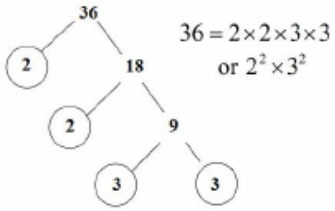
The Wells Academy

"Be Kind. Work Hard. Achieve Greatness."

Knowledge Organiser— Year 9 Term 1—Maths

Topic/Skill	Definition/Tips	Example
Negative Number	A number **less than zero**. Can be decimals.	$-8, -2.5$
BIDMAS	**Brackets, Indices, Division, Multiplication, Addition and Subtraction'**.	$6 + 3 \times 5 = 21, not\ 45$ $12 \div 4 \div 2 = 1.5, not\ 6$
Lowest Common Multiple (LCM)	The **smallest** number that is in the **times tables** of each of the numbers given.	The LCM of 3, 4 and 5 is 60 because it is the smallest number in the 3, 4 and 5 times tables.
Highest Common Factor (HCF)	The **biggest** number that **divides exactly** into two or more numbers.	The HCF of 6 and 9 is 3 because it is the biggest number that divides into 6 and 9 exactly.
Product of Prime Factors	Finding out which **prime numbers multiply** together to make the **original** number. Use a **prime factor tree.** Also known as 'prime factorisation'.	
Recurring Decimal	A decimal number that has **digits that repeats forever**. The part that repeats is usually shown by placing a dot above the digit that repeats, or dots over the first and last digit of the repeating pattern.	$\frac{1}{3} = 0.333\ldots = 0.\dot{3}$ $\frac{1}{7} = 0.142857142857\ldots = 0.\dot{1}42857\dot{}$
Rounding	If the **digit to the right** is **less than 5, round down, 5 or more, round up**	74 rounded to the nearest ten is 70, because 74 is closer to 70 than 80.
Significant Figure	The significant figures of a number are the digits which **carry meaning** (ie. are significant) to the size of the number. The **first sig figs** of a number **cannot be zero**.	In the number 0.00821, the first significant figure is the 8. 0.00821 rounded to 2 sig figs is 0.0082.
Approximation	When using approximations to estimate the solution to a calculation, **round each number to 1 significant figure**.	$\frac{348+692}{0.526} \approx \frac{300+700}{0.5} = 2000$
Fraction of an Amount	**Divide** by the **bottom**, **times** by the **top**	Find $\frac{2}{5}$ of £60 $60 \div 5 = 12$ $12 \times 2 = 24$
Adding or Subtracting Fractions	Find the **LCM of the denominators** to find a common denominator. Use equivalent fractions to change each fraction to the **common denominator**. Then just **add or subtract the numerators** and keep the **denominator the same**.	$\frac{2}{3} + \frac{4}{5}$ LCM of 3 and 5 = 15 $\frac{10}{15} + \frac{12}{15} = \frac{22}{15} = 1\frac{7}{15}$
Multiplying Fractions	**Multiply** the **numerators** together and **multiply** the **denominators** together.	$\frac{3}{8} \times \frac{2}{9} = \frac{6}{72} = \frac{1}{12}$
Dividing Fractions	**'Keep it, Flip it, Change it – KFC'** Keep the first fraction the same Flip the second fraction upside down Change the divide to a multiply	$\frac{3}{4} \div \frac{5}{6} = \frac{3}{4} \times \frac{6}{5} = \frac{18}{20} = \frac{9}{10}$