



Year 8 Maths Learning Journey

Spring term 5

Developing number: Standard Index Form

Core knowledge	Reference
Investigate positive powers of 10 "Is there a simpler way to write $10,000 \times 10,000$?"	WORKSHEET
Work with numbers greater than 1 in standard form "What is one gigabyte (1GB) written in standard form?"	WORKSHEET
Investigate negative powers of 10 "How many different ways can you write 0.001?"	WORKSHEET
Work with numbers between 0 and 1 in standard form "What is the same and what is different about 3×10^{-4} and 3×10^4 ?"	WORKSHEET
Compare and order numbers in standard form "What do you look at first when comparing numbers in standard form?"	WORKSHEET
Mentally calculate with numbers in standard form "Why is $6 \times (5 \times 103)$ more difficult than $4 \times (2 \times 103)$?"	WORKSHEET
Add and subtract numbers in standard form "Is it easier to add the numbers as they are or convert them to ordinary numbers first?"	WORKSHEET
Multiply and divide numbers in standard form "Describe the steps you need to take to multiply/divide a pair of numbers in standard form"	WORKSHEET
Use a calculator to work with numbers in standard form "What button on your calculator converts an answer into standard form?"	WORKSHEET
Understand and use negative indices (H) "Will a number raised to a negative power always, sometimes or never have a negative value?"	WORKSHEET
Understand fractional indices (H) "Give an example to show "to the power half" is not the same as "divide by 2"?"	WORKSHEET

Learning Checkpoints

LC Title	Completed	Dirt
Standard Index Form		

Key Vocabulary:

Base: The number that gets multiplied when using an exponent

Commutative: Addition and multiplication of real numbers are commutative where $a + b = b + a$ and $a \times b = b \times a$ for all real numbers a and b .

Exponent: the number of times a number is multiplied by itself.

Index/indices: number that tells us how many times a term has been multiplied by itself. The plural of index is indices.

Negative: An integer less than 0.

Place Value: The value of a digit that relates to its position or place in a number.

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

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

Square root: A number whose square is equal to a given number