KS3 Specification 2017/18
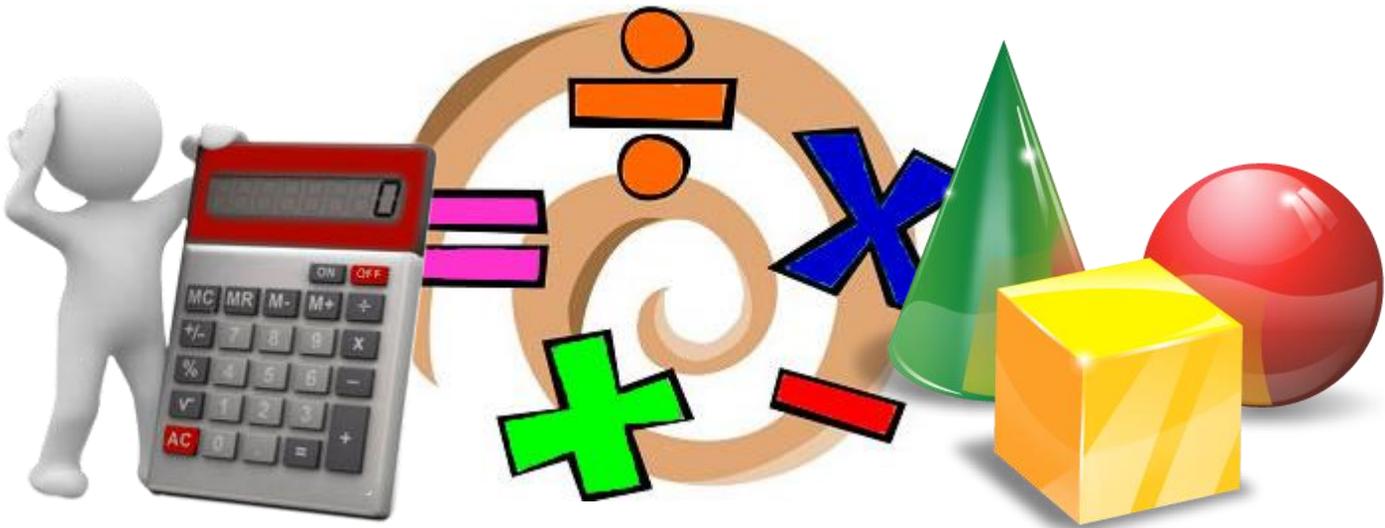
MATHEMATICS

Dean Trust Wigan

Summary of KS3 Subject Content

- ❖ Topic 1: Analysing and displaying data

- ❖ Topic 2: Number skills

- ❖ Topic 3: Expressions, functions and formulae

- ❖ Topic 4: Decimals and measures

- ❖ Topic 5: Fractions

- ❖ Topic 6: Probability

- ❖ Topic 7: Ratio and proportion

- ❖ Topic 8: Lines and angles

- ❖ Topic 9: Sequences and graphs

- ❖ Topic 10: Transformations

Key Stage 3 Scheme of Assessment

Year 7 Formal Assessment

1. Numerical age
2. Unit tests
3. Half term tests
4. End of term tests
5. End of year test

Year 8 Formal Assessment

1. Numerical age
2. Baseline test
3. Unit tests
4. Half term tests
5. End of term test
6. End of year test

Year 9 Formal Assessment

1. End of unit tests
2. Unit tests
3. Half term tests
4. End of term tests
5. End of year test

Band Descriptors

Year 7 Data	Band 1	Band 2	Band 3	Band 4
	Understand the language of probabilities and know they add up to 1	Writing probabilities as numbers	Probabilities as decimals	Set up two ways tables and calculate probabilities. Expected probability
		Calculate averages & range from a list	Compare 2 sets of data	Find mean, median & modal class from an ungrouped table
		Draw and interpret scatter graphs and relationships and use lines of best fit	Stem & leaf diagrams Frequency Polygons Interpret and construct pie charts	

Year 7 Geometry	Band 1	Band 2	Band 3	Band 4
	Angles on lines, points, triangles & quadrilaterals. Use maths equipment correctly.	Alternate, corresponding and co-interior angles on parallel lines	Use and apply bearings	Construct triangles and bisect angles and lines. Interior and exterior angles of Polygons
			Recalling imperial/metric conversion	Compound Measures – SDT, DMV, PMA.
	Area and perimeter of rectangles and triangles. Name 2D and 3D shapes and solids and recall facts	Area of parallelogram & trapezium and simple compound shapes	Circumference and area of a circle inc. in terms of π	Volume of Prisms
				Use Pythagoras' Theorem .
			Perform all transformations	Addition, subtraction and multiply of vectors. Describe all Transformations

Band Descriptors

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	Band 1	Band 2	Band 3	Band 4
Year 7 Number	Place value. Use all four operations. Understand/use negative numbers. Understand time and read timetables. Recall Timetables	Multiply and divide decimals . BIDMAS	Calculate prime factors of numbers. Round & estimate a calculation using significant figures inc. use of ≈	Find the LCM and HCF any two or more numbers, using prime factors inc use of Venn diagrams and other method. Find the reciprocal of a number and use index laws
	Finding a percentage of a quantity	Increase and decrease an amount by a percentage	Use multiplier method. Calculate the percentage increase and decrease. Express one quantity as a percentage of another	Work out reverse percentage problems. Percentage change
	Calculate fractions of amounts Simplify fractions and recognise equivalent fractions	Add, subtract, multiply and divide fractions (with same denominators)	Add, subtract, multiply and divide fractions (with different denominators)	Addition, subtraction, multiplication and division of fractions inc mixed numbers. Solve problems with fractions inc. multiple operations including BIDMAS
	Understand money and solve problems	Convert between fractions and decimals. Recall basic FDP facts.	Recipe and proportion problems	Share a quantity in a ratio and work backwards to solve problems

	Band 1	Band 2	Band 3	Band 4
Year 7 Algebra	Expand single brackets	Factorise by taking out common factors. Expand brackets with letter outside	Factorise by taking out a group of terms and expand single and double brackets	Factorise expressions of the form $x^2 + bx + c$
	Collect like terms	Simplify expressions by collecting like terms Multiply & divide inc indices	Solving equations by balancing (or other method): with brackets, letters both sides	Solve Linear and more complex Inequalities . Solve equations with fractional terms.
	Substitute positive numbers into expression Plot and read Coordinates	Substitute both negative and positive into expressions including index notation	Find & use nth term of linear sequence Draw $y = a$ and $x = b$ graphs and recognise $y = x$ and $y = -x$	Draw a linear graphs

Band Descriptors

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	Band 1	Band 2	Band 3	Band 4
Year 8 Data	Writing probabilities as numbers	Probabilities as decimals	Set up two ways tables and calculate probabilities. Expected probability	Use of Venn diagrams to find probability inc. set notation Union & intersection notation
	Calculate averages & range from a list	Compare 2 sets of data	Find mean, median & modal class from an ungrouped table	Find mean, median & modal class from a grouped table
	Draw and interpret scatter graphs and relationships and use lines of best fit	Stem & leaf diagrams Frequency Polygons Interpret and construct pie charts		Draw cumulative frequency curves and boxplots

	Band 1	Band 2	Band 3	Band 4
Year 8 Geometry	Alternate, corresponding and co-interior angles on parallel lines	Use and apply bearings	Construct triangles and bisect angles and lines. Interior and exterior angles of Polygons	Loci and finding regions
		Recalling imperial/metric conversions	Compound Measures – SDT, DMV, PMA.	Draw And interpret distance- time graph
	Area of parallelogram & trapezium and simple compound shapes	Circumference and area of a circle inc. in terms of π	Volume of Prisms	Surface area of prisms . Arc length and sector area inc. in terms of π. Conversions between cm/cm^2/cm^3
			Use Pythagoras' Theorem .	Find lengths and angles using trigonometric ratios.
		Perform all transformations	Addition, subtraction and multiply of vectors. Describe all transformations	Similar polygons - effect of enlargement on perimeter, area and volume identify and prove congruence.

Band Descriptors

	Band 1	Band 2	Band 3	Band 4
Year 8 Number	Multiply and divide decimals . BIDMAS	Calculate prime factors of numbers. Round & estimate a calculation using significant figures inc. use of ≈	Find the LCM and HCF any two or more numbers, using prime factors inc use of Venn diagrams and other method. Find the reciprocal of a number and use index laws	Standard index form - large and small numbers Calculate in standard form
	Increase and decrease an amount by a percentage	Use multiplier method. Calculate the percentage increase and decrease. Express one quantity as a percentage of another	Work out reverse percentage problems. Percentage change	Compound interest and depreciation
	Add, subtract, multiply and divide fractions (with same denominators)	Add, subtract, multiply and divide fractions (with different denominators)	Addition, subtraction, multiplication and division of fractions inc mixed numbers. Solve problems with fractions inc. multiple operations including BIDMAS	Reverse fractions of amounts
	Convert between fractions and decimals. Recall basic FDP facts.	Recipe and proportion problems	Share a quantity in a ratio and work backwards to solve problems	Exchange rates problems

|	Band 1	Band 2	Band 3	Band 4
Year 8 Algebra	Factorise by taking out common factors. Expand brackets with letter outside	Factorise by taking out a group of terms and expand single and double brackets	Factorise expressions of the form $x^2 + bx + c$	Expand products of two or more binomials and factorise $ax^2 + bx + c$
	Simplify expressions by collecting like terms Multiply & divide inc indices	Solving equations by balancing (or other method): with brackets, letters both sides	Solve Linear and more complex Inequalities . Solve equations with fractional terms.	Solve simultaneous linear equations (elimination & substitution)
	Substitute both negative and positive into expressions including index notation	Find & use nth term of linear sequence Draw $y = a$ and $x = b$ graphs and recognise $y = x$ and $y = -x$	Draw a linear graphs	Draw quadratic, cubic graphs, reciprocal and exponential graphs

Band Descriptors

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	Band 1	Band 2	Band 3	Band 4
Year 9 Data	Probabilities as decimals	Set up two ways tables and calculate probabilities. Expected probability	Use of Venn diagrams to find probability inc. set notation union & intersection notation	Work out profit using expected probablity
	Compare 2 sets of data	Find mean, median & modal class from an ungrouped table	Find mean, median & modal class from a grouped table	
	Stem & leaf diagrams Frequency Polygons Interpret and construct pie charts		Draw cumulative frequency curves and boxplots	Interpret and deduce information from Cumulative frequency diagrams and box plots

	Band 1	Band 2	Band 3	Band 4
Year 9 Geometry	Use and apply bearings	Construct triangles and bisect angles and lines. Interior and exterior angles of Polygons	Loci and finding regions	Recognise isosceles triangle in circle
	Recalling imperial/metric conversions	Compound Measures - SDT, DMV, PMA.	Draw And interpret distance- time graph	Interpret velocity-time graphs. Calculate area under graph. Gradient as rate of change
	Circumference and area of a circle inc. in terms of π	Volume of Prisms	Surface area of prisms . Arc length and sector area inc. in terms of π. Conversions between $cm/cm^2/cm^3$	Volume and surface area of a cylinder in terms of pi
		Use Pythagoras' Theorem .	Find lengths and angles using trigonometric ratios.	Use Pythagoras theorem & trigonometry in 3D problems
	Perform all transformations	Addition, subtraction and multiply of vectors. Describe all transformations	Similar polygons - effect of enlargement on perimeter, area and volume identify and prove congruence.	Perform & describe enlargement by a fractional & negative scale factor

Band Descriptors

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	Band 1	Band 2	Band 3	Band 4
Year 9 Number	Calculate prime factors of numbers. Round & estimate a calculation using significant figures inc. use of ≈	Find the LCM and HCF any two or more numbers, using prime factors inc use of Venn diagrams and other method. Find the reciprocal of a number and use index laws	Standard index form - large and small numbers Calculate in standard form	Use all fractional and negative indices.
	Use multiplier method. Calculate the percentage increase and decrease. Express one quantity as a percentage of another	Work out reverse percentage problems. Percentage change	Compound interest and depreciation	Recognise the difference between each percentage problem
	Add, subtract, multiply and divide fractions (with different denominators)	Addition, subtraction, multiplication and division of fractions inc mixed numbers.	Reverse fractions of amounts	Convert between fractions and recurring decimals
	Recipe and proportion problems	Share a quantity in a ratio and work backwards to solve problems	Exchange rates problems	Direct proportion (inc square and root etc)

	Band 1	Band 2	Band 3	Band 4
Year 9 Algebra	Factorise by taking out a group of terms and expand single/double brackets	Factorise expressions of the form $x^2 + bx + c$	Expand products of two or more binomials and factorise $ax^2 + bx + c$	Solve quadratics by factorising
	Solving equations with brackets, letters both sides	Solve Linear and more complex Inequalities . Solve equations with fractional terms.	Solve simultaneous linear equations (elimination & substitution)	Rearrange a formula inc simple subject appears twice
	Find & use nth term of linear sequence Draw $y = a$ and $x = b$ graphs and recognise $y = x$ and $y = -x$	Draw a linear graphs	Draw quadratic, cubic graphs, reciprocal and exponential graphs	Use of $y = mx + c$ Find parallel and perpendicular lines. Draw graphs of quadratic and cubic functions & identify roots & turning point. Use graphs to solve equations Circle graphs
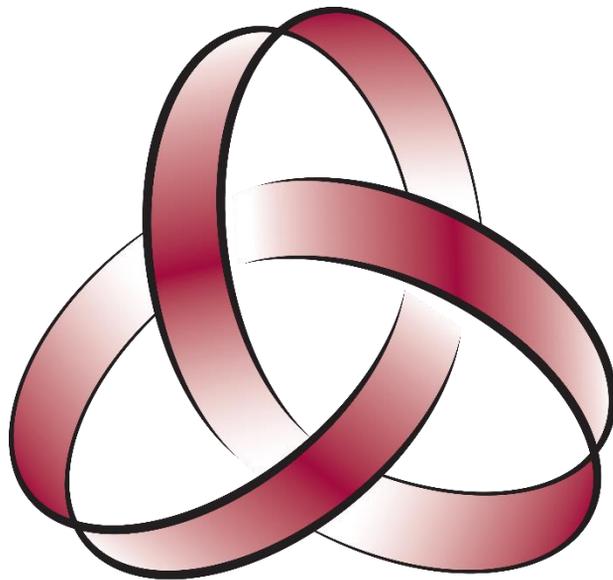
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