

Learning Standards

Unit title/ statement of inquiry	Knowledge Content Students are expected to know the following...	Concepts	Curricular Competencies Students are expected to do the following...
Representing quantity The form of representation that we use for numbers will influence how we understand and think about quantities. 7 weeks	<ul style="list-style-type: none"> the decimal place value system. the relationship between different operations. the order of operations the effect of multiplying by a number between 0 and 1 how to multiply and divide integers and decimals by 0.1, 0.01 efficient written methods for multiplication and division of integers and decimals indices notation with integer indices how to simplify indices expressions with integer indices. how to express large and small numbers in Standard Index form (Scientific notation) multiply and divide using SI notation 	Form Representation Quantity	Knowing and understanding <ul style="list-style-type: none"> Select appropriate mathematics when solving problems in both familiar and unfamiliar situations Apply the selected mathematics successfully when solving problems Solve problems correctly in a variety of contexts. Investigating patterns <ul style="list-style-type: none"> Select and apply mathematical problem-solving techniques to discover complex patterns Describe patterns as general rules consistent with findings Verify and justify general rules. Communicating <ul style="list-style-type: none"> Use appropriate mathematical language (notation, symbols and terminology) in both oral and written explanations Use appropriate forms of mathematical representation to present information Move between different forms of mathematical representation Communicate complete, coherent and concise mathematical lines of reasoning Organize information using a logical structure Applying mathematics in real-life contexts <ul style="list-style-type: none"> Identify relevant elements of authentic real-life situations Select appropriate mathematical strategies when solving authentic real-life situations Apply the selected mathematical strategies successfully to reach a solution Explain the degree of accuracy of a solution Explain whether a solution makes sense in the context of the authentic real-life
The patterns behind the numbers If we can represent the general relationships underlying specific problems then finding both general and specific solutions becomes much simpler. 7 weeks	<ul style="list-style-type: none"> how to recognize, create and simplify equivalent algebraic expressions how to expand a single bracket with a common factor(s) how to factorise a single bracket by a common factor(s) how to solve linear equations with unknowns on both side using equivalence to solve linear equations. 	Logic Generalisation Simplification	
Shapeshifters Shapes can only be altered or kept unchanged if their underlying geometric properties are defined and understood. 7 weeks	<ul style="list-style-type: none"> how to describe and perform four transformations: translation by a vector, reflection (in the axes or the line $y=x$ only), rotation (centre (0,0) angle 90 or 180 only), enlargement (positive scale factors only). that symmetries are identity transformations how to solve problems involving: angles round a point, angles on a straight line, vertically opposite angles. angles on parallel lines (Alternate and corresponding and co-interior) how to find the Interior and exterior angles of polygons 	Form Justification Change	
Constant change A similar pattern can exist in the worlds of numbers, graphs or algebra; they are just different ways of representing the same underlying relationship, and they can be used to explain real-world relationships.	<ul style="list-style-type: none"> the vocabulary of term and 'nth term' using the difference method to find the nth term for linear sequences the linear function, $y = mx + c$ how to use algebra to represent horizontal and vertical lines. the significance of gradient in real life applications, and apply this understanding to calculate speed from simple distance time 	Relationships Pattern Representation	

Year 8 Mathematics

7 weeks	<p>graphs</p> <ul style="list-style-type: none"> • how to use graphs to interpret real life situations such as speed distance time problems. • how to write and simplify ratios • how to divide a quantity in a given ratio • how to solve simple problems involving ratio 		situation.
<p>Life in parts</p> <p>Often to give meaning to a quantity, we need to compare it as a part of some greater whole. We can represent this relationship in several equivalent ways.</p> <p>8 weeks</p>	<ul style="list-style-type: none"> • converting between fractions and decimals • equivalence, ordering, adding and subtracting of fractions • the meaning of a rational number • dividing a quantity using fractions and percentages • calculating fractions and percentages of an amount. • dividing a quantity into parts using fractions and percentages • how to multiply and divide fractions • basic language of probability, e.g., impossible, even chance • calculating simple probabilities $P(A)$ e.g., for cards, dice, coins and spinners. • complementary probability $P(A') = 1 - P(A)$ • how to use sample spaces to identify all the outcomes when two events are combined. • how to determine all the outcomes from simple combinations, for example, tossing a coin three times. • carrying out trials to determine an experimental probability. • that the accuracy of experimental probability increases with the number of trials. 	Relationships Equivalence Quantity	