision and Communication	Theorem Isosceles Averages

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REASON MATHEMATICALLY KS4	Extend and formalise their knowledge of ratio and proportion, including trigonometric ratios, in working with measures and geometry, and in working with proportional relations algebraically and graphically.	• Ratio, proportion, rates of change: Multiplicative Relationships • Geometry and Measures: Pythagorus and trigonometry • Algebra: Linear Graphs	• Y10 Autumn 2 - • Y10 Spring 4 to 6 - Proportions and Proportional Change • Y11 Spring 1 to 3 - Reasoning	Ratio Right-angle Direct Proportion Inverse Proportion
	Extend their ability to identify variable and express relations between variables algebraically and graphically.	• Algebra: Solve equations and Inequalities • Algebra: Linear Graphs • Algebra: Non-Linear Graphs • Algebra: Sequences	• Y10 Autumn 3 and 4 - Developing Algebra • Y11 Autumn 3 to 5 - Algebra • Y11 Spring 3 - Algebraic Reasoning	Inequality Expression Prove Deduce
	Make and test conjectures about the generalisation that underlie patterns and relationship; look for proofs or counter-examples; begin to use algebra to support and construct arguments **(and proof)**	• Algebra: Sequences • Algebra: Equivalence and Proof	• Y10 Autumn 3 and 4 - Developing Algebra • Y11 Spring 1 to 3 - Reasoning • Y11 Spring 6 - Show that...	Simultaneous Prove Identify
	Reason deductively in geometry, number and algebra, including using geometrical constructions	• Geometry and Measures: Construct and Transform Geometric Figures • Geometry: Geometrical proof • Algebra: Equivalence and Proof	• Y10 Spring 1 to 3 - Geometry • Y11 Spring 1 to 3 - Reasoning • Y11 Spring 4 - Transforming and constructing • Y11 Spring 6 - Show that...	Enlarge Reflection Rotation Translation
	Interpret when the structure of a numerical problem requires additive, multiplicative or proportional reasoning	• Number: Calculations • Ratio, Proportion, Rates of Change: Multiplicative Relationships • Ratio, Proportion and Rates of Change: Ratio and Rates	• Y10 Spring 4 to 6 - Proportions and Proportional • Y10 Summer 2 Using Number • Y11 Spring 5 - Reasoning	Vector Ratio Equivalent
	Explore what can and cannot be inferred in statistical and probabilistic settings and express their arguments formally.	• Statistics: Represent and Interpret Data • Statistics: Statistical Measure • Probability	• Y10 Summer 1 - Delving into Data • Y11 Spring 5 - Listing and describing	Histogram Frequency Polygon Two way Table
	Access the validity of an argument and the accuracy of a given way of representing information	• Statistics: Represent and Interpret Data • Statistics: Statistical Measures • Geometry: Geometrical Proof • Algebra: Equivalence	• Y10 Summer 1 - Delving in Data • Y11 Spring 1 to 3 - Reasoning • Y11 Spring 5 - Listing and Describing	Time-Series Graph Upper Quartile Lower Quartile Interquartile Range

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SOLVE PROBLEMS - KS4	Develop their mathematical knowledge, in part through solving problems and ex=valuating the outcomes, including multi-step problems.	• Number: Calculations • Number: Percentages • Algera: Solve Equations and Inequalities • Geometrical and Measures: Perimeter, Area and Volume • Geometrical and Measures: Angles	• Y10 Autumn 3 and 4 - Developing Algebra • Y10 Spring 4 to 6 - Proportions and Proportional Change • Y10 Summer 2 to 4 - Using Number • Y11 Autumn 4 to 6 - Algebra • Y11 Spring 1 to 3 - Reasoning	Solve Region Multiplier Reverse Percentage Profit Loss
	Develop their use of formal mathematical knowledge to interpret and solve problems, including in financial contexts.	• Number: Calculations • Number: Percentages • Geometry: Geometrical Proof • Algebra: Equivalence and Proof • Probability	• Y10 Spring 4 to 6 - Proportions and proportional Change • Y10 Summer 2 to 4 - Summer 2 to 4 • Y11 Autumns 1 to 3 - Graphs • Y11 Spring 1 to 3 - Reasoning	Depreciation Approximate Reciprocal Cubic
	Make and use connections between different parts of mathematics to solve problems	• Number: Calculations • Number: Percentages • Algebra: Solve Equations and Inequalities • Ratio, Proportion, Rates of Change: Multiplicative Relationships	• Y10 Spring 4 to 6 - Proportions and proportional Change • Y10 Summer 2 to 4 - Using Number • Y11 Spring 1 to 3 - Reasoning • Y11 Spring 4 to 6 - Revision and Communication	Indices Integer Prime Product
	Model situations mathematically and express the results using a range of formal mathematical representations, reflecting on how they use their solutions may have been affected by any modelling assumptions	• Algebra: Solve Equations and Inequalities • Ratio, Proportion, Rates of Change: Multiplicative Relationships • Ratio, Proportion, Rates of Change: Ratio and Rates • Algebra: Linear Graphs • Algebra: Non-Linear Graphs	• Y10 Autumns 3 and 4 - Developing Algebra • Y10 Spring 4 to 6 - Proportions and Proportional change • Y11 Autumns 1 to 3 - Graphs • Y11 Spring 1 to 3 - Reasoning	Rational Irrational Recurring
	Select appropriate concepts, methods and techniques to apply unfamiliar and non-routine problems, and interpret their solution in the context of the given problem.	• Numer: Calculations • Number: Percentages • Algebra: Solve Equations and Inequalities • Probability • Statistics: Represent and Interpret Data • Statistics: Statistical Measures • Statistics: Bivariate Data	• Y10 Autumns 3 and 4 - Developing Algebra • Y10 Spring 4 to 6 - Proportions and Proportional • Y10 Summer 2 to 4 - Using Number • Y10 Summer 1 - Delving into data • Y11 Spring 4 to 6 Revision and Communication • Y11 Summer 1 - Revision	Simplify Multiply DivideScale Factor

IWEF Maths Curriculum Map

Cultural Capital

‘The essential knowledge that pupils need to be educated citizens, introducing them to the best that has been thought and said and helping to engender an appreciation of human creativity and achievement’.

We do not learn maths because it can be applied to other subjects. We learn it because it exists, because there is beauty in pattern and number, and because it is the language that describes our work. The history of mathematics is explored which demonstrates the universal nature of the subject and the notion that different cultures have, at different times, been at the forefront of development in the subject. Pupils learn about famous mathematicians, such as Pythagorus and Fibonacci, along with the theories or rules they are famous for.

Number:

- Use of fractions, decimals and percentages in contexts relation to money and the economy contributing to knowledge and understanding of financial matters eg compound interest and depreciations, tax, deposits and mortgages profit and loss.
- When teaching standard form, pupils’ attention is drawn to the wonders of the solar system and the wider universe by using examples based around the speed of light and vast distances in the space as well as the minute size involved in cellular biology.
- Percentages and figures are used to consider how the world looks through different eyes eg looking at gender, religion and other census data.

Ratio and Proportion:

- Exchange rates linking to international travel.
- Recipes and how to scale up/down to cater for different situations.
- Value for money topic empower students to make informed decisions when spending money.
- Linking real life graphs e.g. conversion graphs for temperature, currencies, units of measure thus providing links to history and other cultures.

Algebra:

- Sequences in nature
- Linking curved graphs to theme parks and civil architecture.
- Linking linear graphs to real - life situations such as choosing the most cost effective mobile phone deal.

Data Handling:

- Through representing and analysing data students begin to think critically about information that is presented to them as well as being exposed to situation where data may be misleading and biased.
- Enables them to make informed decisions as they make their way into the world.

Geometry:

- Pythagoras and how it relates to buildings and architecture
- Bearings relates to international and domestic travel.
- Tessellation, reflections and rotation and their uses in art and architecture in different cultures.

Measure:

- Speed, distance and time and mass, density and volume problems make strong links with Science and help pupils understand mathematics as the language of science.
- Scale drawings link to real life area and perimeter problem solving.
- Map reading and scale in relation to the natural and physical environment that we live in.