Year 7 : Addition & Subtraction Medium Term Plan

Addition and Subtraction	Integers and Decimals	Addition and subtraction of integers and decimals. Recognise and use relationships between addition and subtraction including inverse operations.	History of why decimalisation came to be Going shopping - JUNIOR mathematical team game E
	Frequency Trees & Two Way Tables	Be able to use and interpret frequency trees and two way tables as a way to organise number problems.	Organising strategies, working in methodical
	Negatives	Evaluate addition and subtraction of negative numbers.	Why was the negative invented Temperature Negative numbers coded sentence -
	Bank Statements	Understand the process of bank accounts and how credit and debit is calculated. Apply to real life scenarios and extend to profit and loss.	Set up spreadsheets for debit and credit.
	Time	Read and write with time. Calculate with time in varying scenarios. Read and understand Bus Timetables.	Planning journeys
	Perimeter	Understand that perimeter is a distance. Calculate and solve problems involving perimeter.	Enclosed shapes in real life
	Compound Shapes	Calculate the perimeter of compound shapes. Involve specialist terminology such as regular, compound, composite and types of other shape names.	Real life perimeter e.g. fencing fields.
	Number Puzzles (low ability) (1 lesson)	Addition and subtraction Reasoning Problem solving	
	Largest and Smallest Answers (1 lesson)	Addition and subtraction Reasoning Problem solving	

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	Upper and Lower Bounds	Calculate the upper and lower bounds in perimeter and money scenarios.	Real life perimeter problems involving money

Key Knowledge/Prior Learning KS2/Retrieval and Suggested Starters
• Perform mental calculations, including with mixed operations and large numbers • Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy • KS2 mental arithmetic questions • Place Value – writing and reading numbers including e.g. one thousand 7 hundred as 17 hundred and 170 tens etc. • Rounding to 10s • Approximations/Estimation • Temperature

KS3 National Curriculum – what students will be practicing – Core Knowledge
• Use the operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative • Recognise and use relationships between operations including inverse operation • Derive and apply formulae to calculate and solve problems involving: perimeter • Calculate and solve problems involving: perimeters of 2-D shapes inc compound • Enumerate sets and unions/intersections of sets systematically, using tables/grids • Calculate with upper and lower bounds involving addition and subtraction.

Specific Ambitious Knowledge
• Different methods to add/subtract -number lines, -column method/compact, -expanded form method, -partitioning, -partial differences, -inc picture representations and the bar method). • Place value through binary and other numeral systems.

Key Vocabulary/Literacy Opportunities

- Inverse operation
- Place value
- Calculate
- Union
- Intersection
- Estimation
- Bounds
- Perimeter
- Compound
- Credit/debit

Key Formulae

- e.g. 2l + 2w = perimeter of a rectangle

Cross Curricular Links

- ICT – using spreadsheets for calculations including budgeting.
- Food Tech – cost of meals per person
- Science – melting and boiling points
- DT – the cost to design and build/change rooms.

Student' Thinking

- Why to banks allow over drafts? Does this cause people to get into debt?
- Why are healthy meals more expensive than unhealthy ready meals?
- Why is fruit more expensive than chocolate?
- Why do items brought in bulk cost less per item, but result in us spending more?
  Does this lead to more waste when food items?

Projects/Enrichment/Investigations

- Add to 200: https://nrich.maths.org/11110
- Forwards and Backwards: https://nrich.maths.org/11111
- Two and Two: https://nrich.maths.org/twoandtwo
- Consecutive Negative Numbers: https://nrich.maths.org/5868
- Perimeter Challenge: https://nrich.maths.org/content/id/11119/Perimeter%20Challenge.pdf
- Differences: https://nrich.maths.org/602
- Negative numbers coded sentence mathematical team game E.

- Going shopping - JUNIOR mathematical team game E

Projects/Tasks:

Core:

- Number puzzles
- Largest and smallest answers

Upper:

- Largest and smallest answers

Set 1: