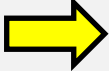

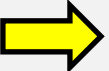


Greenfields Academy (Secondary) - Long Term Planning – MATHS & NUMERACY

Academic Year Overview 2020/21 – Year 7 Nurture

Term	Autumn		Spring		Summer	
	1 7 weeks	2 7 weeks	3 6 weeks	4 5 weeks	5 6 weeks	6 6 weeks
TRANSITION FROM...   	ALGEBRA Algebraic Thinking: Sequences	NUMBER Place Value and Proportion: Place Value and Ordering and Ordering Integers and Decimals	NUMBER Applications of Number: Solving Problems with Addition and Subtraction	NUMBER Directed Number: Operations and Equations with Directed Number	GEOMETRY & MEASURE Lines and Angles: Constructing, Measuring, and using Geometric Notation.	NUMBER Reasoning with Number: Developing Number Sense
	ALGEBRA Algebraic Thinking: Understand and use Algebraic Notation	NUMBER Place Value and Proportion: Fraction, Decimal and Percentage Equivalence	NUMBER Applications of Number: Solving Problems with Multiplication and Division	NUMBER Fractional Thinking: Addition and Subtraction with Fractions.	GEOMETRY & MEASURE Lines and Angles: Developing Geometric Reasoning.	PROBABILITY & STATISTICS Reasoning with Number: Sets and Probability
	ALGEBRA Algebraic Thinking: Equality and Equivalence		NUMBER Applications of Number: Fractions and Percentages of Amounts			NUMBER Reasoning with Number: Prime Numbers and Proof

Weekly Sequence	KEY: N – New Learning & Knowledge, KQ – Key Question, WSF – Whole School Focus Assessment/End of unit test ICT Focus					
1	<p>SEQUENCES N – To be able to describe and continue a sequence given diagrammatically.</p> <p>To predict and check the next term(s) of a sequence.</p> <p>KQ - Is there a quick way of counting the number of squares/circles in each diagram? Does this help you predict how many squares/circles are in the 10th or 100th term? How is each term in the sequence different from the previous term? Do the terms change in the same way every time? How could you change the sequence?</p>	<p>PLACE VALUE AND ORDERING N – To recognise the place value of any number in an integer up to one billion.</p> <p>To understand and write integers up to one billion in words and figures.</p> <p>KQ – Why is place value important? Why do we use commas in large integers?</p>	<p>ADDITION AND SUBTRACTION N – To devise strategies for mental addition and subtraction.</p> <p>To use formal methods for addition of integers.</p> <p>To use formal methods for addition of decimals.</p> <p>KQ – How does adding the same number to both parts of a subtraction affect the difference? Why do we start column addition with the column on the right? How do we line up decimal addition if one of the numbers is an integer?</p>	<p>DIRECTED NUMBER N – To order directed numbers using lines and appropriate symbols.</p> <p>To perform calculations that cross zero.</p> <p>KQ – How far is -3 from zero? How far is 3 from 0? How are they different? Where in everyday life would we use negative numbers?</p>	<p>CONSTRUCTING, MEASURING AND USING GEOMETRIC NOTATION N – To draw and measure line segments including geometric figures.</p> <p>To know what appropriate unit of measure to use when measuring. E.g. mm, cm, m.</p> <p>KQ – How many points do you need to define a straight line? How many points do you need to define a polygon? Can you name the geometric shapes that have 3 sides – 10 sides? What unit of measure would you use to measure a football pitch, an A4 piece of paper and a grain of rice?</p>	<p>DEVELOPING NUMBER SENSE N – To know and use mental addition and subtraction strategies for integers.</p> <p>KQ – How can you check answers to the addition problems using subtraction? Can you explain why addition is commutative? Does the same apply to subtraction?</p>
2	<p>SEQUENCES N – To recognise the difference between linear and non-linear sequences.</p> <p>To explain the term-to-term rule of numerical sequences in words.</p>	<p>PLACE VALUE AND ORDERING N – To work out intervals on a number line.</p> <p>To position integers on a number line.</p> <p>To round integers to the nearest 10.</p>	<p>ADDITION AND SUBTRACTION N – To use formal methods for subtraction of integers.</p> <p>To use formal methods for subtraction of decimals.</p>	<p>DIRECTED NUMBER N – To add negative numbers.</p> <p>KQ – Why is adding a negative the same as subtracting?</p>	<p>CONSTRUCTING, MEASURING AND USING GEOMETRIC NOTATION N – To understand that an angle is a measure of turn.</p> <p>To identify different types of angle.</p>	<p>DEVELOPING NUMBER SENSE N – To know and use mental multiplication and division strategies for integers.</p> <p>KQ – What does partitioning mean? Why do we do some multiplications by</p>

	<p>KQ – How is a linear sequence different to a non-linear sequence? How many terms do you need to be able to write a linear sequence? Why does the common difference help us to work out the next term in a linear sequence? How many terms are there between the first and the third term?</p> <p>End of unit test</p>	<p>KQ – Why can we mark some numbers on a number line exactly but others only approximately? Why do we round numbers?</p>	<p>KQ – Why isn't subtraction commutative? How can we check the answer to a subtraction? How do we line up decimal subtraction when one of the numbers is an integer?</p> <p>End of unit test</p>		<p>KQ – How can we measure the size of a turn? How can we describe the direction of a turn? How many degrees in a full turn, half a turn and a quarter of a turn?</p>	<p>portioning and adding and some by partitioning and subtracting?</p> <p>End of unit test</p>
3	<p><u>ALGEBRAIC NOTATION</u> N – To be able to use inverse operations to find the input.</p> <p>To use diagram and letters to generalise number operations.</p> <p>KQ – What calculation can we do to check that the answer from our calculation is correct? What happens to the size of the outputs if we change the size of inputs? What does the expression $6a$ mean?</p>	<p><u>PLACE VALUE AND ORDERING</u> N – To find the range of a set of numbers.</p> <p>To find the median of a set of numbers.</p> <p>KQ – For a set of integers, is the longest number always the largest number? What is meant by the range in a set of numbers? What is meant by the median in a set of numbers? How do we calculate the range? How do we calculate the median?</p> <p>End of unit test</p>	<p><u>MULTIPLICATION AND DIVISION</u> N – To understand and use factors.</p> <p>To understand and use multiples.</p> <p>To multiply and divide integers by 10 and 100.</p> <p>KQ – KQ – How do you work out the factors and multiples of a number? How do multiples relate to times tables facts? Explain how 18 can be a factor and a multiple of a number? Can you see a pattern when multiplying and dividing by 10 and 100?</p>	<p><u>DIRECTED NUMBER</u> N – To subtract negative numbers.</p> <p>KQ – How could you use a number line to help you with these calculations? What happens when you subtract a negative number from a positive total?</p> <p>End of unit test</p>	<p><u>CONSTRUCTING, MEASURING AND USING GEOMETRIC NOTATION</u> N – To be able to use a protractor effectively to measure angles.</p> <p>KQ – Why are there two scales on a protractor? How do we know what scale to use when using a protractor to measure angles? How do we know where to put the protractor when measuring an angle?</p> <p>End of unit test</p>	<p><u>SETS AND PROBABILITY</u> N – To identify and represent sets.</p> <p>To interpret and create Venn diagrams.</p> <p>KQ – What makes a group of objects a set? How many circles or ellipses are needed in a Venn diagram?</p>

<p>4</p>	<p><u>ALGEBRAIC NOTATION</u> N – To substitute values into single operation expressions.</p> <p>To use diagrams and letters with a series of two function machines.</p> <p>KQ – Are $2p$ and p^2 always, sometimes, or never equal? Why do you do the inverse operations in reverse order when finding the input to a pair of function machines?</p>	<p><u>FRACTION, DECIMAL AND PERCENTAGE EQUIVALENCE</u> N – To position decimals on a number line.</p> <p>To compare and order decimals on a number line.</p> <p>KQ – Why is 0.4 bigger than 0.29 even though 29 is bigger than 4? When we see a list of decimal numbers, is the longest number always the largest?</p>	<p><u>MULTIPLICATION AND DIVISION</u> N – To use formal methods to multiply integers.</p> <p>To use formal methods to multiply decimals.</p> <p>To use formal methods to divide integers.</p> <p>To use formal methods to divide decimals.</p> <p>KQ- Is the formal way of multiplication the easiest way? Can multiplication be done in commutative order? End of unit test</p>	<p><u>FRACTIONAL THINKING</u> N –To convert between mixed numbers and fractions.</p> <p>KQ – What is meant by a mixed number fraction? What is meant by an improper fraction? Is $\frac{5}{4}$ greater than 1 whole?</p>	<p><u>CONSTRUCTING, MEASURING AND USING GEOMETRIC NOTATION</u> N – To draw angles up to 180 degrees.</p> <p>KQ – Is it possible to draw an angle of 180 degrees? How can we draw an angle that measures over 180 degrees, with a protractor that only goes up to 180 degrees?</p>	<p><u>SETS AND PROBABILITY</u> N – To understand and use the intersection of sets.</p> <p>KQ – What is the same and what is different about the Venn diagrams on your worksheet? Do all sets intersect?</p>
<p>5</p>	<p><u>ALGEBRAIC NOTATION</u> N- To generate sequences given an algebraic rule.</p> <p>To represent one and two step functions graphically.</p> <p>KQ – How would you use your calculator to work out the value of a square number? What type of rule is better for finding the 100th term of a sequence? End of unit test</p>	<p><u>FRACTION, DECIMAL AND PERCENTAGE EQUIVALENCE</u> N- To represent any fraction on a diagram.</p> <p>To identify and use simple equivalent fractions.</p> <p>KQ – Why do we need to understand equivalent fractions? How would we use this in everyday life?</p>	<p><u>WRITTEN PROBLEMS USING THE FOUR OPERATIONS</u> N-To solve financial maths problems.</p> <p>To extract key information from a written problem.</p> <p>KQ- How do you decide which method to use to perform a calculation? What is the difference between the words credit and debit?</p>	<p><u>FRACTIONAL THINKING</u> N-To add and subtract fractions with the same denominator.</p> <p>KQ- If I have three quarters of pizza and take away one quarter, how many quarters do I have left? How would you write this in figures? End of unit test</p>	<p><u>DEVELOPING GEOMETRIC REASONING</u> N- To understand and use the sum of angles at a point.</p> <p>To know and apply the sum of angles in a triangle.</p> <p>KQ- How many right angles fit around a point? What is the sum of the interior angles of a triangle? Can a triangle have two right angles?</p>	<p><u>PRIME NUMBERS</u> N- To recognise and identify prime numbers</p> <p>To recognise and identify square numbers.</p> <p>KQ- When you add together two prime numbers, do they give an even number? How do you calculate a square number? End of unit test</p>

<p>6</p>	<p><u>EQUALITY AND EQUIVALENCE</u> N – To understand and use fact families numerically and algebraically.</p> <p>To solve one step linear equations involving + / - using inverse operations.</p> <p>KQ – What difference does it make if you swap the right-hand side and the left-hand side of an equation? How can we check that the answer to our equations are correct?</p>	<p><u>FRACTION, DECIMAL AND PERCENTAGE EQUIVALENCE</u> N – To convert between fractions, decimal and percentages.</p> <p>KQ – How is a fraction related to a decimal? How is 100% represented as a fraction? How is 100% represented as a decimal? End of unit test</p>	<p><u>FRACTIONS AND PERCENTAGES OF AMOUNTS</u> N – To find a fraction of a given amount.</p> <p>KQ – How do you work out $\frac{1}{2}$ of a number? How do you work out a number if you know the fraction of the number? End of unit test</p>		<p><u>DEVELOPING GEOMETRIC REASONING</u> N – To know and apply the sum of angles in a quadrilateral.</p> <p>KQ – What is the sum of the interior angles of a quadrilateral? If a quadrilateral has 4 right angles is it a square? End of unit test</p>	<p><u>END OF SCHOOL YEAR WEEK</u></p> <ul style="list-style-type: none"> • Maths games • Enrichment time • Sports day
<p>7</p>	<p><u>EQUALITY AND EQUIVALENCE</u> N – To understand the meaning of like and unlike terms. To understand the meaning of equivalence.</p> <p>KQ – What is meant by like and unlike terms? Write down as many expressions as you can that represent 5p. Can you simplify like and unlike terms? End of unit test</p>	<p><u>CHRISTMAS MATHS WEEK/ACTIVITIES – BASIC SKILLS</u></p> <ul style="list-style-type: none"> • Times table Christmas colouring. • Co-ordinate Christmas cards. • Christmas code crackers. 				