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**Knowledge Rich Curriculum Plan**

Year 10 Higher – Number 2



| **Lesson/Learning Sequence**  | **Intended Knowledge:***Students will know that…* | **Tiered Vocabulary**  | **Prior Knowledge:***In order to know this, students need to already know that…* | **Assessment**  |
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| **To learn how to add, subtract, multiply and divide with fractions** | * Students will know how to add and subtract mixed numbers
* Students will know how to multiply and divide mixed numbers
 | **Denominator –** the bottom number in a fraction**Numerator –** the top number in a fraction | * Students will need to know how to add, subtract, multiply and divide fractions
* Students will need to know how to simplify fractions
* Students will need to know how to convert between mixed numbers and improper fractions
 | Exam Prep 2 |
| **To learn how to convert between recurring decimals and fractions** | * Students will know how to convert fractions to recurring decimals using division
* Students will know how to convert recurring decimals to fractions using the algebraic method
 | **Recurring -** occurring again [periodically](https://www.google.com/search?rlz=1C1GCEB_enGB1056GB1056&q=periodically&si=AMnBZoFOMBUphduq9VwZxsuReC7Y8jv_xNsn4HyQQUoP8SREzYQlmYjaQDJzC7x8DfFOVswwfnrkvkAFBa9vAIro72KwMcr6M8-1ztenvItrAoI2mrbOqYI%3D&expnd=1) or repeatedly | * Students will need to know how to multiply by powers of 10
* Students will need to know how to subtract using column subtraction
* Students will need to know how to write a fraction in its simplest form.
 | Exam Prep 2 |
| **To learn how to solve non-calculator problems involving percentages** | * Students will know how to calculate any percentage of an amount without a calculator.
* Students will know how to increase and decrease an amount of measurement by a percentage without a calculator
* Students will know how to use percentages to solve problems, including comparisons of two quantities using percentages.
* Students will know that value added tax, or VAT, is the tax you have to pay when you buy goods or services.
 | **Interest -** a fee paid for borrowing money or other assets or an amount earned by saving money in a bank account that pays it | * Students will need to know how to calculate percentages of amounts
 | Exam Prep 2 |
| **To calculate percentages of amounts with a calculator, including percentage increase and decrease.** **(simple interest)** | * Students will know how to express a given number as a percentage of another number by first writing as a fraction and then converting to a percentage. Students will know how to do this with a calculator.
* Students will know how to calculate a percentage of a quantity or measurement with a calculator - they will know how to locate and use the percentage button
* Students will know how to multiply by a decimal equivalent of the % to determine the percentage of an amount.
* Students will know how to increase and decrease an amount of measurement by a percentage with a calculator by using a multiplier.
 |  | * Students will need to know how to use a calculator.
 | Exam Prep 2 |
| **To learn how to calculate percentage change, profit and loss** | * Students will know how to calculate percentage change, percentage profit and percentage loss both with an without a calculator (as appropriate)
* Students will know that $percentage change=\frac{change}{original}×100$
* Students will know that $percentage profit=\frac{profit}{expense}×100$
* Students will know that $percentage loss=\frac{loss}{expense}×100$
 | **Profit –** a financial gain, the difference between the amount earned and the amount spent in buying, operating, or producing something | * Students will need to know how to calculate percentages of amounts
 | Exam Prep 2 |
| **To learn how to solve problems involving reverse percentages** | * Students will know how to find the original amount given the final amount after a percentage increase or decrease (reverse percentages), including VAT both with and without a calculator (as appropriate)
 | **VAT – Value Added Tax** – a tax that is applied to the purchase price of certain goods, services and other taxable supplies that are bought and sold within the UK. Standard VAT is 20%. | * Students will need to know how to write a ratio in the form 1:n
 | Exam Prep 2 |
| **To learn how to solve problems involving compound interest and depreciation** | * Students will know how to calculate a repeated percentage change including compound interest and depreciation
* Students will know how to determine the number of years interest has been accrued for given the starting and end value
* Students will know how to work out the interest rate when compound interest has been accrued for a given number of years, given the starting and end amounts
 | **Interest -** a fee paid for borrowing money or other assets or an amount earned by saving money in a bank account that pays it**Compound Interest –** the interest on a loan or deposit that accrues on both the initial principal and the accumulated interest from previous periods.**Depreciation –** a decrease in the value**Accumulated –** built up over time**Accrued –** received**Initial –** starting/original amount **Annum –** year | * Students will need to know how to increase by a percentage
* Students will need to know how to convert percentages into decimals
* Students will need to know how to solve linear equations using inverse operations
 | Exam Prep 2 |
| **To learn how to calculate Income tax** | * Students will know how to carry out income tax calculations
 |  | * Students will need to be able to calculate percentages with and without a calculator.
 | Exam Prep 2 |