



The Sutton Academy

# Knowledge Rich Curriculum Plan

Year 7 Prime – Place Value and Calculations

Lesson/Learning Sequence	Intended Knowledge: <i>Students will know that...</i>	Tiered Vocabulary	Prior Knowledge: <i>In order to know this, students need to already know that...</i>	Assessment
<p><b>To learn how to read and interpret the place value of digits within a number.</b></p>	<ul style="list-style-type: none"> <li>• Students will know how to identify the value of a digit within both large and small integers and decimals.</li> <li>• Students will know how to list all three-digit numbers that can be made from three positive integers.</li> <li>• Students will know how to fill in a place value table with a range of integers and decimals.</li> </ul>	<p><b>Place Value</b> – the value of a digit depending on its position within a number  <b>Integer</b> – a whole number  <b>Decimal</b> – a number whose whole number part and the fractional part is separated by a decimal point</p>	<ul style="list-style-type: none"> <li>• Students should already know how to read and write numbers of any size in words and digits.</li> </ul>	<p>Mini-Assessment 1</p>
<p><b>To learn how to compare and order numbers.</b></p>	<ul style="list-style-type: none"> <li>• Students will know how to order positive and negative integers including in real life contexts.</li> <li>• Students will know how to order decimals. They will know that to order decimals we must compare each digit within the number individually, starting with the highest value digit.</li> <li>• Students will know how to use the symbols <math>&lt;</math>, <math>&gt;</math>, <math>=</math>, <math>\neq</math> to compare small and large integer numbers.</li> <li>• Students will know how to use the symbols <math>&lt;</math>, <math>&gt;</math>, <math>=</math>, <math>\neq</math> to compare positive and negative numbers.</li> <li>• Students will know how to use the symbols <math>&lt;</math>, <math>&gt;</math>, <math>=</math>, <math>\neq</math> to compare decimals.</li> <li>• Students will know how to compare a mixture of negative numbers and decimals.</li> </ul>	<p><b>Compare</b> - estimate, measure, or note the similarity or dissimilarity between.  <b>Order</b> – the arrangement of people or things in relation to each other according to a particular sequence, pattern, or method.  <b>Ascending</b> – going up  <b>Descending</b> – going down  <b>Inequality</b> – a symbol which makes a non-equal comparison between two numbers or other mathematical expressions e.g. <math>&gt;</math>, <math>&lt;</math>, <math>\geq</math> and <math>\leq</math></p>	<ul style="list-style-type: none"> <li>• Students need to know how to identify the value of a digit within both large and small integers and decimals.</li> </ul>	<p>Mini-Assessment 1</p>
<p><b>To learn how to add and subtract decimals.</b></p>	<ul style="list-style-type: none"> <li>• Students will know how to add decimals using column addition.</li> <li>• Students will know how to subtract decimals using column subtraction.</li> <li>• Students will know how to solve real life problems involving the addition and subtraction of decimals e.g. money problems.</li> </ul>	<p><b>Decimal</b> – a number whose whole number part and the fractional part is separated by a decimal point  <b>Sum</b> – The result of adding two or more numbers</p>	<ul style="list-style-type: none"> <li>• Students should already know how to add and subtract integers</li> </ul>	<p>Mini-Assessment 1</p>
<p><b>To learn how to add and subtract negative numbers.</b></p>	<ul style="list-style-type: none"> <li>• Students will know how to add and subtract with negative numbers using a number line.</li> <li>• Students will know how to solve real life problems involving adding and subtracting negative numbers.</li> </ul> <p><b>Avoid using terminology such as 2 negatives make a positive.</b></p>	<p><b>Negative</b> – Less than zero</p>	<ul style="list-style-type: none"> <li>• Students need to know how to order positive and negative numbers.</li> <li>• Students need to know how to add and subtract positive integers.</li> </ul>	<p>Mini-Assessment 1</p>

Lesson/Learning Sequence	Intended Knowledge: <i>Students will know that...</i>	Tiered Vocabulary	Prior Knowledge: <i>In order to know this, students need to already know that...</i>	Assessment
<b>To learn how to multiply and divide negative numbers.</b>	<ul style="list-style-type: none"> <li>• Students will know how to multiply a positive number to a negative number.</li> <li>• Students will know how to multiply two negative numbers together.</li> <li>• Students will know how to divide when one number is positive and one is negative.</li> <li>• Students will know how to divide when both numbers are negative.</li> </ul> <p><b>Avoid using terminology such as 2 negatives make a positive.</b></p>		<ul style="list-style-type: none"> <li>• Students need to know how to multiply and divide positive integers.</li> </ul>	
<b>To learn how to multiply and divide by powers of 10.</b>	<ul style="list-style-type: none"> <li>• Students will know how to multiply integers by 10, 100 and 1000.</li> <li>• Students will know how to divide integers by 10, 100 and 1000.</li> <li>• Students will know how to multiply decimals by 10, 100 and 1000.</li> <li>• Students will know how to divide decimals by 10, 100 and 1000.</li> </ul> <p><b>Opportunity for challenge:</b></p> <ul style="list-style-type: none"> <li>• Students will know how to multiply and divide by <math>10^2</math> and <math>10^3</math>.</li> <li>• Students will know how to multiply and divide by 0.1, 0.01 and 0.001 (<math>10^{-1}</math>, <math>10^{-2}</math>, <math>10^{-3}</math>).</li> </ul>		<ul style="list-style-type: none"> <li>• Students need to know how to fill in and use a place value table.</li> </ul>	Mini-Assessment 1
<b>To learn how to multiply integers.</b>	<ul style="list-style-type: none"> <li>• Students will know how to multiply integers using the column method.</li> <li>• Students will know how to solve real life problems involving the multiplication of integers using the column method.</li> <li>• Students will know how to solve more complex multi-step and/or worded problems involving multiplication with integers.</li> </ul>	Integer – a whole number	<ul style="list-style-type: none"> <li>• Students need to know how to identify the value of a digit within both large and small integers.</li> <li>• Students need to know how to align numbers according to place value.</li> <li>• Students need to know how to multiply single digit integers.</li> <li>• Students need to know how to add integers using column addition.</li> </ul>	Mini-Assessment 1
<b>To learn how to multiply decimals.</b>	<ul style="list-style-type: none"> <li>• Students will know how to multiply decimals by firstly multiplying the decimals by a power of 10 to produce integer values.</li> <li>• Students will know how to multiply their new integer values using the column method.</li> <li>• Students will know how to lastly divide by the same powers of 10 as used in their first step to produce their decimal product.</li> <li>• Students will know how to solve real life problem involving the multiplication of decimals using the column method- money problems.</li> <li>• Students will know how to solve multi-step problems involving multiplication of decimals.</li> </ul>		<ul style="list-style-type: none"> <li>• Students need to know how to multiply and divide by powers of 10.</li> <li>• Students need to know how to multiply numbers using column multiplication.</li> <li>•</li> </ul>	Mini-Assessment 1
<b>To learn how to divide integers.</b>	<ul style="list-style-type: none"> <li>• Students will know that multiplication and division are inverse operations of one another.</li> <li>• Students will know how to divide integers by other integers using short division.</li> <li>• Students will know how to use short division to produce a decimal answer – they will not express these answers using remainders.</li> <li>• Students will know how to divide integers by other integers using long division.</li> <li>• Students will know how to solve more complex multi-step and/or worded problems involving division with integers.</li> </ul>	Integer – a whole number	<ul style="list-style-type: none"> <li>• Students need to know how to multiply integers.</li> </ul>	Mini-Assessment 1

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<b>To learn how to divide with decimals.</b>	<ul style="list-style-type: none"> <li>• Students will know how to divide a decimal by an integer using short division.</li> <li>• Students will know how to divide a decimal by an integer using long division.</li> <li>• Students will know how to divide a decimal by a decimal by firstly multiplying both numbers by a matching power of 10.</li> <li>• Students will know that the power of 10 needs to at least make that the decimal you are dividing by an integer value.</li> <li>• Students will know how to divide their resulting values to produce an overall answer to the problem without needing to make any extra adjustments.</li> <li>• Students will know how to solve multi-step problems involving division of decimals</li> </ul>		<ul style="list-style-type: none"> <li>• Students need to know how to divide integers using short division.</li> <li>• Students need to know how to multiply by powers of 10.</li> </ul>	Mini-Assessment 1