



Year 10 Maths Learning Journey

Spring Term 5

Proportion and proportional change: Percentages and interest

Core knowledge	Reference
Convert and compare fractions, decimals and percentages (R) "Which are the most commonly used percentages? What fractions are they equivalent to?"	WORKSHEET
Work out percentages of amounts (with and without a calculator) (R) "How do you work out 10% of a number? How do you work out 1% of a number? How are these connected?"	WORKSHEET
Increase and decrease by a given percentage (R) "What words in a question might mean you need to increase by a quantity? What words indicate decrease?"	WORKSHEET
Express one number as a percentage of another (R) "How can I convert any fraction to a percentage using a calculator? If I don't have a calculator, what denominators are useful for converting fractions to percentages?"	WORKSHEET
Calculate simple and compound interest What is the different between simple and compound interest? Which one is most common in real life?"	WORKSHEET
Repeated percentage change "Why is it that increasing a quantity by (e.g.) 10% twice in a row is not the same as increasing it the quantity by 20%?"	WORKSHEET
Find the original value after a percentage change (R) "If we know (e.g.) 40% of a number, what else can we find?"	WORKSHEET
Solve problems involving growth and decay "If you reduced a number by 50% twice a row, why is the answer not 0?"	WORKSHEET
Understand iterative processes (H) "Given u_1 and a rule, how many times do I need to iterate in order to find the value of (e.g.) u_5 ?"	WORKSHEET
Solve problems involving percentages, ratios and fractions "Is the ratio (e.g.) $2 : 3$ the same as the fraction $\frac{2}{3}$? Why or why not?"	WORKSHEET

Learning Checkpoints

LC Title	Completed	Dirt
Percentages and interest		

Key Vocabulary:

Compound interest: the interest added over and over again

Convert: Changing from one quantity or measurement to another.

Decay: describes the process of reducing an amount by a consistent percentage rate over a period of time.

Decimal: where the tenths, hundredths, thousandths etc. are represented as digits following a decimal point

Denominator: In the notation of common fractions, the number written below the line

Depreciate: to go down in value

Equivalent: equal in value, amount, function, meaning, etc.

Express: We write an expression in math by using numbers or variables and mathematical operators which are addition, subtraction, multiplication, and division.

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

Geometric sequence: A sequence made by multiplying by the same value each time. For example 2, 4, 8, 16, 32, 64, 128, 256, ... (each number is 2 times the number before it)

Growth: Where a value increases in proportion to its current value.

Interest: in savings, banks pay (or charge) interest on the amount invested (or borrowed)

Iterate: the repeated application of a function or process in which the output of each step is used as the input for the next iteration.

Multiplier: a quantity by which a given number (the multiplicand) is to be multiplied.

Numerator: in the notation of common fractions, the number written on the top – the dividend (the part that is divided).

Original: the initial point or the starting point from where we begin our calculations or measurements.

Percentage: A fraction expressed as the number of parts per hundred and recorded using the notation %

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

Ratio: A part to part comparison.

Reduce: divide the numerator and denominator by a common factor

Reverse: Use inverse operations,

Simple interest: the interest amount for a particular principal amount of money at some rate of interest.

Subscript: A quantity displayed below the normal line of text (and generally in a smaller point size), as the " " in , is called a subscript.

Term: either a single number or variable, or numbers and variables multiplied together.