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| Year 7 | **Topic: Unit 1 – Number skills**  **Period:** Autumn 1 |
| **Overview of topic:**  Students will build on their knowledge from key stage 2 in dealing with numbers of various types – both through mental calculations and written calculations, and by using a calculator correctly.   * Mental Maths * Addition and Subtraction * Multiplication * Division * Money and Time * Negative numbers * Factors, multiples and primes * Square numbers | |
| **Key** **knowledge:**   * Partitioning splits the bigger number to make some easier multiplications. * You must use the priority of operations to do calculations. * BIDMAS – Brackets, Indices (powers), Division and Multiplication, Addition and Subtraction * When you have only × and ÷, or only + and - then work from left to right. * An approximation is a number that is not exact. It is close enough for it to be useful though. Use approximations to estimate the answer to calculations. * ≈ means ‘approximately equal to’. * You can check a subtraction calculation using the inverse operation of addition. * You can use estimation to check the answer to a multiplication calculation. Round the numbers and then multiply. * In the column method you write the numbers in the calculation in their place value columns. * Long multiplication is a written method to multiply by numbers with two or more digits. * If money received is greater than money spent, then you make a profit. If money spent is greater than money received, then you make a loss. * You can check a division calculation using the inverse operation of multiplication. * Long division is a written method to divide by numbers with two or more digits. It breaks down the calculation into smaller steps than short division. * To round an amount to the nearest pound, look at the pence. * Change is the money you get back after paying for something with more money than it costs. * The symbol > means greater than. The symbol < means less than. * A multiple of a number is in that number’s multiplication table. * A Venn diagram is a way of showing sets of numbers. * A factor is a whole number that will divide exactly into another number. * A factor pair is two numbers that multiply together to make a number. * A prime number has exactly two factors, 1 and itself. * Square numbers make a square pattern of dots. To find the square of a number, you multiply it by itself. * You can write 3 × 3 as 32. You read this as ‘3 squared’. The ‘2’ in 32 is called the power or index. The plural of index is indices. * You can use the 𝑥2 key on your calculator to work out a square. * A square root is a number that is multiplied by itself to produce a given number. * Finding the square root is the inverse of squaring. * You can use the √ key on your calculator to find a square root. | **Key skills:**   * Use the priority of operations, including brackets * Use multiplication facts up to 10 × 10 and the laws of arithmetic to do mental multiplication and division * Multiply by multiples of 10, 100 and 1000 * Make an estimate to check an answer * Use inverse operations to check an answer * Use a written method to add and subtract whole numbers of any size * Round whole numbers to the nearest 10 000, 100 000, 1 000 000. * Use an estimate to check an answer to a multiplication * Use a written method to multiply whole numbers * Use a written method to divide whole numbers * Use inverse operations to check an answer * Round money to the nearest pound or penny * Interpret the display on a calculator in different contexts * Use a calculator to solve problems involving money and time * Order positive and negative numbers * Add and subtract positive and negative numbers * Begin to multiply with negative numbers * Find all the factor pairs for any whole number * Identify common factors, the highest common factor and the lowest common multiple * Recognise prime numbers * Recognise square numbers * Use a calculator to find squares and square roots * Use the priority of operations, including powers * Use index form for powers * Do mental calculations with squares and square roots   **Key vocabulary:**   |  |  | | --- | --- | | Tier 2 | Tier 3 | | * Add * Subtract * Multiply * Divide * Mental * Operations * Brackets * Decimal * Estimate * Rounding * Remainder * Digits * Negative * Ordering * Greater than * Less than * Factors * Multiples * Prime * Common * Square * Cubes * Powers * Roots | * Arithmetic * Place Value * Inverse * Integers * Exponents * Index form | |
| **Co-curricular opportunities:** Number skills are a vital key skill across multiple other areas of study including Science, Geography, Technology, PE and many others | **Key reading skills taught and key texts:**  Clarify – identify key vocabulary in questions and be fluent in understanding the meanings  Question – from a worded question, what Maths is required to be done in order to get a solution?  **Wider Reading Opportunities/Links:** |
| **How can I use this information at home?**   * Conversation starters with your children to discuss their learning * Support your child in carrying out independent research around the topic * Visit your local library (or BorrowBox), museums, or other locations to explore the topic * Promote books/other texts that explore this topic (see reading section) * Help your child to learn the key vocabulary * Encourage practice and consolidation through completion of homework, TTRockStars and using other online learning platforms * Encourage them to practice their mathematical skills in a variety of everyday situations wherever the opportunity arises. | |