Year 7 : Addition \& Subtraction Medium Term Plan

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|  | Number Puzzles (low ability) <br> (1 lesson) | Additianandsubtrastian Riauraning Frablemesaluing |  |
|  | Largest and Smallest Answers <br> (1 lesson) | Additianandsubtractian Fiearanima Frablemsaluina |  |
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|  | Integers and Decimals <br> Frequency Trees \& Two w'ay Tables | 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 |
|  |  | 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 <br> Temperature <br> 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 oredit. |
|  | Time | Read and write with time. Calculate with time in varying scenarios. Fiead 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. | Feal life perimeter e.g. fencing fields. |
|  | Largest and Smallest Answers <br> (1 Iesson) | Addition and subtraction Reasoning Problem solwing |  |


|  | Integers and Decimals | Addition and subtraction of integers and decimals. Fiecognise and use relationships between addition and subtraction including inverse operations. | History of why decimalisation came to be |
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|  | 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 ways |
|  | Negatives | Evaluate addition and subtraction of negative numbers. | Why was the negative invented Temperature <br> Negatiwe numbers coded sentence - |
|  | Bank Statements | Understand the process of bank accounts and how oredit and debit is calculated. A.pply to real life scenarios and extend to profit and loss. | Set up spreadsheets for debit and oredit. |
|  | Time | Fiead and write with time. <br> Calculate with tirne in warying scenarios. <br> Fiead and understand Bus Timetables. | Planning journeys |
|  | Perimeter | Understand that perimeter is a distance. Calculate and solve problems involwing perimeter. | Enclosed shapes in real life |
|  | Compound Shapes | Calculate the perimeter of compound shapes. Involue specialist terminology such as regular, compound, composite and types of other shape names. | Feal life perimeter e.g. fencing fields. |
|  | Upper and Lower Bounds | Calculate the upper and lower bounds in perimeter and money scenarios. | Fieal life perimeter problems inwolwing 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 10 s
- 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
-numberlines,
-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. $2 \mathrm{l}+2 \mathrm{w}=$ 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\ Challenge.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:

- Numberpuzzles
- Largest and smallest answers

Upper:

- Largest and smallest answers

Set 1:

