Falkirk Council
Children's Services

NUMERACY PROGRESSION PATHWAY

FOURTH LEVEL		NUMERACY			
Experiences and Outcomes		Progression			Benchmarks
Organiser—Number and Number Processes	Estimation and rounding	Having investigated the practical impact of inaccuracy and error, I can use my knowledge of tolerance when choosing the required degree of accuracy to make real-life calculations. *MNU 4-01a*	I can/am able to: • Know and understand what a significant figure is • Know how many significant figures a number has • Round a number to 1 significant figure • Estimate answers by rounding to one significant figure • Analyse a problem and choose an appropriate degree of accuracy for rounding. • Know that in a multi-step calculation, rounding numbers inappropriately in the calculation will lead to an inaccurate answer • Know what is meant by tolerance through investigation in a practical context	I can/am able to: • Round a number to any number of significant figures in context • Estimate answers by rounding to any number of significant figures in the context of a problem • Consider the context when solving a rounding problem e.g. share the total bill for a meal between a number of people; the rounding has to ensure that the total bill is covered • Know that in a multi-step calculation, I need to round beyond the degree of accuracy throughout, before rounding the final answer to the required degree of accuracy • Write tolerance in the correct form • Interpret simple tolerances in real life contexts • Use a given tolerance to check accuracy and variation in simple real life contexts	I can/am able to: • Understand that rounding numbers inappropriately in a calculation will lead to an insufficiently accurate answer. • Interpret tolerances to justify and explain decisions in real life calculations • Use a given tolerance to check accuracy and variation in real life contexts	• ***Rounds answers to a significant figure.*** • ***Demonstrates that the context of the question needs to be considered when rounding.*** • ***Demonstrates the impact of inaccuracy and error, for example, the impact of rounding an answer before the final step in a multi-step calculation.*** • ***Uses a given tolerance to decide if there is an allowable amount of variation of a specified quantity, for example, dimensions of a machine a part, 235 mm*** ± 1mm

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FOURTH LEVEL		NUMERACY			
	Experiences and Outcomes		Progression		Benchmarks
Organiser—Number and Number Processes	Number and Number Processes	Having recognised similarities between new problems and problems I have solved before, I can carry out the necessary calculations to solve problems set in unfamiliar contexts. *MNU 4-03a* I have investigated how introducing brackets to an expression can change the emphasis and can demonstrate my understanding by using the correct order of operations when carrying out calculations. *MNU 4-03b*	I can/am able to: • Analyse a calculation or problem and identify similarities from previous problems or whether it involves multi-steps to solve • Communicate and justify the most effective strategy for a given calculation or problem • Explore & understand that calculations involving division by a 2 digit number can be completed using a column method involving long division • Explore long multiplication as a column method • Explore expressions & calculations involving brackets	I can/am able to: • Solve multi-step problems set in familiar contexts using the 4 operations ensuring correct order of operation • Complete a simple calculation using long division • Complete a simple calculation using long multiplication • Confidently use the strategy which aids order of operation problems and calculations e.g. BODMAS when solving simple multi-step problems. The **BODMAS** acronym is: • **B**rackets (parts of a calculation inside brackets always comes first). • **O**rders (numbers involving powers or square roots). • **D**ivision. • **M**ultiplication. • **A**ddition. • **S**ubtraction.	I can/am able to: • Solve multi-step problems set in unfamiliar contexts using the 4 operations ensuring correct order of operations • Use long division to solve simple problems in a familiar context • Use long multiplication to solve simple problems in a familiar context • Apply, in all calculations, the order of operations correctly .	• ***Interprets and solves multi-step problems using the four operations*** • ***Applies the correct order of operations in all calculations, including those with brackets.***

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FOURTH LEVEL		NUMERACY			
	Experiences and Outcomes	⟷	Progression	⟷	Benchmarks
Organiser—Number and Number Processes	Powers and roots	I have developed my understanding of the relationship between powers and roots and can carry out calculations mentally or using technology to evaluate whole number powers and roots, of any appropriate number. ***MTH 4-06a***	I can/am able to: • Use the notation & vocabulary of roots • Understand that powers and roots are inverse operations and specifically that the square root is the inverse operation of squaring • Evaluate square roots of square numbers up to 144 • Use my knowledge of negative number multiplication to understand and explain why square roots of whole numbers also have negative values	I can/am able to: • Evaluate whole number powers & roots of any appropriate number using a mental calculation strategy. • Use a calculator or other technology to evaluate whole number powers & roots of any appropriate number	I can/am able to: • Solve problems with whole number powers and roots of any appropriate number, choosing the appropriate notation and strategy.	• ***Shows understanding that square roots of whole numbers can have positive and negative values, for example, $\sqrt{9}=\pm 3$*** • ***Uses knowledge of the inverse relationship between powers and roots to evaluate whole number roots of any appropriate number, $\sqrt[3]{27}=3$.***
		Within real-life contexts, I can use scientific notation to express large or small numbers in a more efficient way and can understand and work with numbers written in this form. ***MTH 4-06b***	• Investigate the uses of scientific notation in real life • Explain the applications and benefits of using scientific notation • Understand the mathematics behind the written form of scientific notation e.g. $700 = 7 \times 100$ and since $100 = 10^2$ then $700 = 7 \times 10^2$	• Use scientific notation to express large and small numbers.	• Convert between scientific notation and decimal notation. • Solve real life problems by reading values in scientific notation and performing simple calculations with numbers expressed in scientific notation.	• ***Uses knowledge of mathematical notation to express numbers in scientific notation.***

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FOURTH LEVEL		NUMERACY			
Experiences and Outcomes		Progression			Benchmarks
Organiser—Number and Number Processes	Fractions, decimal fractions and percentages	I can choose the most appropriate form of fractions, decimal fractions and percentages to use when making calculations mentally, in written form or using technology, then use my solutions to make comparisons, decisions and choices. *MNU 4-07a*	I can/am able to: • Choose the most efficient form of fractions, decimal fractions or percentages in calculations (mental, written or with technology) • Use my calculations to support and justify my methods, comparisons and choices,	I can/am able to: • Choose the most efficient & appropriate form of fractions, decimal fractions or percentages in problems and calculations and justify my methods, comparisons and choices.	I can/am able to:	• ***Chooses the most efficient form of fractions, decimal fractions or percentages when making calculations.*** • ***Uses calculations to support comparisons, decisions and choices.*** • ***calculates the percentage increase or decrease of a value.*** • ***Applies addition, subtraction and multiplication skills to solve problems involving fractions and mixed numbers***
		I can solve problems involving fractions and mixed numbers in context, using addition, subtraction or multiplication. *MTH 4-07b*	• Solve problems involving fractions and mixed numbers using 4 operations.	• Calculate the percentage increase/ decrease of a value • Express one value as a percentage of another	• Apply all skills and knowledge to solve problems in context	
		Using proportion, I can calculate the change in one quantity caused by a change in a related quantity and solve real life problems. *MNU 4-08a*	• Increase & decrease quantities proportionally to solve problems in everyday contexts e.g. percentage increase/decrease	• Solve simple problems involving indirect proportion	• Solve real life problems which involve changes in related quantities	• ***Uses knowledge of proportion to solve problems in real-life which involve changes in related quantities.***

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FOURTH LEVEL		NUMERACY			
	Experiences and Outcomes	Progression			Benchmarks
Organiser—Number and Number Processes	Money	I can discuss and illustrate the facts I need to consider when determine what I can afford, in order to manage credit and debit and lead a responsible lifestyle. *MNU 4-09a*	I can/am able to: • Read & understand information from wage slips, earnings summaries, budgets etc. • Understand the vocabulary associated with income e.g. gross, net pay, earnings, deductions, overtime, bonus etc.	I can/am able to: • Understand the terms credit & debt & explain their advantages & disadvantages • Explain and show my budgeting skills through completion of spending and saving problems • Apply my knowledge of currency conversions to determine best value	I can/am able to: • Plan ahead & budget to make and explain decisions that lead to a responsible lifestyle.	• ***Applies understanding of credit & debit in relation to earnings and deductions.*** • ***Uses budgeting skills to manage income effectively and justifies spending and saving choices.*** • ***Calculates net income by selecting appropriate information.*** • ***Compares a range of personal finance products.*** • ***Communicates the impact of financial decisions.*** • ***Applies knowledge of currency conversion to determine best value.***
		I can source information on earnings and use it when making calculations to determine net income. *MNU 4-09b*	• Investigate and source real life examples of different earnings • Apply and recall previous learning to calculate total monthly/weekly bills, total income & total	• Calculate income & deductions in order to find gross & net pay in budgeting problems • Create a budget taking into account income & expenditure over the short and long term.		
		I can research, compare and contrast a range of personal finance products and , after making calculations, explain my preferred choices. *MNU 4-09c*	• Calculate compound interest • Understand the vocabulary of financial products e.g. APR, repayment schemes, mutual etc. • Understand where to find information on personal financial products (such as savings accounts, loans, insurance, retirement plans, bonds etc.) to source & compare them.	• Use calculations to determine the difference between financial products e.g. hire purchase & loans/mortgages to make informed decisions to decide which the best product to take is. • Use a range of factors such as quality, depth of cover, reputation, future earnings, economy & ethical aspects to make my decisions.	• Justify and communicate financial decisions and the impact of them.	

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FOURTH LEVEL		NUMERACY			
	Experiences and Outcomes	Progression			Benchmarks
Organiser—Number and Number Processes	Time	I can research, compare and contrast aspects of time and time management as they impact on me *MNU 4-10a* I can use the link between time, speed and distance to carry out related calculations. *MNU 4-10b*	I can/am able to: • Apply time and time management skills to scheduling tasks within a given period of time (including across midnight) • Investigate different time zones in different countries • Calculate time durations across hours, days and months. • Convert time into any fraction and decimal fraction of time. • Use the link between speed, distance and time in problems to calculate an unknown (include common fractions or decimal fractions of time and durations across hours, days and months)	I can/am able to: • Apply time and time management skills to solve real life problems of general time management, traveling and transportation, rest and relaxation etc. • Use the link between speed, distance and time in problems to calculate an unknown, including any fraction and decimal fraction of time.	I can/am able to: • Interpret the solutions to time problems and relate to the personal impact of these solutions demonstrating effective time management. • Use the link between speed, distance and time in problems to calculate an unknown, including fractions and decimal fractions of time and where the units need to be converted.	• ***Demonstrates effective time management skills, for example, working with different time zones or making plans, including across midnight.*** • ***Carries out calculations involving speed, distance and time involving decimal fraction hours.*** • ***Calculates time durations across hours, days and months.***

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FOURTH LEVEL		NUMERACY			
	Experiences and Outcomes	Progression			Benchmarks
Organiser—Number and Number Processes	Measurement	I can apply my knowledge and understanding of measure to everyday problems and tasks and appreciate the practical importance of accuracy when making calculations. ***MNU 4-11a***	I can/am able to: • Apply my knowledge & understanding of measure to a range of everyday problems and tasks. • Understand that rounding numbers inappropriately in a calculation will lead to an insufficiently accurate answer. • Consider & discuss the practical importance of accuracy when making calculations and/or completing practical tasks	I can/am able to: • Through completion of practical everyday tasks, demonstrate my understanding of tolerance & its significance.	I can/am able to: • Use and understand that volume is the area of the cross-section x height (V=Ah)	• ***Demonstrates understanding of the impact of truncation and premature rounding.*** • ***Calculates the area of kites, parallelograms and trapeziums.*** • ***Uses formulae and calculates the surface area of cylinders, cuboids and triangular prisms.*** • ***Calculates the volume of triangular prisms and cylinders using formulae.***
		Through investigating real-life problems involving the surface area of simple 3D shapes, I can explore ways to make the most efficient use of materials and carry out the necessary calculations to solve related problems. ***MTH 4-11b***	• Investigate how to find the area of a trapezium & a kite using my • Explore & investigate what is the surface area of cuboids, cylinders & triangular prisms relating to real life and materials e.g. cost efficiency of making drinks cans out of metal sheets etc.	• Find the area of a trapezium & kite using the appropriate formula • Use knowledge of area & related formula to calculate the surface area of cylinders, cuboids and triangular prisms.	• Find the area of any 2D shape • Use appropriate formulae to calculate the surface area of cylinders, cuboids and triangular prisms in practical contexts including efficiency problems	
		I have explored with others the practicalities of the use of 3D objects in everyday life and can solve problems involving the volume of a prism, using a formula to make related calculations when required. ***MTH 4-11c***	• Independently or otherwise, explore & investigate practicalities of the use of 3D objects relating to • Explore & investigate what is the cross section of a 3D object including triangular prisms and cylinders & how it relates to	• Apply my knowledge of area & surface area to explore & use formulae in simple problems to calculate the volume of triangular prisms and cylinders. • Find the volume of any prism when the area of the cross-section is given	• Use formulae (where necessary) to solve problems involving the volume of a triangular prism or cylinder in practical real life contexts.	

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FOURTH LEVEL		NUMERACY			
	Experiences and Outcomes	⟷	Progression	⟷	Benchmarks
Organiser—Number and Number Processes	Mathematics—its impact on the world, past. Present and future	I have discussed the importance of mathematics in the real world, investigated the mathematical skills required for different career paths and delivered, with others, a presentation on how mathematics can be applied in the workplace *MTH 4-12a*	I can/am able to: • Independently or with others, investigate the role mathematics plays in the real world using appropriate technology. • Independently or with others, Investigate the mathematical skills required for a range of subjects & share this with others.	I can/am able to: and deliver, with others, a presentation of careers including those in STEM	• ***Contributes to discussions and presentations on the role of mathematics in everyday life and in the workplace.*** • ***Investigates the mathematical skills required for a range of careers, including those in STEM subjects.***

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FOURTH LEVEL	NUMERACY			
	Experiences and Outcomes	Progression		Benchmarks
Organiser—Number and Number Processes / Patterns and relationships	Having explored how real life situations can be modelled by number patterns, I can establish a number sequence to represent a physical or pictorial pattern, determine a general formula to describe the sequence, then use it to make evaluations and solve related problems. ***MTH 4-13a***	I can/am able to: • Recall previous learning on number sequences • Investigate how real life situations can be modelled using patterns and graphs e.g. cost to hire a car Links can be made here to the learning in MTH 4-13B	I can/am able to: • Determine a general formula to describe a linear sequence (for sets of numbers not in context). • Determine a general formula to describe a linear sequence in context.	I can/am able to: • Use a general formulae to find missing terms and solve related problems in real life contexts (for linear sequences only).	• ***Determines a general formula for the nth term to describe a sequence and uses it to solve related problems, linear examples only.***
	I have discussed ways to describe the slope of a line, can interpret the definition of gradient and can use it to make relevant calculations, interpreting my answer for the context of the problem. ***MTH 4-13B***	• Discuss, describe & understand the concept of slope in real life context e.g. road signs, mountains/hills, ski jumps etc. • Use and understand the language of gradient e.g. positive gradient, negative gradient, no gradient, undefined gradient • Understand the link between the gradient of a straight line and the formula that generates the points on that line e.g. the link between the gradient and the coefficient of the x-coordinate	• Investigate & discover that gradient is the change in vertical distance divided by the change in horizontal distance • Understand and use the formula for gradient i.e. m = vertical distance ÷ horizontal distance • Find the gradient for a straight line represented on a coordinate diagram	• Solve real life problems involving gradient of a line and make interpretations based on the context of the question or problem	• ***Calculates the gradient of lines in a coordinate diagram.*** • ***Draws conclusions about the gradient of a line, for example, 'does the ramp meet building regulations?'***
	Having investigated the pattern of the coordinate points lying on a horizontal or vertical line, I can describe the pattern using a simple equation. ***MTH 4-13C***	• Recall and apply prior learning and knowledge of the coordinate system to investigate patterns of coordinates in a horizontal or vertical line • Recognise the link of no gradient with a horizontal line and an undefined gradient with a vertical line	• Understand the term y-intercept • Understand and can use the term for a horizontal straight line (y = k) • Understand and can use the term for a vertical straight line (x = k).	• Describe the graph of a straight line using the notation y = mx + c for simple equations	• ***Communicates the gradient of vertical and horizontal lines and states the equation of these lines as x= a or y = b or equivalent.***
	I can use a given formula to generate points lying on a straight line, plot them to create a graphical representation then use this to answer related questions. ***MTH 4-13d***	• Recall and apply prior learning and knowledge of evaluating formula to generate points from a given formula • Recall and apply prior learning and knowledge of the coordinate system to plot points generated from a given formula	• Recognise and use the pattern of points plotted in a straight line and from a formula for a linear sequence to create a graph with appropriate axes and labels	• Create a graph representing a linear sequence (i.e. straight line) form a formula and use this graph to answer related questions in real life contexts	• ***Uses a given formula to plot a straight line onto a Cartesian diagram.***

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FOURTH LEVEL		NUMERACY			
	Experiences and Outcomes	⟷	Progression	⟷	Benchmarks
Organiser—Number and Number Processes	Expressions and equations	Having explored the distributive law in practical contexts, I can simplify, multiply and evaluate simple algebraic terms involving bracket. ***MTH 4-14a*** I can find the factors of algebraic terms, use my understanding to identify common factors and apply this to factories expressions. ***MTH 4-14b*** Links can be made here to the learning in MNU 3-05a Having discussed the benefits of using mathematics to model real life situations, I can construct and solve inequalities and an extended range of equations. ***MTH 4-15a***	I can/am able to: • Using my knowledge of collecting like terms and simplifying equations, explore the distributive law in practical contexts. • Expand a simple bracket e.g. 3(x + 1) • Simplify expressions involving a single bracket e.g. 5 (2x + 4) + 2x –1 • Use previous common factors knowledge and apply understanding to factorising algebraic terms with a numeric common factor. • Investigate and discuss factors of algebraic terms. • Investigate and solve simple linear inequalities e.g. 7x + 3 ≤ 24 • Investigate and begin to discuss & use set notation and language.	I can/am able to: • Evaluate simple expressions involving brackets • Use the distributive law to solve simple equations e.g. 5 (x + 2) = 35 • Factorise simple expressions by taking out a common factor (algebraic and/or numeric). • Solve linear inequalities on simple closed intervals e.g. 6x - 4 ≥ x + 16, x ϵ {1,2,3,4,5,6,7,8,9,} • Investigate & discuss where and how mathematics is used to model real life situations. • Express given info as an equation, inequation or expression.	I can/am able to: • Simplify, multiply and evaluate algebraic terms involving brackets using the distributive law. • Use the distributive law to solve equations e.g. 7 (x - 3) = 3x—9 • Factorise expressions by taking out a common factor (algebraic and/or numeric). • Use factorising to solve equations. • Construct and solve inequalities and an extended range of equations that represent real life situations.	• ***Expands brackets using the distributive law and simplifies*** • ***Solves an extended range of linear equations involving the distributive law, for example, ax ± b = cx ± d, where a, b, c and d are integers.*** • ***Solves linear inequalities, including on simple closed intervals.*** • ***Solves problems by expressing the given information appropriately as an equation, inequation or formula.*** • ***Evaluates algebraic expressions involving a bracket.*** • ***Factories expressions with a numeric common factor.***

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FOURTH LEVEL		NUMERACY			
	Experiences and Outcomes	⟷	Progression	⟷	Benchmarks
Organiser—Number and Number Processes	Properties of 2D shapes and 3D objects	I have explored the relationships that exist between the sides, or sides and angles, in right-angled triangles and can select and use an appropriate strategy to solve related problems, interpreting my answer for the context. *MTH 4-16a*	I can/am able to: • Investigate, discuss & present my findings of Pythagoras the Mathematician • Investigate through practical means, Pythagoras's theorem & the related relationship between the sides in a right angled triangle • Identify & explain the hypotenuse and shorter sides in a right angled triangle • Through measurement and investigation explore the relationship in terms of a ratio between the sides and a 30^0 right angled triangle Trigonometry intro • Identify & label the sides in a right angled triangle e.g. hypotenuse, opposite and adjacent	I can/am able to: • Use the Theorem of Pythagoras to calculate the hypotenuse and shorter sides in simple problems • Use the Theorem of Pythagoras to calculate the hypotenuse and shorter sides in real life problems • Find missing angles in a right angled triangle using trigonometric ratios for simple problems • Find missing side lengths in a right angled triangle using trigonometric ratios for simple problems • Begin to identify between trigonometry and Pythagoras to solve problems.	I can/am able to: • Investigate and use the converse of Pythagoras theorem. • Solve real life problems using trigonometry including coordinate systems. • Fluently choose between trigonometry and Pythagoras to solve problems in real life contexts.	• ***Calculates the length of any side of a right-angled triangle using the Theorem of Pythagoras.*** • ***Calculates the size of an angle in a right-angled triangle using trigonometry.*** • ***Calculates the length of a side in a right-angled triangle using trigonometry.***
		Having investigated the relationships between the radius, diameter, circumference and area of a circle, I can apply my knowledge to solve related problems. *MTH 4-16b*	• Investigate through practical means, π & the relationship between π & circumference of a circle • Investigate through practical means, the relationship between π & area of a circle e.g. graphical description of circle broken into 4 wedges and then thinner wedges etc. Area of a circle • Know and remember the value of pi to 2 decimal places e.g. π = 3.14	• Correctly use the formulae C = πd or C = 2πr to solve simple circumference • Correctly use the formulae C = πd or C = 2πr to solve simple circumference problems where d or r is the unknown. • Correctly use the formulae A = πr^2 to solve simple area problems where A is the unknown. • Correctly use the formulae A = πr^2 to solve simple area problems where r is the unknown.	• Solve circumference and area problems finding any related unknown other than π • Solve related circumference and area problems for compound shapes including parts of circles.	• ***Uses the formula C = πd or C = 2πr to calculate the circumference of a circle.*** • ***Uses the formula A = πr^2 to calculate the area of a circle.*** • ***Calculates diameter and radius of a circle when given the area or circumference.***

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FOURTH LEVEL		NUMERACY			
	Experiences and Outcomes	Progression			Benchmarks
Organiser—Number and Number Processes	Angles, symmetry and transformation	I can/am able to:	I can/am able to:	I can/am able to:	
	Having investigated the relationship between a radius and a tangent and explored the size of the angle in a semicircle, I can use the facts I have established to solve related problems. ***MTH 4-17a***	• Investigate, discuss & understand the relationship between a radius and a tangent e.g. tangents to a circle • Investigate & discuss the size of an angle in a semicircle e.g. angle in a semicircle	• Calculate missing angles in simple problems using my understanding of the relationship between a radius and tangent • Calculate missing angles in a semicircle & solve simple related problems.	• Apply my knowledge & understanding of triangles, angles and circles to solve problems in context.	• ***Applies knowledge of the relationship between the tangent and radius to calculate sizes of missing angles*** • ***Applies knowledge of triangles, angles and circles, including semi -circles, to solve problems.***
	I can apply my understanding of the properties of similar figures to solve problems involving length and area. ***MTH 4-17b***	• Recall previous learning on ratio and scale to explore similar triangles & similar figures e.g. similar figures • Understand and describe the terms congruent and corresponding • Identify when shapes are congruent or similar.	• Identify & use scale factor to find a missing length in simple similar figures problems • Investigate, discuss & understand the relationship between similar area and scale factor	• Apply my understanding of similarity to calculate missing lengths in similar figure problems • Apply my understanding of similarity to solve problems in context involving area	• ***Uses similarity to find unknown lengths of 2D shapes.***
	I can plot and describe the position of a point on a 4-quadrant coordinate grid. ***MTH 4-18a*** I can apply my understanding of the 4-quardrant coordinate system to move, and describe the transformation of, a point or shape on a grid. ***MTH 4-18b***	• Recall previous learning of the coordinate system to identify, plot & describe the location of a point within 4 quadrants • Explore & use the terms Cartesian grid, Cartesian coordinates. • Apply my knowledge of using a 4 quadrant grid to accurately represent a point or shape following step by step instructions to move/transform the original shape	• Solve problems in 4 quadrants using coordinate notation e.g. treasure hunt • Begin to predict the result of a transformation on a point or shape including a reflection or translation	• Predict & identify the result of a transformation on a point or shape • Accurately draw the result of a transformation on a point or shape within a Cartesian Grid.	• ***Uses a four-quadrant Cartesian grid to read and plot coordinates.*** • ***Applies understanding of translation to reflect or translate an object on a four-quadrant grid.*** • ***Identifies transformation by reflection or translation of a point or shape on a grid.***
	Having investigated patterns in the environment, I can use appropriate mathematical vocabulary to discuss the rotation properties of shapes, pictures and patterns and can apply my understanding when completing or creating designs. ***MTH 4-19a***	• Investigate, identify & discuss rotational symmetry in real life contexts e.g. wind turbines, car wheels, starfish etc. • Understand & use accurately the term 'order of rotation' e.g. rotational symmetry	• Complete simple pictures, patterns or designs using my knowledge and understanding of rotational symmetry. • Begin to create pictures, patterns or designs using my knowledge and understanding of rotational symmetry.	• Complete & create pictures, patterns or designs using my knowledge and understanding of rotational symmetry.	• ***Describes rotational properties of shapes, pictures and patterns, including the order of rotation*** • ***Uses knowledge of rotational symmetry to complete designs.***

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FOURTH LEVEL		NUMERACY			
	Experiences and Outcomes	⟷	Progression	⟷	Benchmarks
Organiser—Number and Number Processes	Data and analysis	I can evaluate and interpret raw and graphical data using a variety of methods, comment on relationships I observe within the data and communicate my findings to others. ***MNU 4-20a*** Links should be made here to the Experiences & Outcomes below. In order to compare numerical information in real-life contexts, I can find the mean, median, mode and range of sets of numbers, decide which type of average is most appropriate to use and discuss how using an alternative type of average could be ***MTH 4-20b*** I can select appropriately from a wide range of tables, charts, diagrams and graphs when displaying discrete, continuous or grouped data, clearly communicating the significant features of the data. ***MTH 4-21a***	I can/am able to: • Recall previous learning on trends in data & explore further relationships such as correlation, shifts, runs, outliers etc. • Recall previous learning regarding the mean & range of a data set & use this to calculate the mean & range for comparison of data in real-life contexts. • Explore & understand the uses of median and mode of a data set. • Recall previous learning to organise, display & interpret a variety of data appropriately to solve problems (with or without technology) • Explore & understand the uses of a stem and leaf diagram • Explore & understand the uses of a scatter diagram • Explore & understand the uses of a grouped frequency table • Explore & understand the uses of a cumulative frequency diagram	I can/am able to: • With support, interpret relationships & conclusions that I draw/evaluate from raw or graphical data in context, using a wide range of methods. • With support, communicate, discuss & present relationships & conclusions that I draw/evaluate from raw or graphical data in context, using a wide range of methods. • Calculate the mean, median, mode & range of a data set in real-life contexts & use this information to discuss/make analysis and comparisons. • Select & justify which average I use appropriate to the given data & discuss using correct language e.g. whether the average is robust or not; flawed or not; misleading or not etc. • Draw a stem & leaf diagram & interpret it using my knowledge of the mean, median & range. • Investigate upper & lower quartile and complete a 5 figure summary & use this to analyse & compare data. • Complete a scatter diagram, including line of best fit & use this to solve problems in context. • Complete a frequency table for discrete and grouped data & discuss the important features of the data. • Complete a cumulative frequency diagram for discrete data & discuss the important features of the data.	I can/am able to: • Independently carry out a statistical investigation, analyse & present findings, discuss & justify my conclusions using correct/appropriate language. • Given raw and/or graphical data, independently analyse & present findings, discuss & justify my conclusions using correct/appropriate language. • Apply my learning of mean, median, mode and range to a wide range of data and statistical diagrams, where appropriate, to solve real-life problems. • Display & select data, justify my choice, from my knowledge & understanding of a range of tables, charts, diagrams etc. • Interpret & communicate confidently the significant features of a data set using appropriate language & terms. • Draw a back to back stem & leaf diagram & interpret it using my knowledge of the mean, median, range, upper & lower quartiles etc. • Create & interpret a scatter diagram, including line of best fit & use this to solve real-life problems. • Create and interpret a frequency table for discrete and grouped data in real-life contexts. • Draw and interpret a cumulative frequency curve for discrete data in real-life contexts.	• ***Interprets raw and graphical data.*** • ***Uses statistical language, for example, correlations, to describe identified relationships.*** • ***Calculates the mean, median, mode and range of a data set.*** • ***Selects the most appropriate statistical diagram to display a given data set, for example, stem and leaf.*** • ***Justifies the most appropriate statistical diagram to display a given data set.*** • ***Uses different types of charts to display discrete, continuous and grouped data appropriately.***