Maths At Battle Primary

The national curriculum for mathematics aims to ensure that all pupils:

•become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately

•reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language

•can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

At Battle we follow a Mastery approach to help us to achieve these aims.

The key features of a mastery approach:

The class work together on the same topic

The emphasis is on keeping the class together until specific concepts or skills are mastered and then moving on together. This does **not** mean that some children will be left behind or others not challenged. Differentiation is now achieved through and deeper understanding, as explained below.

Speedy teacher intervention to prevent gaps

Those children that have not met the expected outcomes or have gaps in their understanding, will be helped by receiving short, immediate extra time on maths, during the lesson or later in the day. This is a positive opportunity to consolidate their understanding.

Challenge is provided by going deeper not accelerating

For those children that have mastered the skill, concept or procedure they will be presented with higher order thinking activities, rather than accelerating through the curriculum.

Focused, rigorous and thorough teaching

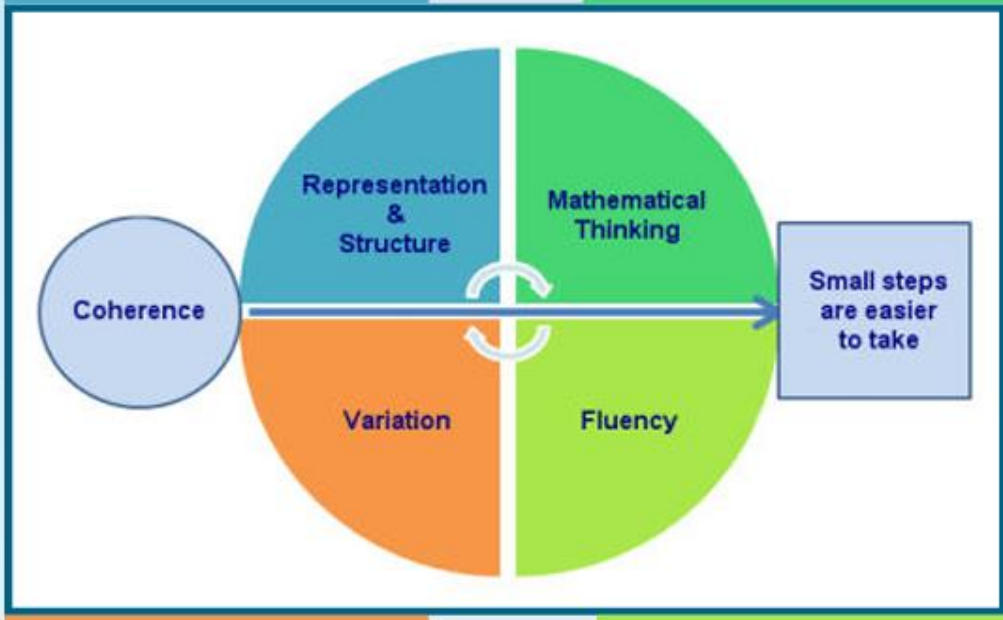
Within Mastery, the idea is to focus on one small step at a time in a lesson, with an emphasis on the mathematical structures involved and the best way to represent these through models and images. Each small step is important as it builds towards deep understanding of a concept.

More time on teaching topics – depth and practice

The same topic is likely to have the same focus until the class has mastered the concept, skill or procedure being taught. This is particularly the case for number and calculations. Focus areas are being taught over a longer time with smaller steps of progress and time is for practice and depth, making the learning effective.

Representation and Structure
Representations such as objects and pictures are used in lessons expose the mathematical concepts being taught.

Mathematical Thinking
If taught ideas are to be understood deeply, they must not merely be passively received but must be thought about, reasoned with and discussed with others.



Variation
Varying the way a concept is initially presented to students, by giving examples that display a concept as well as those that don't display it. Also, carefully varying practice questions so that mechanical repetition is avoided, and thinking is encouraged.

Fluency
Quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics.

Coherence
Connecting new ideas to concepts that have already been understood, and ensuring that, once understood and mastered, new ideas are used again in next steps of learning, all steps being small steps.

You will see in our daily maths lessons:

Fluency, reasoning and problem solving.

In EYFS, KS1 and Year 4 and 5 the children are using the Mastering Number Program.

Learners are supported and challenged in lessons through questioning, resources and being challenged to think creatively about a problem.

Concrete manipulatives and pictorial representations are used to support conceptual understanding and to make links across topics.

Websites you can use to help your children at home:

https://www.bbc.co.uk/bitesize

https://www.primaryhomeworkhelp.co.uk/maths/index.html

https://www.cgpbooks.co.uk/resources/cgp-s-free-online-10-minute-tests

https://www.educationquizzes.com/in/primary/

https://mathsbot.com/

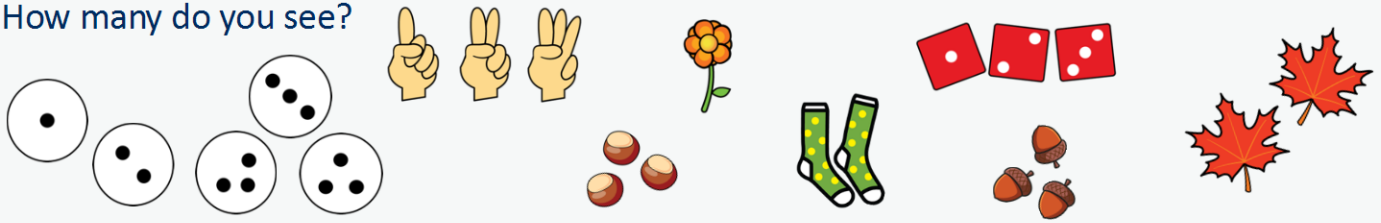
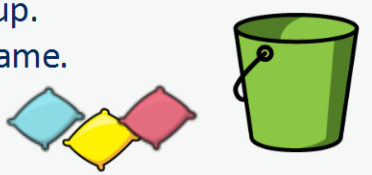
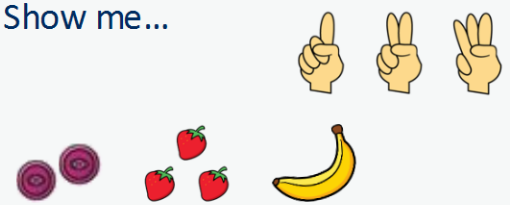
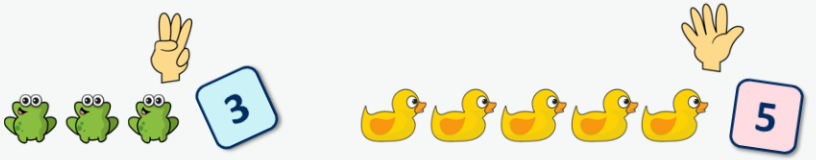
https://www.ncetm.org.uk/classroom-resources/ey-numberblocks-at-home/

https://www.topmarks.co.uk/maths-games/5-7-years/counting

EYFS

Addition

White Rose MATHS

Nursery	• Begin to have an understanding of numbers to 5 • We recommend focusing on noticing and representing small quantities, perceptual subitising and counting.
Progression of skills	**Key representations**
Subitise to 3 Instantly see how many.	How many do you see? 
Count how many Begin to count objects using 1-1 correspondence.	How many are there?  Count out … from a larger group. E.g. Collect 3 beanbags for a game. 
Make numbers to 5 Start by showing 1, 2 and 3 using fingers.	Show me…  Begin to link numerals to quantities. 
Add 1 more Through stories, songs and rhymes.	How many do I have now? 

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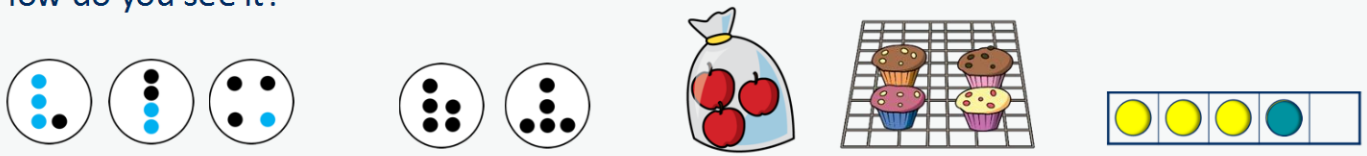
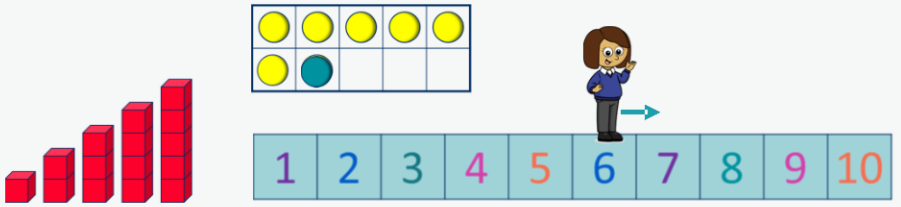
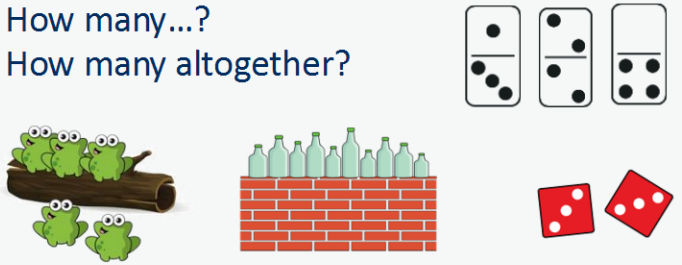
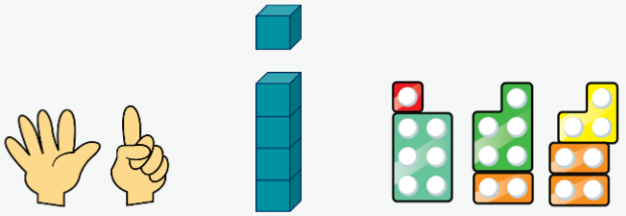
Addition

Reception	• Have a deep understanding of numbers to 10, including the composition of each number. • Subitise (recognise quantities without counting) up to 5 • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 and some number bonds to 10, including double facts.
Progression of skills	**Key representations**
Conceptually subitise to 5 Notice the parts that make up the whole.	What do you see? How do you see it? 
1 more Continue to link to stories, songs and rhymes.	1 more than … is … 
Notice the composition of numbers within 10 Link to stories, songs and rhymes.	How many…? How many…? How many altogether?  How many ways can you make…? 

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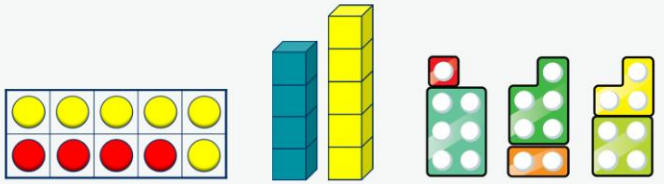
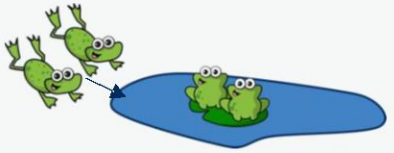
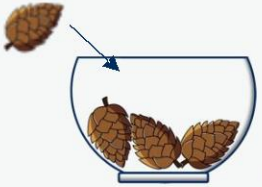
Addition

Progression of skills	Key representations	
Combine 2 groups 2 groups are combined to find the total.	There are …. There are …. There are …. altogether.   	…. and …. make …. 
Add more A quantity is increased.	First… Then…. Now….  	I have …. I add …. more. Now I have….   

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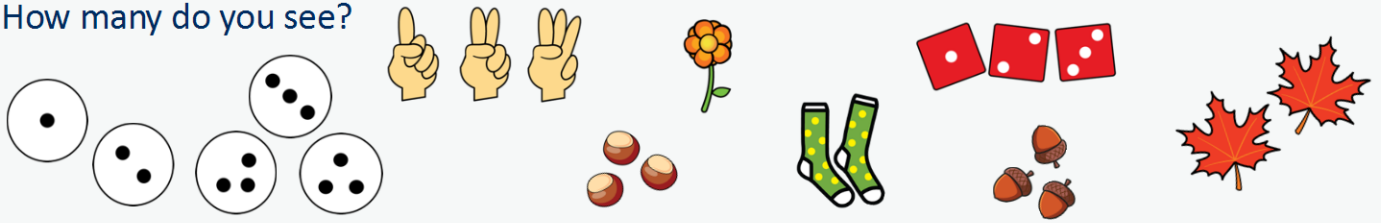
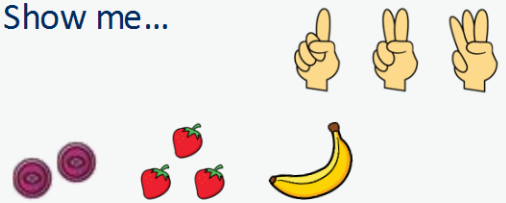
Subtraction

White Rose MATHS

Nursery	• Begin to have an understanding of numbers to 5 • We recommend focusing on noticing and representing small quantities, perceptual subitising and counting.
Progression of skills	**Key representations**
Subitise to 3 Instantly see how many.	How many do you see? 
Count how many Begin to count objects using 1-1 correspondence.	How many are there?  Count out … from a larger group. E.g. Collect a cup for everyone at the table. 
Make numbers to 5 Start by showing 1, 2 and 3 using fingers.	Show me…  Begin to link numerals to quantities. 
Take 1 away Through stories, songs and rhymes.	How many do we have now? 

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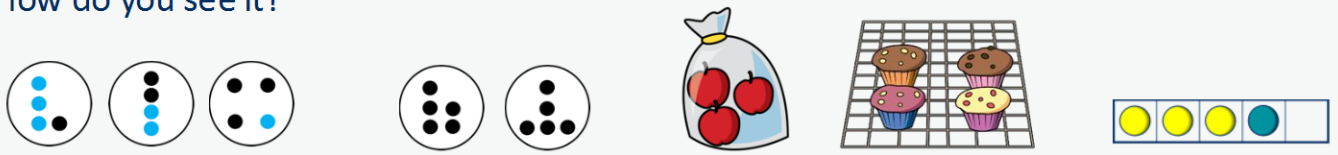
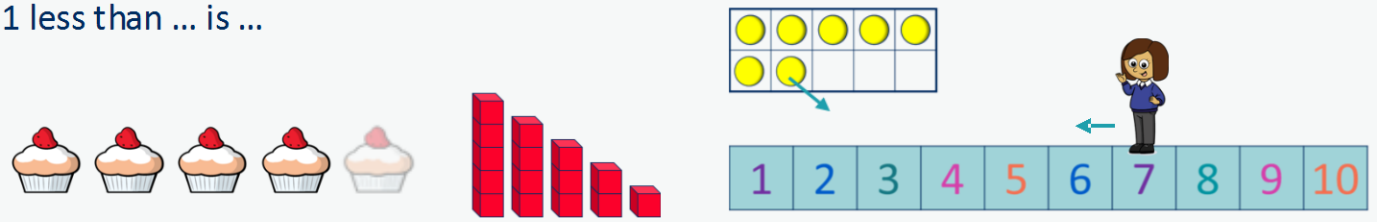
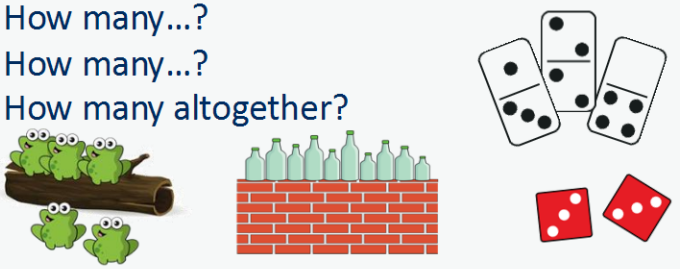
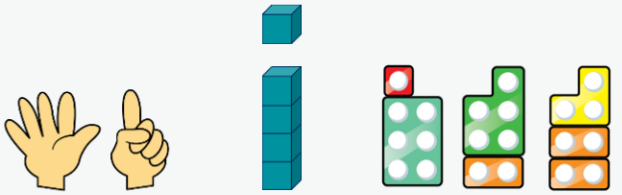
Subtraction

White Rose MATHS

Reception	• Have a deep understanding of number to 10, including the composition of each number. • Subitise (recognise quantities without counting) up to 5 • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (and some subtraction facts) and some number bonds to 10, including double facts.
Progression of skills	**Key representations**
Conceptually subitise to 5 Notice the parts that make up the whole.	What do you see? How do you see it? 
1 less Continue to link to stories, songs and rhymes.	1 less than ... is ... 
Notice the composition of numbers within 10 Link to stories, songs and rhymes.	How many...? How many...? How many altogether?  How many ways can you make...? 

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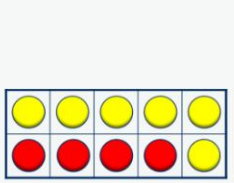
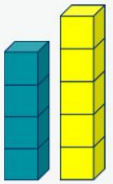
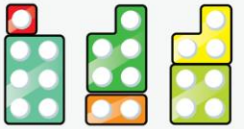
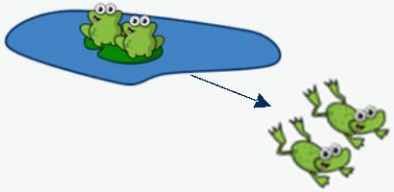
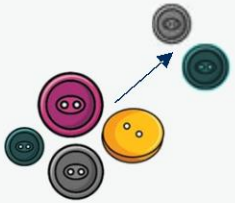
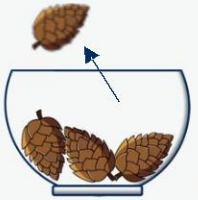
Subtraction

Progression of skills	Key representations	
Partition Using objects, explore different ways to partition a number into 2 or more parts.	There are … altogether. I can see … here and … there.   	… and … make …   
Take away A quantity is reduced.	First… Then… Now…   	I have … I take … away Now I have …   

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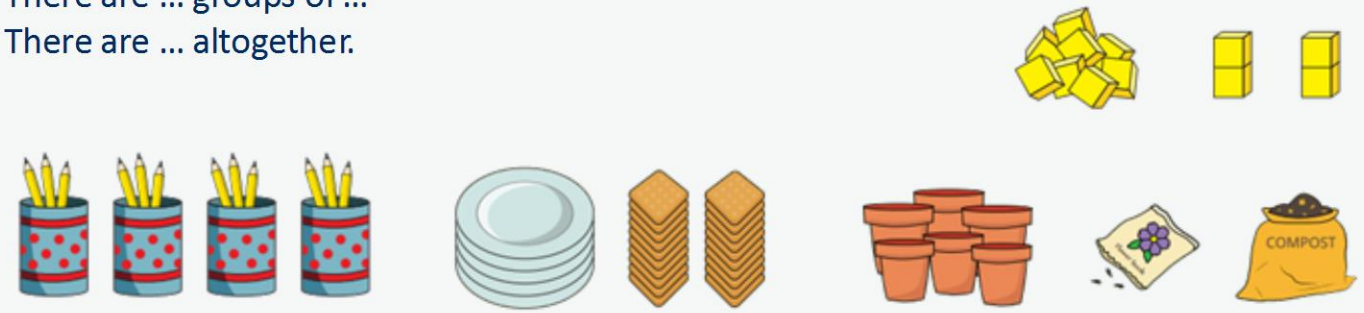
Multiplication

Reception	• Have a deep understanding of number to 10, including the composition of each number. • Subitise (recognise quantities without counting) up to 5 • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 and some number bonds to 10, including double facts. • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.
Progression of skills	**Key representations**
Double to 10 Prompt children to notice that double means twice as many and to notice that there are two equal groups.	Double … is … … is double … 
Make equal groups Provide opportunities to make equal groups when tidying up or during snack time. Encourage children to check that each group has the same amount.	There are … groups of … There are … altogether. 

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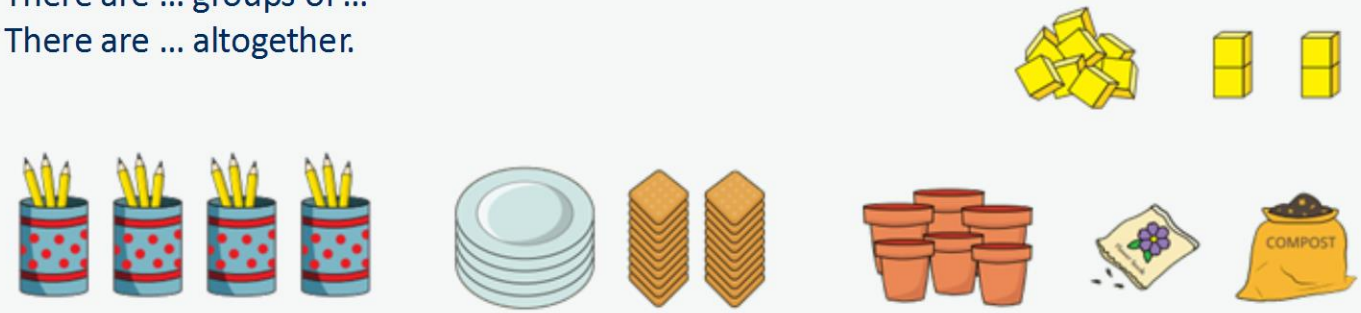
Division

Reception	• Have a deep understanding of number to 10, including the composition of each number. • Subitise (recognise quantities without counting) up to 5 • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 and some number bonds to 10, including double facts. • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.
Progression of skills	**Key representations**
Sharing Provide practical activities such as sharing items during snack time. Encourage children to check whether items have been shared fairly (equally).	There are … altogether. They are shared equally between … groups. 
Grouping Provide opportunities to make equal groups when tidying up or during snack time. Encourage children to check that each group has the same amount.	There are … groups of … There are … altogether. 

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Glossary

- **Array –** An ordered collection of counters, cubes or other item in rows and columns.

- **Commutative –** Numbers can be multiplied in any order.

- **Dividend –** In division, the number that is divided.

- **Divisor –** In division, the number by which another is divided.

- **Exchange –** Change a number or expression for another of an equal value.

- **Factor** – A number that multiplies with another to make a product.

- **Multiplicand –** In multiplication, a number to be multiplied by another.

- **Partitioning –** Splitting a number into its component parts.

- **Product –** The result of multiplying one number by another.

- **Quotient –** The result of a division

- **Remainder –** The amount left over after a division when the divisor is not a factor of the dividend.

- **Scaling –** Enlarging or reducing a number by a given amount, called the scale factor

Glossary

- **Addend -** A number to be added to another.
- **Aggregation -** combining two or more quantities or
- measures to find a total.
- **Augmentation -** increasing a quantity or measure by another quantity.
- **Commutative –** numbers can be added in any order.
- **Complement –** in addition, a number and its complement make a total e.g. 300 is the complement to 700 to make 1,000
- **Difference –** the numerical difference between two numbers is found by comparing the quantity in each group.
- **Exchange –** Change a number or expression for another of an equal value

- **Minuend –** A quantity or number from which another is subtracted.
- **Partitioning –** Splitting a number into its component parts.
- **Reduction –** Subtraction as take away.
- **Subitise –** Instantly recognise the number of objects
- in a small group without needing to count.
- **Subtrahend -** A number to be subtracted from another.
- **Sum -** The result of an addition.
- **Total –** The aggregate or the sum found by addition.