Forward Planning

Long-Term Semester Planning

Academic Year: 2020-2021

Class: S3
Subject: Mathematics
Teacher: Mrs Juliet Palmer
No. Students: 21

Date	Learning Objectives	Activities/Resources	Key Competences*	Learning Outcomes / Assessment
03/09/20 – 16/10/20	**Presentations** Pupils should learn to describe, interpret, judge and apply their knowledge.	Each student chooses a number or a mathematical word and prepares a 5-minute presentation on it.	1, 3, 8	To use English Mathematical language, especially after 6 months of Covid-19 confinement
	Estimation and Approximation Give the most appropriate approximation to a number. Replace $a \geq b$ by $a + c \geq b + c$ $a \cdot c \geq b \cdot c$ when $c \geq 0$ $a \cdot c \leq b \cdot c$ when $c \leq 0$ Place a rational number between bounds which: 1° are two consecutive integers 2° get progressively nearer together Estimate the order of magnitude or a result.	The Times Brain trainer – lesson starter Textbook S3 Maths 1 Chapter 1 Significant figures and decimal places Rounding Bingo Dr Frost Maths Resources from TES – UK teaching website	4	Homework checked in Class Exercise books marked for effort and attainment Quiz on estimation Self evaluation on Dr Frost Maths
	Ratio and proportion Recognise and determine quantities which are in – direct proportion inverse proportion	Textbook S3 Maths 1 Chapter 2 Proportionality differentiated questions Ratio exam questions Treasure Hunt Direct and Indirect proportion ppt Ratio Robberies – pair work	1, 3, 8	Homework checked in Class Diffuse the Bomb (differentiated) Exercise books marked for effort and attainment **Test on chapters 1 and 2**

		Ratio bingo		
	Project: Many pupils find it difficult to deal with problems expressed in words and link problems to known mathematical techniques in order to solve them. Motivate pupils and encourage reasoning skills	Murder Mystery: the Missing Maltesers	1, 4, 7, 8	Group and individual mark for project
VACANCES DE TOUSSAINT				
02/11/20-18/12/20	**Indices and Standard Form** Calculate: $a^m \cdot a^n$ $(a \cdot b)^m$ $(a^m)^n$ $\frac{a^m}{a^n}$ Interpret a^n when $n < 0$ Use scientific notation	Textbook S3 Maths 1 Chapter 3 Indices Bingo Indices Jeopardy Calculation with standard form) Resources from TES – UK teaching website Tarsia jigsaw activities (pairs or groups)	1, 3	Indices Codebreaker Homework checked in Class Exercise books marked for effort and attainment Self evaluation on Dr Frost Maths
	Rational and Irrational numbers – Calculate using rational numbers.	Textbook S3 Maths 1 Chapter 4 Is it rational?	1, 5	Is it rational – short quiz Homework checked in Class

	– Convert a fraction into decimal form which may be unlimited and periodic. – Convert a recurring decimal into a fraction. – Determine the (Euclidean) quotient of two numbers. Use results which arise from this relationship. – Multiplicative inverse of a non-zero rational number – Determine the quotient of two rational numbers correct to one decimal place. Express the quotient exactly in fraction form.	Resources from TES – UK teaching website Tarsia jigsaw activities (pairs or groups)		Exercise books marked for effort and attainment Self evaluation on Dr Frost Maths
	Algebraic Manipulation – Apply the rules about brackets and simplify an algebraic expression. – Calculate the numerical value of an expression by substitution. – Simplify and order a polynomial in one variable. State the degree of a polynomial. – Add, subtract, multiply polynomials in one variable. – Use particular products such as $(a \pm b)^2$ – $(a+b)(a-b)$	Textbook S3 Maths 1 Chapter 5 Solving equations pdf Battleships – linear equations Resources from TES – UK teaching website Tarsia jigsaw activities (pairs or groups)	3, 5	Homework checked in Class Exercise books marked for effort and attainment Self evaluation on Dr Frost Maths

	– Pick out a common factor in an expression. – Factorise expressions such as $a^2 - b^2$ $a^2 \pm 2ab + b^2$			
	Linear Equations – Graphical representation of linear functions – Solve equations and inequations relative to a given set of elements using the rules of arithmetic. – Represent these solutions on a number line. – Replace an equation or inequation by an equivalent equation or inequation. Use a formula to calculate the value of one of its elements. Solve problems which involve more than one inequality.	Textbook S3 Maths 1 Chapter 6 Drawing straight lines from the equation Solving equations graphically Resources from TES – UK teaching website Tarsia jigsaw activities (pairs or groups)	1,3	Homework checked in Class Exercise books marked for effort and attainment Test on Algebra and Linear equations
Christmas Holidays				
04/01/21-19/02/21	**Quadratics** – Graphical representation of quadratics	Textbook S3 Maths 1 Chapter 7 Accurate drawing of quadratic graphs – graph paper	1, 3	Homework checked in Class Test on chapters 6, 7

	Solving quadratics by factorising	Intersection of quadratics and linear equations Shapes of graphs Tarsia jigsaws - quadratics		Homework checked in Class Exercise books marked for effort and attainment
	Inequalities – Solve equations and inequations relative to a given set of elements using the rules of arithmetic. – Represent these solutions on a number line. – Replace an equation or inequation by an equivalent equation or inequation. Use a formula to calculate the value of one of its elements. Solve problems which involve more than one inequality.	Textbook S3 Maths 1 Chapter 8 Drawing straight lines from the equation Shading regions Solving inequations graphically Problem solving – houses, minibuses (optimisation) Resources from TES – UK teaching website Tarsia jigsaw activities (pairs or groups)	1,3,4,7,8	Homework checked in Class Exercise books marked for effort and attainment Quiz – different ability levels
VACANCES D'HIVER				
08/03/21-23/04/21	**Parallel and perpendicular lines** State Euclid's parallel lines postulate in the plane and the theorem about unique perpendicularity, and use them to prove that – if $a \ell b$ and if $b \ell c$, then $a \ell c$ – if $a \ell b$ and if $b \ell\!\!\!/ c$, then $a \ell\!\!\!/ c$ – if $a \perp b$ and if $b \perp c$, then $a \ell c$ – etc.	Geogebra Textbook S3 Maths 1 Chapter 6 Resources from TES – UK teaching website Tarsia jigsaw activities (pairs or groups)	1, 2, 3, 4	Homework checked in Class Exercise books marked for effort and attainment

	Explain why – a line and a plane – two planes are parallel or perpendicular in given situations.			
	Relations and Functions – Define a relation. – Represent a relation graphically using sets and arrows and cartesian graphs. – Define a function. – Establish the domain and range of the function. – Represent the ordered pairs of a function on a cartesian graph.	Functions ppt Relation vs function activity Who wants to be a millionaire? Resources from TES – UK teaching website – Tarsia jigsaw activities (pairs or groups)	1, 3	Homework checked in Class Exercise books marked for effort and attainment Test – different ability levels
	Construction of geometrical figures using compasses and straight-edge only **Locus** – construct a rhombus given a diagonal and a side – construct a rectangle given a side and the distance between the mid-points of opposite aides (2 cases) – construct a rectangle given a diagonal and one side – etc.	– Recap of S2 work Treasure hunt Geogebra challenge	1, 3, 4	Homework checked in Class Exercise books marked for effort and attainment Geogebra quiz challenge

	Construct loci defined by unequal distances from fixed points.			
	Algebraic Fractions Use factorisation to simplify algebraic fractions.	Textbook S3 Maths 1 Chapter 9 Resources from TES – UK teaching website Tarsia jigsaw activities (pairs or groups)	1, 3, 5	Homework checked in Class Exercise books marked for effort and attainment Quiz – different ability levels Self evaluation on Dr Frost Maths
	Angle Geometry State and use the following: – vertically opposite angles – alternate angles – corresponding angles angles either side of perpendiculars	Textbook S3 Maths 1 Chapter 10 Properties of Angles Parallel lines bingo	1, 3	Homework checked in Class Exercise books marked for effort and attainment
	Angles and Polygons the sum of angles of a triangle and a convex polygon.	Textbook S3 Maths 1 Chapter 11 Angles and polygons challenge Angle properties codebreaker	1, 3, 7	Homework checked in Class Exercise books marked for effort and attainment Quiz
	Pythagoras Theorem State and use this theorem and its converse. – This could be justified using the equivalence of areas. – Calculate the approximate value of one of the sides of a right-	Textbook S3 Maths 1 Chapter 12 TES Pythagoras sheet 1 Investigation using areas Worded problems Tarsia dominoes	1, 3, 5, 7	Homework checked in Class Exercise books marked for effort and attainment Self evaluation on Dr Frost Maths

	angled triangle knowing the lengths of the other two. – Calculate the approximate area of a right-angled triangle knowing the lengths of the hypotenuse and one other side. Given lengths of the sides of a triangle, determine if it is a right-angled triangle.			
VACANCES DE PAQUES				
10/05/21-25/06/21	**Probability** – Enumerate all the possible results arising from an experiment involving random variables. – Enumerate the results fulfilling given conditions. Calculate the probability of an event. Compare this with the relative frequency of an event.	Textbook S3 Maths 1 and 2 The Times Brain trainer – lesson starter Teach it Maths Interactive whiteboard activities Resources from TES – UK teaching website Tarsia jigsaw activities (pairs or groups)	1, 3	Homework checked in Class Exercise books marked for effort and attainment
	Statistics – Group data in intervals and draw the appropriate histogram (area of column represents relative frequency).	Textbook S3 Maths 1 and 2 The Times Brain trainer – lesson starter Teach it Maths Interactive whiteboard activities	1, 3, 4, 6	Homework checked in Class Exercise books marked for effort and attainment Group and individual mark for project

	Interpret these histograms.	Resources from TES – UK teaching website Tarsia jigsaw activities (pairs or groups)		
	Transformations Transformations of the plane: – translations – reflections – rotations enlargements (positive scale factor)	Textbook S3 Maths 1 and 2 The Times Brain trainer – lesson starter Teach it Maths Interactive whiteboard activities Resources from TES – UK teaching website Tarsia jigsaw activities (pairs or groups)	1, 3	Homework checked in Class Exercise books marked for effort and attainment Test on transformations
June 2021	**STEM Week** **Cross curricular project**		1, 2, 3, 4, 5, 6, 7, 8	

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Link to 8 key competences:

1. Literacy (reading and writing)
2. Multilingualism
3. Mathematics, Science, Technology and Engineering
4. Digital
5. Personal, Social and Learning to Learn
6. Citizenship
7. Entrepreneurship
8. Cultural Awareness and Expression