Aldryngton

Primary School

Early Years Foundation Stage Calculation Policy for Mathematics

Early Maths

Research on children's learning in the first six years of life demonstrates the importance of early experiences in mathematics. An engaging and encouraging climate for children's early encounters with mathematics develops their confidence in their ability to understand and use mathematics. These positive experiences help children to develop dispositions such as curiosity, imagination, flexibility, inventiveness, and persistence, which contribute to their future success in and out of school. (Clements & Conference Working Group, 2004).

The NCTM (National Council of Teachers of Mathematics) states

"Young learners' future understanding of mathematics requires an early foundation based on a high-quality, challenging, and accessible mathematics education. Young children in every setting should experience mathematics through effective, research-based curricula and teaching practices. Such practices in turn require that teachers have the support of policies and resources that enable them to succeed in this challenging and important work."

They go on to highlight how early maths can support the aims of the new Curriculum 2014:

"Early childhood educators should actively introduce mathematical concepts, methods, and language through a variety of appropriate experiences. Teachers should guide children in seeing connections of ideas within mathematics as well as with other subjects, developing their mathematical knowledge throughout the day and across the curriculum. They must encourage children to communicate, explaining their thinking as they interact with important mathematics in deep and sustained ways."

THE EARLY YEARS FOUNDATION STAGE

Mathematics: "Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built." (Statutory Framework for the Early Years Foundation Stage, DfE: 2021)

Early Learning Goal for Numbers:

Children at the expected level of development will:

- 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 (including subtraction facts) and some number bonds to 10, including double facts.

Early Learning Goals for Numerical Patterns:

Children at the expected level of development will:

- Verbally count beyond 20, recognising the pattern of the counting system
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.
  (Statutory Framework for the Early Years Foundation Stage, DfE: 2021)

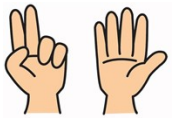
Addition

Maths for young children should be meaningful. Where possible, concepts should be taught in the context of real life.

Foundation Stage

1. Have an understanding of what "more" means and be able to say what is one more than a given number.
2. Children begin to combine groups of objects or pictures and use concrete apparatus.

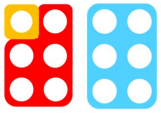
3. Solve simple problems using fingers and introduce Numicon when appropriate.



2 + 5 = 7

4. Children make a record in pictures, words, Numicon shapes or symbols of addition activities already carried out.

2 + 2 = 4



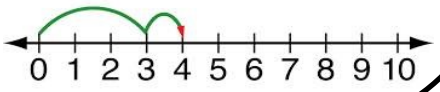
5 + 1 = 6

5. Children are encouraged to read number sentences aloud in different ways:

   e.g. "**Three add two equals 5**" "**Four plus 3 makes 7**"

6. Construct number sentences verbally, or by using cards to go with practical activities.
7. Number lines can be used alongside practical apparatus to solve addition calculations and word problems. Children "jump" along the number line to "count on".

3 + 1 = 4



Key Vocabulary: Games and songs can be a useful way to begin using the vocabulary involved in addition.
add, more, plus, makes, total, altogether, score, double, one more, two more, ten more
how many more to make…? how many more is … than …?

Key skills for addition in Foundation Stage:

- Select the correct numeral to represent 1 to 5, then 1 to 10 objects.
- Count an irregular arrangement of up to ten objects.
- Estimate how many objects they can see and check by counting them.
- Use the language of 'more' and 'fewer' to compare two sets of objects.
- Find the total number of items in two groups by counting all of them.
- Say the number that is one more than a given number.
- Find one more from a group of up to five objects, then ten objects.
- In practical activities and discussion, begin to use the vocabulary involved in addition
- Record, using marks that they can interpret and explain.
- Begin to identify own mathematical problems based on own interests and fascinations

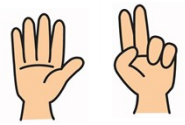
Subtraction

Maths for young children should be meaningful. Where possible, concepts should be taught in the context of real life.

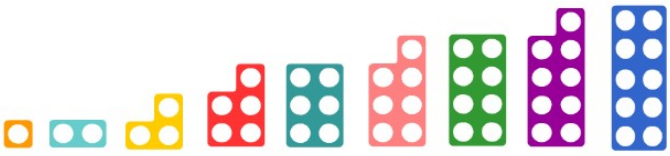
Foundation Stage

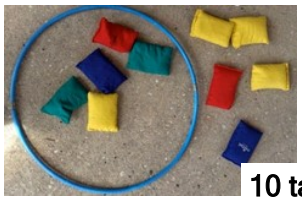
1. Have an understanding of what "less" means and be able to say what is one less than a given number.
2. Children begin to use objects, pictures and concrete apparatus to relate subtraction to taking away and counting how many objects are left.
3. Solve simple problems using fingers and introduce Numicon where appropriate.

5 – 1 = 4



5 – 3 = 2





4. Children make a record in pictures, words, Numicon shapes or symbols of subtraction activities already carried out.

10 take away 5 leaves 5

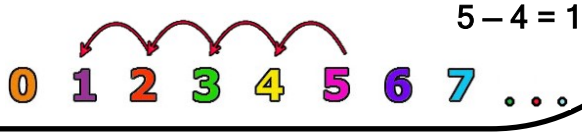
5. Children are encouraged to read number sentences aloud in different ways

   e.g. "**Five subtract one leaves four**" "**Six take away 3 equals 3**"

6. Construct number sentences verbally or using cards to go with practical activities.

7. Number lines can be used alongside practical apparatus to solve subtraction calculations and word problems "jump" back to "count down" the number line.

5 – 4 = 1



Key Vocabulary: Games and songs can be a useful way to begin using the vocabulary involved in subtraction: e.g. Five Little Men in a Flying Saucer, Ten Green Bottles, Five Currant Buns

take, take away, leave, subtract, minus, equals, number sentence, count back, one less, two less, ten less how many are left / left over? how many have gone? how many fewer is … than …?

Key skills for subtraction in Foundation Stage:

- Select the correct numeral to represent 1 to 5, then 1 to 10 objects.
- Count an irregular arrangement of up to ten objects.
- Estimate how many objects they can see and check by counting them.
- Use the language of 'more' and 'fewer' to compare two sets of objects.
- Say the number that is one less than a given number.
- Find one less from a group of up to five objects, then ten objects.
- In practical activities and discussion, begin to use the vocabulary involved in subtraction
- Record, using marks that they can interpret and explain.
- Begin to identify own mathematical problems based on own interests and fascinations

Multiplication

Maths for young children should be meaningful. Where possible, concepts should be taught in the context of real life.

Foundation Stage

The link between addition and multiplication can be introduced through doubling and reinforced through repeated addition of the same number.

1. Children begin with mostly pictorial representations.

How many groups of 2 are there? 3 groups of 2 = 6

2. Real life contexts and use of practical equipment to count in repeated groups of the same size.

How many wheels are there altogether?

How much money do I have?

3. Count in twos, fives and tens, both aloud and with objects, such as Numicon or other concrete apparatus.

2, 4, 6, 8,10, 12

4. Children are encouraged to read number sentences aloud in different ways

e.g. "**Five groups of two makes ten**" "**Three lots of two makes six**"

5. Children are given multiplication problems set in a real life context and are encouraged to visualise the problem.

e.g. "**How many fingers on two hands?**" "**How many sides on three triangles?**"

"**How many legs on four ducks?**"

Key Vocabulary: lots of, groups of, times, repeated addition, double, combine, twos, fives, tens

Key skills for multiplication in Foundation Stage:

- Select the correct numeral to represent 1 to 5, then 1 to 10 objects.
- Count an irregular arrangement of up to ten objects.
- Estimate how many objects they can see and check by counting them.
- Find the total number of items in two groups by counting all of them.
- Record, using marks that they can interpret and explain.
- Begin to identify own mathematical problems based on own interests and fascinations.

Division

Maths for young children should be meaningful. Where possible, concepts should be taught in the context of real life.

Foundation Stage

1. Division can be introduced through halving or sharing an equal amount into 2 groups.

2. Children begin with mostly pictorial representations linked to real life contexts:

Grouping Model
Mum has 6 socks. She grouped them into pairs. How many pairs did she make?

Sharing Model
I have 10 sweets. I want to share them with my friend. How many will we have each?

Children need to see and hear representations of division as both grouping and sharing.

3. Children have a go at recording the calculation that has been carried out:
e.g. by drawing pictures in groups or by arranging concrete apparatus into groups.

12 shared equally by 3 is 4

Key Vocabulary: halve, share, share equally, one each, two each, three each, group in pairs / threes / tens, equal groups of, in equal parts, left, left over

Key skills for division in Foundation Stage:

- Select the correct numeral to represent 1 to 5, then 1 to 10 objects.
- Count an irregular arrangement of up to ten objects.
- Estimate how many objects they can see and check by counting them.
- Record, using marks that they can interpret and explain.
- Begin to identify own mathematical problems based on own interests and fascinations.