



Curriculum Overview for Mathematics Year 10

Half Term 3: Circles (HIGHER)	Modelling reading of questions
	by the class teacher – reading
Declarative Knowledge:	like a Mathematician and BUG
Name and parts of a circle	Two key words at the start of
 Identify the properties of a circle 	each lesson defined
	Expectation of Mathematical
Procedural Knowledge:	Vocabulary used in lessons
Calculate the circumference of a circle	circumference tangent arc
in terms of ni	sector segment midpoint Pi
Calculate the circumference of a circle	exact value, area
Calculate the circulinerence of a circle	
as rounded	
Calculate the area of a circle in terms	End of unit exam completed in
of pi	- <
Calculate the area of a circle as	Eormal exam is completed in the
rounded	Term 2 assessment window.
 Calculate the length of an arc 	including content from this unit
Calculate the area of a sector	and other units studied in Term 1
Identify circle theorems	and Term 2.
Conditional Knowledge:	Recall test completed at the
Solve problems with circumference	midpoint of the unit to ensure
and area of a circle	revision of the unit and to
	identify areas of relearning
	Defore the end of unit exam.
	DI FIOSE Mattis – practising skills
	username and password will be
	provided by the school).
	Exam style questions – practise
	exam questions based on the
	unit and on previous learning,
	which are then marked in lesson.
Half Term 3: Advanced Drawing,	Modelling reading of questions
Measuring and Constructing (HIGHER)	by the class teacher – reading
	like a Mathematician and BUG
Declarative Knowledge:	I wo key words at the start of
	Expectation of Mathematical
Define interior and exterior angles	vocabulary used in lessons
Define parallel lines	Interior, exterior, angle, parallel
Know labelling conventions	bearing, polygon, 2D, 3D.
Due on down I Kin our die die too	measurement, polyhedra, faces,
Procedural Knowledge:	vertex (vertices), sides,





 Measure angles Convert between 2D and 3D units of measurement Construct 3D shape drawings on a square grid Construct 3D shape drawings on an isometric grid Represent 3D shapes in 2D nets Represent 3D shapes in plans and elevations Draw loci constructions from a fixed distance from a point Draw loci constructions from two equidistant points Draw loci constructions from two equidistant lines Conditional Knowledge: Interpret nets of 3D shapes Interpret plans and elevations of 3D shapes Identify planes of symmetry 	End of unit exam completed in lessons at the end of the unit. Formal exam is completed in the Term 2 assessment window, including content from this unit and other units studied in Term 1 and Term 2. Recall test completed at the midpoint of the unit to ensure revision of the unit and to identify areas of relearning before the end of unit exam. Dr Frost Maths – practising skills using DrFrost.org (a unique username and password will be provided by the school). Exam style questions – practise exam questions based on the unit and on previous learning, which are then marked in lesson.
Half Term 3: Continuous Data (HIGHER)	Modelling reading of questions by the class teacher – reading
Declarative Knowledge:	like a Mathematician and BUG
Recall the measures of central	I wo key words at the start of each lesson defined
tendency	Expectation of Mathematical
Procedural Knowledge	vocabulary used in lessons
Calculate the mean from grouped data	Mode, median, mean, range,
 Calculate the median from grouped data Calculate the median from grouped 	Interquartile range, unequal,
data	frequency, cumulative
 Calculate the mode from grouped data 	frequency, boxplot, minimum,
	maximum





- Represent continuous and grouped data in cumulative frequency graphs
- Represent continuous and grouped data in boxplots with unequal class widths
- Calculate the interquartile range
- Represent continuous and grouped data in boxplots with equal class widths

Conditional Knowledge:

- Reason why interquartile range is better than the range
- Compare data sets through graphs
- Compare data sets through central tendency
- Compare data sets through spread

Half Term 4: Set Theory and Logic (HIGHER)

Declarative Knowledge:

• Plan thinking and processes before starting

Procedural Knowledge:

- Represent sets with set notation
- Represent sets with Venn diagrams
- Represent elements of intersections and unions of sets and subsets

Conditional Knowledge:

- Solve probability problems using sets
- Represent solutions to linear inequalities using set notation



End of unit exam completed in lessons at the end of the unit. Formal exam is completed in the Term 2 assessment window, including content from this unit and other units studied in Term 1 and Term 2.

Recall test completed at the midpoint of the unit to ensure revision of the unit and to identify areas of relearning before the end of unit exam. Dr Frost Maths – practising skills using DrFrost.org (a unique username and password will be provided by the school).

Exam style questions – practise exam questions based on the unit and on previous learning, which are then marked in lesson.



Modelling reading of questions by the class teacher – reading like a Mathematician and BUG Two key words at the start of each lesson defined Expectation of Mathematical vocabulary used in lessons



Elements, set, union, intersection, universal set, complement, Venn diagram, set notation, logic, inequality, greater than, less than, equal to



End of unit exam completed in lessons at the end of the unit. Formal exam is completed in the Term 2 assessment window, including content from this unit and other units studied in Term 1 and Term 2.

Recall test completed at the midpoint of the unit to ensure revision of the unit and to identify areas of relearning before the end of unit exam.





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	Dr Frost Maths – practising skills
	using DrFrost.org (a unique
	username and password will be
	provided by the school).
	Exam style questions – practise
	exam questions based on the
	unit and on previous learning,
	which are then marked in lesson.
If Term 4: Number Theory (HIGHER)	Modelling reading of questions
	by the class teacher – reading
	like a Mathematician and BUG
clarative Knowledge:	Two key words at the start of
Define factor	each lesson defined
Define multiple	Expectation of Mathematical
Define prime numbers	vocabulary used in lessons
Define common factors	
Define common multiples	
Define Highest Common Factor	
Define Lewest Common Multiple	
Define Lowest Common Multiple	
Know the prime factor rule for	End of unit exam completed in
identifying terminating decimals	lessons at the end of the unit.
	Formal exam is completed in the
	lerm 2 assessment window,
cedural Knowledge:	including content from this unit
Represent numbers in prime number form	and other units studied in Term 1
Calculate the Highest Common Factor	and renn 2.
using prime numbers	Becall test completed at the
Calculate the Lowest Common	midpoint of the unit to ensure
Multiple using prime numbers	revision of the unit and to
Bepresent error intervals	identify areas of relearning
Convert a recurring decimal into a	before the end of unit exam.
fraction	Dr Frost Maths – practising skills
Calculate with upper and lower	▲ using DrFrost.org (a unique
bounds	username and password will be
Combine upper and lower bounds	provided by the school).
ditional Knowledge:	Exam style questions – practise
Solve problems with Highest Common	exam questions based on the
Factor and Lowest Common Multiple	unit and on previous learning.
Work with advanced prime numbers.	which are then marked in lesson.
including numbers written in	
factorised form	
Calculate percentage error of upper	
and lower bound calculations	





 Half Term 3: Polygons and Angles (CROSSOVER) Declarative Knowledge: Recall the interior angles in a triangle Recall the interior angles in a quadrilateral Recall the sum of interior angles in polygons 	Modelling reading of questions by the class teacher – reading like a Mathematician and BUG Two key words at the start of
 Recall the rule for angles in parallel lines Procedural Knowledge: Set up equations to solve geometric problems Calculate missing angles in triangles Calculate missing angles on a straight line Calculate missing angles in a quadrilateral Measure bearings Conditional Knowledge: Apply the properties of quadrilaterals 	End of unit exam completed in lessons at the end of the unit.Formal exam is completed in the Term 2 assessment window, including content from this unit and other units studied in Term 1 and Term 2.Or Frost Maths – practising skills using DrFrost.org (a unique username and password will be provided by the school).Exam style questions – practise exam questions based on the unit and on previous learning, which are then marked in lesson
Half Term 3: Area (CROSSOVER) Declarative Knowledge: Define and identify parallelograms Define and identify trapezia Define and identify circles	Modelling reading of questions by the class teacher – reading like a Mathematician and BUG Two key words at the start of each lesson defined Expectation of Mathematical vocabulary used in lessonsParallelogram, trapezium (trapezia), circle, circumference,



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 Procedural Knowledge: Calculate the area of a parallelogram Calculate the area of a trapezium Calculate the area of a circle 	compound shape, composite shape
 Conditional Knowledge: Calculate the area of compound shapes Reason and problem solve with area of a parallelogram, trapezium and circles 	End of unit exam completed in lessons at the end of the unit. Formal exam is completed in the Term 2 assessment window, including content from this unit and other units studied in Term 1 and Term 2.
	Dr Frost Maths – practising skills using DrFrost.org (a unique username and password will be provided by the school). Exam style questions – practise exam questions based on the unit and on previous learning, which are then marked in lesson.
Half Term 3: Standard Form (CROSSOVER) Declarative Knowledge: • Multiply and divide by powers of 10 • Recall the law of distributivity	Modelling reading of questions by the class teacher – reading like a Mathematician and BUG Two key words at the start of each lesson defined Expectation of Mathematical vocabulary used in lessons Standard form, index, power,
 Recognise SI prefixes and engineering form 	exponent, large, small, distributive, commutative, SI, operation
 Procedural Knowledge: Convert large numbers into standard form Convert small numbs into standard form Add and subtract in standard form Multiply and divide in standard form 	lessons at the end of the unit. Formal exam is completed in the Term 2 assessment window, including content from this unit and other units studied in Term 1 and Term 2.
 Conditional Knowledge: Convert 'almost standard form' to standard form Solve problems and reason with standard form, including with the order of operations 	Dr Frost Maths – practising skills using DrFrost.org (a unique username and password will be provided by the school). Exam style questions – practise exam questions based on the





Half Term 4: Advanced Proportion and Rates of Change (CROSSOVER) witch are then marked in lesson. Declarative Knowledge: • Convert percentages into decimals • Define simple interest • Define inverse proportion • Define inverse proportion Percentage, decimal, reverse percentage change (reverse percentage change (reverse percentage) • Calculate original value from a percentage change (reverse percentage) Percentage, decimal, reverse percentage, original, interest, interest, interest, direct, inverse, proportion, compound unit, density, pressure, speed • Calculate with direct proportion numerically • Calculate with direct proportion calculate with direct proportion numerically • Calculate with direct proportion numerically • Calculate with direct proportion calculate with direct proportion numerically • Calculate with direct proportion numerically • Calculate with direct proportion calculate with direct proportion agebraically • Calculate with inverse proportion graphically • Calculate with inverse proportion agebraically • Calculate with inverse proportion algebraically • Frost Maths – practising skills using DrFrost.org (a unique userame and password will be provided by the school). • Calculate with inverse proportion algebraically • Work with ratio s and fractions • Work with ratio s and fractions • Work with ratio s and fractions			Wider links to the world and diversity
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Work with ratios and fractions Work with ratios and fractions Modelling reading of questions by the class teacher – reading like a Mathematician and BUG	 Find unknown parts of ratios 		
Half Term 4: Congruence and Similarity (CROSSOVER) Modelling reading of questions by the class teacher – reading like a Mathematician and BUG	Work with ratios and fractions		
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Half Term 4: Congruence and SimilarityModelling reading of questions(CROSSOVER)by the class teacher – readinglike a Mathematician and BUG			
(CROSSOVER) by the class teacher – reading like a Mathematician and BUG	Half Term 4: Congruence and Similarity	Mc	odelling reading of questions
like a Mathematician and BUG	(CROSSOVER)	by	the class teacher – reading
		like	e a Mathematician and BUG





Declarative Knowledge:

- Define congruence and congruent
- Define similarity and similar
- Know the parts of vector notation
- Know the properties to include when describing a transformation
- Know that rotations, reflections and translations provide congruent shapes
- Know that enlargements provide similar shapes

Procedural Knowledge:

- Translate shapes as a vector
- Reflect shapes
- Rotate shapes
- Identify the mirror line of reflections
- Identify the centre of rotations
- Identify the order of rotational symmetry
- Identify the order of reflectional symmetry
- Find scale factors
- Enlarge shapes with positive scale factors
- Enlarge shapes with fractional scale factors

Conditional Knowledge:

- Prove that shapes are similar
- Write equivalent sides as equivalent ratios
- Enlarge shapes with negative scale factors
- Work with congruent triangles

Half Term 4: Contextual Graphs (CROSSOVER)

Declarative Knowledge:

- Recognise 'real life' graphs
- Interpret y=-intercepts as a fixed value or charge

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Expectation of Mathematical vocabulary used in lessons Congruent, congruence, similar, similarity, vector, translation, rotation, reflection, enlargement, transformation, mirror line, order, rotational symmetry, reflectional symmetry, scale factor, centre of rotation, centre of enlargement

each lesson defined

End of unit exam completed in lessons at the end of the unit.

Formal exam is completed in the Term 2 assessment window, including content from this unit and other units studied in Term 1 and Term 2.



Dr Frost Maths – practising skills using DrFrost.org (a unique username and password will be provided by the school).

Exam style questions – practise exam questions based on the unit and on previous learning, which are then marked in lesson.



Modelling reading of questions by the class teacher – reading like a Mathematician and BUG Two key words at the start of each lesson defined Expectation of Mathematical vocabulary used in lessons y-intercept, gradient, rate of change, speed, distance, time, formula, distance-time, velocity,





 Recognise the gradient as a rate of charge in context Procedural Knowledge: Construct conversion graphs Interpret data from conversion graphs Use the Speed, Distance, Time formula Use distance-time graphs to represent data and to calculate the average 	velocity-time, average, acceleration, displacement End of unit exam completed in lessons at the end of the unit. Formal exam is completed in the Term 2 assessment window, including content from this unit and other units studied in Term 1 and Term 2.	
 speed Use distance-time graphs to calculate the speed of a section Use velocity time graphs 	Dr Frost Maths – practising skills using DrFrost.org (a unique username and password will be provided by the school).	
 Conditional Knowledge: Use the gradient of a contextual graph as a change in context Use the y-intercept as a fixed value or charge Calculate acceleration with velocity time graphs Calculate displacement using velocity time graphs 	Exam style questions – practise exam questions based on the unit and on previous learning, which are then marked in lesson.	
Half Term 3: Drawing, Measuring and Constructing (FOUNDATION)	Modelling reading of questions by the class teacher – reading like a Mathematician and BUG Two key words at the start of	
 Declarative Knowledge: Know the sum of angles on a line Know the sum of angles around a point Know the sum of angles in a triangle 	each lesson defined Expectation of Mathematical vocabulary used in lessons Angle, acute, obtuse, reflect, right-angle, degrees, triangle, equilateral, isosceles, right- angled triangle, scalene, bisector	
 Procedural Knowledge: Measure angles Name angles Construct triangles accurately Construct angle bisects Construct line bisects 	End of unit exam completed in lessons at the end of the unit. Formal exam is completed in the Term 2 assessment window, including content from this unit	





 Conditional Knowledge: Reason and problem solve with drawing and measuring angles Reason and problem solve with constructing triangles Reason and problem solve with angle bisectors and line bisectors 	and other units studied in Term 1 and Term 2. Dr Frost Maths – practising skills using DrFrost.org (a unique username and password will be provided by the school). Exam style questions – practise exam questions based on the unit and on previous learning, which are then marked in lesson.
 Half Term 3: Polygons and Angles (CROSSOVER) Declarative Knowledge: Recall the interior angles in a triangle Recall the interior angles in a quadrilateral Recall the sum of interior angles in polygons Recall the rule for angles in parallel lines Procedural Knowledge: 	Modelling reading of questions by the class teacher – reading like a Mathematician and BUG Two key words at the start of each lesson defined Expectation of Mathematical vocabulary used in lessons Interior, exterior, triangle, quadrilateral, polygon, parallel, geometric, bearing, North End of unit exam completed in lessons at the end of the unit.
 Set up equations to solve geometric problems Calculate missing angles in triangles Calculate missing angles on a straight line Calculate missing angles in a quadrilateral Measure bearings Conditional Knowledge: Apply the properties of quadrilaterals 	Formal exam is completed in the Term 2 assessment window, including content from this unit and other units studied in Term 1 and Term 2.Image: the state of the sta
Half Term 3: Area (CROSSOVER) Declarative Knowledge: Define and identify parallelograms	Modelling reading of questions by the class teacher – reading like a Mathematician and BUG Two key words at the start of each lesson defined





Define and identify trapezia	Expectation of Mathematical vocabulary used in lessons
 Define and identify circles Procedural Knowledge: Calculate the area of a parallelogram Calculate the area of a trapezium 	Parallelogram, trapezium (trapezia), circle, circumference, sector, radius, diameter, compound shape, composite shape
 Calculate the area of a circle 	End of unit exam completed in lessons at the end of the unit.
 Conditional Knowledge: Calculate the area of compound shapes Reason and problem solve with area of a parallelogram, trapezium and circles 	Formal exam is completed in the Term 2 assessment window, including content from this unit and other units studied in Term 1 and Term 2.
	Dr Frost Maths – practising skills using DrFrost.org (a unique username and password will be provided by the school).
	Exam style questions – practise exam questions based on the unit and on previous learning, which are then marked in lesson.

Half Term 3: Discrete data
(FOUNDATION)

Declarative Knowledge:

- Know the process of collecting data •
- Know the process of processing data

Procedural Knowledge:

- Construct pie charts
- Interpret pie charts
- Calculate the mode of a list of data
- Calculate the mean of a list of data
- Calculate the median of a list of data
- Calculate the range from a list of data

Conditional Knowledge:

Generate summary statistics from • frequency tables and graphs

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by the class teacher – reading like a Mathematician and BUG Two key words at the start of each lesson defined Expectation of Mathematical vocabulary used in lessons Data, collecting, processing, pie chart, sector, radius, mode, median, mean, range, frequency, frequency table, graph End of unit exam completed in lessons at the end of the unit. Formal exam is completed in the Term 2 assessment window,

Modelling reading of questions

including content from this unit and other units studied in Term 1 and Term 2.





	Dr Frost Maths – practising skills using DrFrost.org (a unique username and password will be provided by the school).Exam style questions – practise exam questions based on the unit and on previous learning, which are then marked in lesson.
 Half Term 4: Bivariate Data (FOUNDATION) Declarative Knowledge: Identify a scatter graph Know the definition of positive correlation Know the definition of negative correlation Know the definition of no correlation Know the definition of outlier Know the definition of strong correlations Know the definition of weak correlations Procedural Knowledge: Identify positive, weak and no correlations Describe correlations as weak or strong Identify outliers in data Construct lines of best-fit Construct time series graphs 	Modelling reading of questions by the class teacher – reading like a Mathematician and BUG Two key words at the start of
Half Term 4: Percentages, Fractions and Decimals (FOUNDATION)	lesson. Modelling reading of questions by the class teacher – reading like a Mathematician and BUG





 Declarative Knowledge: Define decimal Define fraction Define percentage 	Two key words at the start of each lesson defined Expectation of Mathematical vocabulary used in lessons Decimal, fraction, percent, increase, decrease, change, multiplier
 Procedural Knowledge: Convert decimals to fractions Convert fractions to decimals Convert percentages to decimals Convert percentages to fractions Calculate a percentage of an amount Identify decimal multipliers for percentage changes Increase a number by a percentage Decrease a number by a percentage Conditional Knowledge: Calculate percentage changes in context Reason and problem solve with percentage changes 	End of unit exam completed in lessons at the end of the unit. Formal exam is completed in the Term 2 assessment window, including content from this unit and other units studied in Term 1 and Term 2. Dr Frost Maths – practising skills using DrFrost.org (a unique
	username and password will be provided by the school). Exam style questions – practise exam questions based on the unit and on previous learning, which are then marked in lesson.
Half Term 4: Estimation and use of the calculator (FOUNDATION)	Modelling reading of questions by the class teacher – reading like a Mathematician and BUG Two key words at the start of
 Declarative Knowledge: Know the buttons on a calculator Know when to round up and down Identify significant figures 	each lesson defined Expectation of Mathematical vocabulary used in lessons Significant figures, decimal places, tenths, hundredths, thousandths, round, truncate,
 Procedural Knowledge: Round numbers to a given number of decimal places Round numbers to a given number of significant figures Truncate numbers to a given number of decimal places Truncate numbers to a given number of significant figures 	upper bound, lower bound, error interval, estimate End of unit exam completed in lessons at the end of the unit. Formal exam is completed in the Term 2 assessment window, including content from this unit and other units studied in Term 1 and Term 2.





Conditional Knowledge:

- Know when it is appropriate to round and when it is not appropriate to round
- Identify the upper bound of a rounded number
- Identify the lower bound of a rounded number
- Represent upper and lower bounds as an error interval
- Estimate calculations by rounding in context
- Round numbers appropriately in context



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Exam style questions – practise exam questions based on the unit and on previous learning, which are then marked in lesson.

Half Term 4: Proportional Reasoning (FOUNDATION)

Declarative Knowledge:

- Define direct proportion
- Define inverse proportion

Procedural Knowledge:

- Calculate with direct proportion
- Calculate with inverse proportion
- Calculate best buys using proportional reasoning
- Convert values using exchange rates
- Convert percentages into decimals
- Use decimal multipliers

Conditional Knowledge:

- Increase amounts using a decimal multiplier
- Decrease amounts using a decimal multiplier



Modelling reading of questions by the class teacher – reading like a Mathematician and BUG Two key words at the start of each lesson defined Expectation of Mathematical vocabulary used in lessons Direct, inverse, proportion, money, exchange, decimal, multiplier, increase, decrease



End of unit exam completed in lessons at the end of the unit.

Formal exam is completed in the Term 2 assessment window, including content from this unit and other units studied in Term 1 and Term 2.



Dr Frost Maths – practising skills using DrFrost.org (a unique username and password will be provided by the school).

Exam style questions – practise exam questions based on the unit and on previous learning, which are then marked in lesson.

Tenbury High Ormiston Academy Vision, Values and Principles



