## Twyford St Mary's C of E Primary School



Progression of Skills in all four number operations KS1

## The EYFS Framework

Mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shapes, spaces, and measures

## Early Learning Goals

Mathematics Numbers: children count reliably with numbers from 1 to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

Shape, space and measures: children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.

ELG: Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

## Counting

- Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number

Oral counting
Oral counting in 1 s forwards and backwards to 10 then 20 starting at zero. 0,1,2,3 etc

Progress to starting at any number and counting in 1s. 5, 6, 7 (important if children are able to count on later.)

Oral counting- Saying teen and ty numbers correctly.
e.g. 13- thirteen, 30 - thirty.

## Object counting



One, two, three

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40-60 months
Selects the correct numeral to represent 1 to 5, then 1 to 10 objects.
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## Counting all- 1:1 principle (1:1

 correspondence)Counting objects up to 10 then 20. Children need to understand that number labels (words) match objects as they count them.

## Place Value and Number System

- Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer



## Subitising

Children should start to recognise small amounts without counting, especially when presented with familiar arrangements e.g. numicon and dice.

Number conservation
Children should have opportunities to explore groups of objects and note that when some are moved there is still the same quantity there (unless any are removed or added).

How many counters?


How many now?
(figures), object counting and ordering numbers

## 40-60 months

- Counts up to three or four objects by saying one number name for each item.
- Counts actions or objects which cannot be moved.
- Counts objects to 10 , and beginning to count beyond 10 .
- Counts an irregular arrangement of up to ten objects.
- Counts out up to six objects from a larger group.
- Counts an irregular arrangement of up to ten objects.


## Place Value and Number System

## Ordering numbers

Ordering a set of consecutive numbers e.g.


Ordering a set of random numbers e.g.


Using comparative language to describe group size
Which group has more/fewer?
Which has most/least?


Uses the language of 'more' and 'fewer' to compare two sets of objects.

## Addition

Aggregation- combining groups
Counting all, 1, 2, 3, 4, 5 . There are 5 apples.


Structured Number Lines
Counting on from first number 2,3,4,5 There are 5 apples.
Counting on from the greatest number $3,4,5$


40-60 months

## Subtraction

Taking away- removing objects from a group
I have 6 apples. I eat 2 apples. How many are left? Count out 6, take away 2, count how many are left?


$$
6-2=4
$$



6 apples take away 2 apples, leaves 4 appes.

- Finds one more or one less from a group of up to five objects, then ten objects.
3apples and 2 apples, 5 apples altogetver:
- In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting.
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Part, whole models


The whole is 5 .
3 is a part, 2 is a part of the whole.
If you remove 1 part, the other is left. e.g. 5-3 $=2$ or $5-2=3$
If you put the parts together, you get the whole
$3+2=5 \quad 2+3=5$ These are commutative

40-60 months

- In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting.


Mary had 7 letters in her bag and she posted 3. How many did she have left?

$$
7-3=?
$$

Mary had 7 letters in her bag and after she posted some, she had 4 left. How
many did she post?
Mary had some letters and after posting 3, she had 4 Left. How many did she start with?
? $-3=4$

- Read, write and interpret mathematical statements involving addition $(+)$, subtraction (-) and equals (=) signs
- Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7=$ ? -9


## Key Stage 1

The principal focus of mathematics teaching in key stage 1 is to ensure that pupils develop confidence and mental fluency with whole numbers, counting and place value. This should involve working with numerals, words and the four operations, including with practical resources [for example, concrete objects and measuring tools].

At this stage, pupils should develop their ability to recognise, describe, draw, compare and sort different shapes and use the related vocabulary. Teaching should also involve using a range of measures to describe and compare different quantities such as length, mass, capacity/volume, time and money.

By the end of year 2, pupils should know the number bonds to 20 and be precise in using and understanding place value. An emphasis on practice at this early stage will aid fluency.

Pupils should read and spell mathematical vocabulary, at a level consistent with their increasing word reading and spelling knowledge at key stage 1.

## Counting

Concentrate on the tricky areas e.g. bridging through 100.
97, 98, 99, 100, 101, 102
Remember to count backwards as frequently as you count on!

## Year 1

Count to and across 100, forwards and backwards,
beginning with 0 or 1 or from any given number.
Count, read and write numbers to 100 in numerals.
Given a number, identify one more, one less.

## Year 2

Count in tens from any number (forwards and backwards)

What has changed? Stayed the same?

$$
13,23,33
$$



13


## Place Value and Number System



## Ordering numbers

Which numbers are covered?
Give me a number between... and... . How do you know?

Order consecutive numbers to 100 . Use number line to support.

## Year 1

- Read and write numerals from 1 to 20 in numerals and words.
- Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less


## Number formation

Stencils, dot to dot, tracing, making numbers from modelling dough, using different pens.

[^0]
## Addition

$$
3+\square=10
$$

How many to make 10? What about 20?


Partitioning numbers in different ways
$20=10+7+\square$


Lucy has 20 marbles in her bag. 10 were red, 7 were green and the rest were blue. How many were blue?
Commutativity
$4+3=3+4$
$\begin{array}{ll}0 & 0 \\ 0 & 0\end{array}+\begin{array}{ll}0 & 0 \\ 0 & 0\end{array}+\begin{array}{ll}0 & 0 \\ 0 & 0\end{array}$

## Subtraction

## Year 2

- Derive and use related facts ub to 100

$$
36+\square=100
$$



Year 2

- Solve problems with addition and subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures; apply their increasing knowledge of mental and written methods.


## 11

Year 1

- $\quad$ Solve one step problems that involve addition and subtraction, using concrete objects, pictorial representations, and missing number problems.

Jo poured 4 cups of juice from the jug. How many cups were left in the jug?

Children need to use number lines in different orientations e.g. a vertical number line supports work with capacity and statistics.

## Place Value and Number System

Ordering numbers
Order consecutive and random numbers to 100.
$46 \quad 63 \quad 72 \quad 85 \quad 100$

## Year 2

Compare and order numbers from 0 up to 100; use the $<>$ and = signs.

Concept of place value tens and ones
Year 2
Recognise the place value of each digit in a 2 digit number (tens and ones)

33 can be partitioned in different ways

|  | 8  <br> 88  <br> 88 0 | $\begin{aligned} & 33=30+3 \\ & 33=20+13 \end{aligned}$ |
| :---: | :---: | :---: |

20
$10+3$


## Addition

Using known facts
Secure bonds to ten
Bonds to 20
Bonds for any number to ten
Then use these for bonds within 20

## Year 1

- Represent and use number bonds and related subtraction facts within 20
- Add and subtract one-digit and two-digit numbers to 20, including zero
- Read and write mathematical statements involving addition and subtraction and equals signs.

If you know $2+3=5$,
How could this help you with $2+4$ ? What is the same? What is different? Show me.

Using known facts

## $13-5=13-3-2$



What subtraction facts to 20 can you show using a range of apparatus?
$20=$ $\square$
$\square$
$\square$

$$
+4=5
$$

How many ways can you make 5 ? Continue the pattern. What is the same? What is different?
What other ways can you arrange your counters to make your calculation equal

5?
$\square$
$+3=5$ 5
$5=0000$

## Year 2

Recall and use addition and subtraction facts to 20 fluently and derive and use related facts up to 100 .

Record as a number sentence

Variation
Vary the way in which you present the practice.
Use multi-representational images and practical apparatus combined with symbols.


| dogs | Hit 11 | 7 |
| :---: | :---: | :---: |
| Cats | HH HH H\|t|||| | 19 |
| Rabbits | HHNH | 12 |
| Snake | 1 | 1 |
| Hamster | \||| | 3 |
| birds | \|| | 2 |

## Addition

Unstructured number lines
Jottings to support mental methods


Adding using dienes blocks (No regrouping)
Adding using pictorial jottings


## Subtraction

Finding the difference and counting up to subtract
In Class 2 there are 32 children, and 14 in Class 1. What is the difference in class size between Class 2 and Class 1?


Beth goes shopping with $£ 5$. She spends 85 p. How much change will she get?


Year 2
NON STATUTORY
Pupils extend their understanding of the language of addition and subtraction to include sum and difference.

Addition Adding involving regrouping


$$
47+36=83
$$

## Subtraction

Subtraction using dienes blocks (No regrouping)
Subtraction using pictorial jottings


Subtraction involving regrouping

$$
45-27=18
$$



Year 2
Add and subtract numbers using concrete objects, pictorial representations, and mentally including:

- A 2-digit number and ones
- A 2-digit number and tens
- Two 2-digit numbers
- Adding 3 one-digit numbers


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Each day Jack's beanstalk doubled in height. It was
twice as tall. Today it is 3 bricks tall. How tall will it be tomorrow?

## ELG

They solve problems, including doubling, halving and sharing.


Cut the food in half to share with a friend.


3 friends wanted to share the last 6 apples. To make it fair, they need the same amount each.

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## Year 1

Count in multiples of two, five and ten.


Year 3
Count in zero from multiples of $4,8,50,100$ and find 100 more or less than a given number

## Year 2

Count in steps of 2, 3, 5 from 0 and in tens from any number forwards and backwards

## Year 2

Recall and use multiplication tables and division facts for the 2, 5 and 10 multiplication tables.

$$
3 \times 5=15
$$

## How many 3 s in 15 ?

How many groups of 3 in 15 ?

$$
3 \times \square=15
$$



If I have 6 socks, how many pairs will that make?

## Year 1

Solve one step problems involving multiplication and division by calculating the answer us ing concrete objects, pictorial representations and arrays with the support of the teacher.

## Year 2

Solve problems using multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts.

15 frogs $\div 3$ lilly pads $=$ $\square$ Frogs on each

$\square$ frogs $X 3$ lilly pads $=15$


There are 15 frogs. There is the same amount on each lily pad. If there are 3 lily pads, how many frogs are sitting on each lity pad?

Division as grouping and sharing

3 people will fit in a carriage. How many carriages will I need to carry 6 people?

## Year 1

Solve one step problems involving multiplication and division by calculating the answer using concrete object, pictorial representations and arrays with the support of the teacher.

5 chocolates will fit in a box. How many boxes will I need for 15 chocolates?


What if I had 16 chocolates ...how many boxes would I need then?


## Year 2

Solve problens using multiplication and division, using materials, arrays, repeated addtion, mental methods and multiplication and division facts, including problems in contexts.

Multiplication-Repeated addition, arrays and multiples


4 Cheerios are in one bowl, how many are in 5 bowls?
$4+4+4+4+4=20$
$4 \times 5=20$
If 5 friends wanted to share 20 Cheerios, how many would they each have? 20 Cheerios $\div 5$ people $=4$ Cheerios each




[^0]:    Year 1
    Count read and write numbers to 100 in numerals.

