



The Sutton Academy

Knowledge Rich Curriculum Plan

Year 10 Intermediate Number 2

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
To learn how to find the Highest Common Factor (HCF) and Lowest Common Multiple (LCM)	<ul style="list-style-type: none"> • Students will know how to find the prime factor decomposition of positive integers and write as a product using index notation. They will also understand that the prime decomposition is unique for every number. • Students will know that the prime factor decomposition of a positive integer is unique – whichever factor pair you start with – and that every number can be written as a product of two factors. • Students will know how to find the lowest common multiple (LCM) and highest common factor (HCF) of two numbers from their prime factorisation using a Venn diagram 	<p>Prime Number – In maths, prime numbers are whole numbers greater than 1, that have only two factors: 1 and the number itself.</p> <p>Multiple – A multiple is a number in the given number’s multiplication tables</p> <p>Factor – A factor is a number that divides into a given number without leaving a remainder.</p>	<ul style="list-style-type: none"> • Students will need to be able to identify prime numbers from a list of numbers. • Students will need to be able to identify factor pairs, including those containing prime numbers. • Students will need to know and recognising Highest common factors and lowest common multiples • Students will need to know how to draw and complete Venn diagrams. 	
To learn how to solve real life problems involving the HCF and LCM	<ul style="list-style-type: none"> • Students will know how to solve more complex problems using HCF, LCM and prime numbers including problems involving real life contexts 		<ul style="list-style-type: none"> • Students will need to be able to identify prime numbers from a list of numbers. • Students will need to be able to identify factor pairs, including those containing prime numbers. • Students will need to know and recognising Highest common factors and lowest common multiples • Students will need to know how to calculate with time. 	
To learn how to convert between standard form and ordinary numbers.	<ul style="list-style-type: none"> • Students will know that a number written in standard form is written as a $a \times 10^n$ where $1 \leq a < 10$ • Students will know how to write large and small numbers in standard form in the form $a \times 10^n$ where $1 \leq a < 10$ • Students will know how to convert numbers from being written in standard form back into ordinary numbers • Students will know when a number is/isn't written in standard form because either $a > 10$ or $a < 0$ • Students will know how to adjust a number written in the form $a \times 10^n$ where $a > 10$ or $a \leq 0$ so that it is written in standard form (in the form $a \times 10^n$ where $1 \leq a < 10$) • Students will know how to compare numbers written in standard form and how the $\times 10^n$ affects the size of one number compared with another 	<p>Standard form - a way of writing down very large or very small numbers easily, a number is written in standard form when it is written in the form $a \times 10^n$ where $1 \leq a < 10$</p>	<ul style="list-style-type: none"> • Students need to be able to multiply and divide by powers of 10 	
To learn how to add and subtract numbers written in standard form.	<ul style="list-style-type: none"> • Students will know that to add and subtract numbers written in standard form they must convert them into ordinary numbers first, add or subtract the numbers and then convert the answer back into standard form (where necessary) • Students will know how to solve more complex problems with numbers written in standard form both with and without a calculator (as appropriate) 		<ul style="list-style-type: none"> • Students will need to know how to convert from standard form to ordinary numbers and vice versa. • Students will need to know how to add and subtract integers and decimals. 	

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To learn how to multiply and divide numbers written in standard form.	<ul style="list-style-type: none"> • Students will know and understand that the quickest way to multiply numbers written in standard form we multiply together the 'a' in both number, multiply the 10^n and then combine the two answers • Students will know and understand that the quickest way to divide numbers written in standard form is to divide the 'a' in both number, divide the 10^n and then combine the two answers 		<ul style="list-style-type: none"> • Students will need to know the index laws for multiplication and division 	
To learn how to simplify and multiply and divide surds	<ul style="list-style-type: none"> • Students will know how to simplify surds by breaking it down into two factors, one of which is a square number • Students will know how to multiply and divide surds • Students will know that $\sqrt{ab} = \sqrt{a} \times \sqrt{b}$ and use it to simplify surd expressions. They will know that to do this they need to find a factor pair where one of the factors is a square number (e.g. $\sqrt{12} = \sqrt{4 \times 3} = \sqrt{4} \times \sqrt{3} = 2\sqrt{3}$) • Students will know that $\sqrt{a \div b} = \sqrt{a} \div \sqrt{b}$ • Students will know that $(\sqrt{a})^2 = a$ 	<p>Surd – a square root which cannot be reduced to a whole number. Surds are irrational numbers.</p> <p>Irrational Numbers – Numbers which, when written in decimal form, would go on forever.</p>	<ul style="list-style-type: none"> • Students will need to know their square numbers and the corresponding roots 	Exam Prep 1
To learn how to add and subtract surds	<ul style="list-style-type: none"> • Students will know that to add and subtract surds we use similar rules to collecting like terms and that therefore $\sqrt{a} + \sqrt{a} = 2\sqrt{a}$ etc. • Students will know that to add and subtract surds, the number under the square root has to be the same. They will know that to add and subtract surds they may have to simplify first in order to achieve the same surd. 		<ul style="list-style-type: none"> • Students will need to know how to simplify surds • Students will need to know their powers and roots. 	
To learn how to use a calculator effectively	<ul style="list-style-type: none"> • Students will know how to use a calculator to carry out complex calculations and round answers as appropriate to the question • Students will know how to use a calculator to calculate with numbers written in standard form 	<p>Significant figures – the digits in a number that contribute to the degree of accuracy of the value and that we start counting significant figures at the first nonzero digit.</p>	<ul style="list-style-type: none"> • Students will need to know how to round to decimal places and significant figures 	