Year 9 Maths Learning Journey

Spring Term 1

Reasoning with number: Numbers

Core knowledge	Reference number
Integers, real and rational numbers “Why are all fractions rational numbers?”	WORKSHEET
Understand and use surds (H) “Are surds rational or irrational?”	WORKSHEET
Work with directed number (R) "Explain why $x^2$is never negative”	WORKSHEET
Solve problems with integers “What mental methods of calculation do you know?”	WORKSHEET
Solve problems with decimals “Why do 292 ÷ 0.4 and 2920 ÷ 4 have the same answer?”	WORKSHEET
HCF and LCM (R) “How do you find the highest common factor of a set of three numbers?”	WORKSHEET
Adding and subtracting fractions (R) “How do you convert an improper fraction to a mixed number?”	WORKSHEET
Multiplying and dividing fractions (R) “What does the word reciprocal mean?”	WORKSHEET
Solve problems with fractions “What’s the same and what’s different about solving a problem if the numbers were integers rather than fractions?”	WORKSHEET
Numbers in standard form (R) “What keys do you press on your calculator to enter a number in standard form?”	WORKSHEET

Learning Checkpoint

LC Title	Completed	Dirt
Numbers		

Key Vocabulary

Integer – a whole number that can be positive, negative or zero

Real – a number that is rational or irrational

Rational – a number that is an integer or that can be expressed as a fraction

Irrational - a number that is not an integer and cannot be expressed as a common fraction with a non-zero denominator

Square root – a number whose square is equal to a given number

Cube root – a value or quantity whose cube is equal to a given quantity

Surd – an irrational number expressed as the root of a natural number

Simplify – reduce to its simplest form

Positive – a number greater than zero

Negative - A number less than 0

Directed – a number having a direction as well as a size

Inverse – the opposite of another operation

Square – the product of the number and itself

Cube – a number expressed as the product of three equal integers

Operation – addition, subtraction, multiplication and division

Quotient – the result of a division

Product – the result of multiplying one number by another

Sum – the result of one or more additions

Difference – the numerical difference between two numbers

Remainder – the amount remaining after division

Compensate – a mental or written calculation strategy where one number is rounded to make the calculation easier e.g. 67 – 39 is treated as 67 – 40 and then 1 is added to compensate

Factor - When a number, or polynomial in algebra, can be expressed as the product of two numbers or polynomials, these are factors of the first.

Multiple - For any integers a and b, a is a multiple of b if a third integer c exists so that a = bc

HCF – the common factor of two or more numbers which has the highest value

LCM – the common multiple of two of more numbers which has the least value

Product of primes – expressing a number as the product of factors that are prime numbers

Fraction – the result of dividing one integer by a second integer

Numerator – the number written on top of a fraction (the dividend)

Denominator – the number written below the line (the divisor)

Mixed number – a whole number and fractional part expressed as a common fraction

Improper fraction – a fraction where the numerator is greater than the denominator

Reciprocal - The multiplicative inverse of any non-zero number

Standard form – the form which numbers are recorded as a number between 1 and 10 multiplied by a power of ten; used for very large and very small numbers

Power / exponent / Index - a number positioned above and to the right of another (base). Can be negative, zero or fractional