# Knowledge Organiser 

## Number

## Year 6

Addition, Subtraction, Multiplication, Division
In Year 6, we continue to develop our knowledge of all four operations and apply them to a variety of problems. We identify the problem, decide how to solve it, choose the best way to find the solution and check our answers but these skills aren't just used in maths. Being able to solve problems is part of many jobs and we will use these skills in the future.

Builds from Year 5:
Mental strategies for $+-\mathrm{x} \div$
Formal written methods for $+-\mathrm{x} \div$ (including decimals).
Multi-step problems.
Prime, square and cube numbers.
Multiples and factors.

This year:
Solve multi-step problems in context, deciding which operations and methods to use and why.
Understand the order of operations.
Interpret remainders according to the context.
Common factors and multiples.

Leads to Key Stage 3:
Apply all 4 operations to various areas of maths, including when using positive and negative numbers.
Roots and powers.
Use calculators to calculate results accurately.

## Formal Written Methods



## Prime Numbers

A prime number only has 2 factors: 1 and itself.


A composite number has more than 2 factors.



## Order of Operations

| $\mathbf{B}$ | Brackets | $10 \times(4+2)=10 \times 6=60$ |
| :--- | :--- | :--- |
| $\mathbf{O}$ | Order | $5+2^{2}=5+4=9$ |
| $\mathbf{D}$ | Division | $10+6 \div 2=10+3=13$ |
| $\mathbf{M}$ | Multiplication | $10-4 \times 2=10-8=2$ |
| $\mathbf{A}$ | Addition | $10 \times 4+7=40+7=47$ |
| $\mathbf{S}$ | Subtraction | $10 \div 2-3=5-3=2$ |

The order of operations is important because it guarantees that everyone can read and solve the problem in the same way.

## Common Factors

Factors of 48

Factors of 30

| 1 | 2 | 3 | 5 | 6 | 10 | 15 | 30 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Common factors: 1, 2, 3, 6

## Common Multiples

Multiples of 3

Multiples of 7

| 3 | $\ldots$ | 18 | 21 | 24 | $\ldots$ | 39 | 42 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 7 14 21 28 35 42 |  |  |  |  |  |  |  |

Common multiples: 21, 42 ...

## Key Vocabulary

add total make plus sum more altogether difference subtract less minus exchange multiply product times multiply division divide remainder interpret fraction decimal mentally estimate factor multiple prime square number cube number common order of operations inverse operation place value

