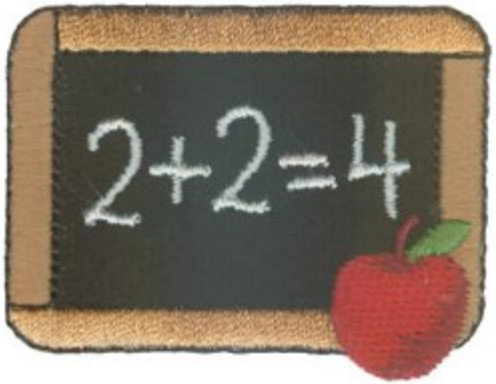
Holy Trinity C.E. (C) Primary School

Addition

How is your child taught to add?



Introduction

Mathematics is all around us; it underpins much of our daily lives and our futures as individuals and collectively. It is of fundamental importance to ensure that children have the best possible grounding in mathematics during their primary years. Number is a key component of this. Mathematics taught well gives children understanding about number, its structures and relationships. It underpins progression from counting in nursery rhymes to calculating with and

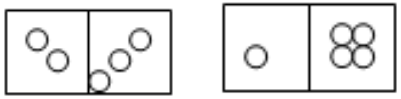
reasoning about numbers of all sizes, to working with measures, and establishing the foundations for algebraic thinking.

These grow into the skills so valued by the world of industry and higher education, and are the best starting points for equipping children for their future lives.
At Holy Trinity we teach a series of more efficient methods for addition so that children can select the most appropriate for a given calculation. The language of maths is always very important and so children greatly
benefit from talking with you at home about their learning in this area.

Foundation Stage

It is important that children recognise that adding is putting two groups together. Encourage finding totals firstly by counting all the objects and then by counting on from the highest number. We can count on without always starting at 1. Encourage the recognition of the pattern of numbers on dice and dominoes.

Use dominoes to show two groups to make a total.

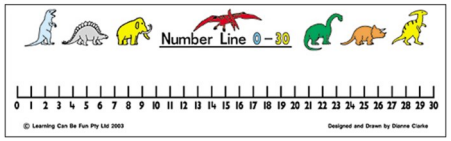


Adults scribe as 5 = 2 + 3 5 = 1 + 4

or 2 + 3 = 1 + 4

As with writing we encourage children at the early stages of learning to make marks to represent their thinking in maths. Children begin to attach mathematical meanings to some of their marks and representations, using their marks as symbols to think about quantities and numerals. Children use their own symbols in flexible ways: This helps them understand that written symbols can be used to carry different meanings for different purposes.

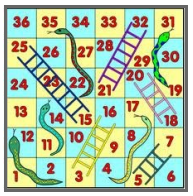
Number tracks and number lines show children that adding is moving on.



Playing track games with dice e.g. snakes and ladders, helps children consolidate this.

Singing number songs e.g. 2 Little Dickie Birds, Galloping horses etc. helps children to use the language of addition in familiar contexts.

Encourage the use of cubes, objects and fingers to help with addition so the children see the physical amounts.



Year 1

In Year One children begin to record their additions using the correct signs + and =. They should continue to use counters, cubes and fingers when combining 2 groups and counting on; putting the largest number in their head but with the realisation that addition can be done in any order.

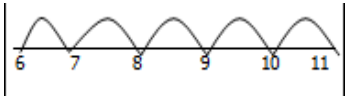
Children should be able to find the missing number and generate equivalent calculations for a given number e.g. 7

5 + 2 = Δ Δ = 5 + 2
5 + Δ = 7 7 = Δ + 2
Δ + 2 = 7 7 = 2 + Δ

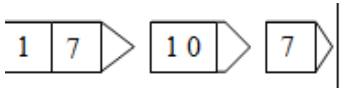
7 = 4+ 3 = 5 + 2 = 6 +1

Pictures can and should also be used to record the child 's thinking.

Additions can be recorded using a prepared number line 6 + 5 = 11

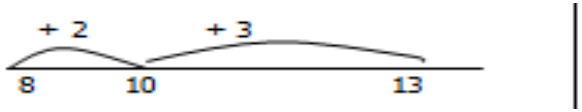


Place value cards are used to demonstrate adding 10 or a multiple of 10.



17 = 10 + 7

Rapid recall of number bonds to 10 and pairs of numbers that make all numbers to 10 is important as this helps children to add single digit numbers bridging 10.



8 + 5 can be represented as the diagram above.

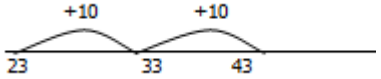
Money can be used when counting in 1s, 2s, 5s and 10s and 100 squares, jottings and drawing own number lines should be used to support calculations.

Year 2

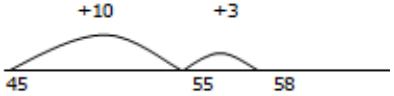
In Year Two children need to use the vocabulary of addition accurately and decide upon the best strategy for a given calculation e.g. Put the largest number first, look for numbers that make 10 and 20, partition and recombine. The use of resources cubes, beads and ready made number lines are still encouraged.

Number lines are drawn to add 10 or multiples of 10.

23 + 20 = 43



Partition 2 digit numbers using different ways of recording.
E.g. 35 + 23 = 45 + 13

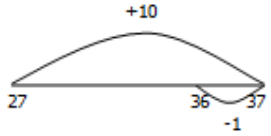


If not using the number line partitioning could look like this: **35 + 23**

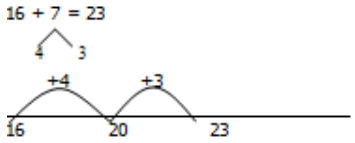
35 + 23 ▶ 30 + 20 = 50 ▶ 5 + 3 = 8 ▶ 50 + 8 = 58 or

35 + 23 ▶ 35 + 20 = 55 ▶ 55 + 3 = 58

When adding 9 or 11 add 10 and adjust. **27 + 9**



When adding a single digit number to a teens number and bridging 20.



This could be recorded as 16 + 7 = 16 + 4 + 3 = 20 + 3 = 23.

Children should be given the opportunity to choose and use a method to suit their own needs and the type of question asked.

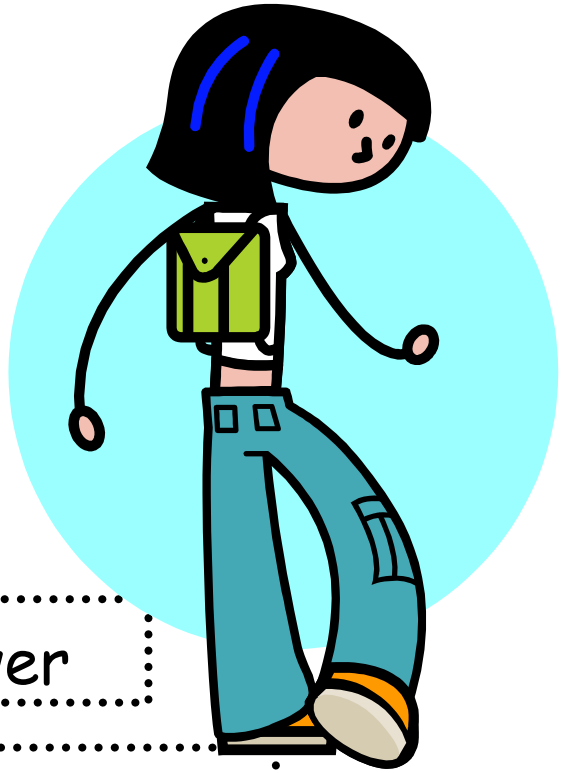
RUCSAC

1) Read

2)Underline

3)Calculation?

4) Solve



5) Answer

6) Check

Year 3

In Year Three children continue to record equations using + and = but use larger numbers than when in Year Two. They will be expected to add three digit numbers together using formal written methods. The column method means that children move to recording their addition work vertically but still use the partitioning method adding the least significant figure first.

```
  246
+ 87
   13          7 +   6        = 13
  120         80 +  40        = 120
  200        200 +   0        = 200
  333        200 + 120 + 13 = 333
```

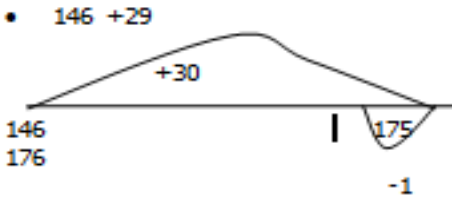
The use of the expanded method will continue and where appropriate, when children are confident, the compact (carrying) method will be introduced:

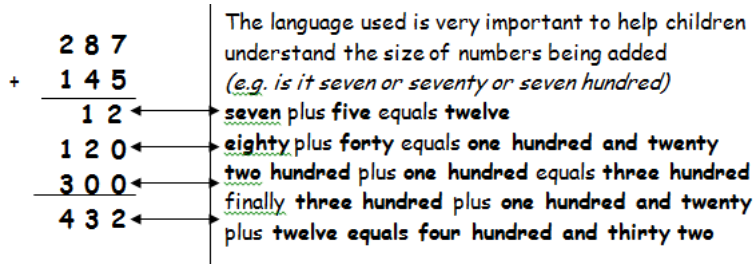
```
   7.3
+  4.8
  12.1
   1
```

As with Year Two, children should choose and use the method they feel is appropriate for their personal mathematical development but that is also appropriate for the type of question asked.

Year 4

In Year Four children continue to develop recording and finding missing numbers in calculations with age appropriate numbers. They can use empty number lines, partitioning and other informal recording methods to support and explain their thinking:





We move to formal methods of addition in Year 4 so that children record their work in columns. Children may have to write a little more at this stage but, because it helps and supports their understanding, it enables them to become much more confident and quicker in the long run.

Mental recall of number facts should be secure and should include knowledge of pairs of numbers that total 10, 20 and 100 and how to use place value to find sums and differences of pairs of multiples of 10, 100 and 1000.

Year 5

In Year 5, children will develop the use of the compact (carrying) method of addition. They will add number of up to five digits and including decimal values.

It is important that children understand the importance of 'lining up' the decimal points particularly when adding mixed amounts e.g. 16.4m + 7.68m

```
  16.4
+  7.68
  24.08m.
   1 1
```

```
  587
+ 475
 1062
  1 1
```

```
 3587
+ 675
 4262
 1 1 1
```

```
  7.3
+ 4.8
 12.1
  1
```

Year 6

In Year 6 Children should be developing a clear understanding of the short written method.
The 'carry' digits are recorded below the line, using the words 'carry ten' or 'carry one hundred', not 'carry one'. This method should be used to add numbers with different numbers of digits extending to any number of digits and decimal places.

```
  17.25
+  3.56
  20.81
   1  1
```

To be efficient in addition at this level children need to be secure in their recall of number facts and in their understanding of place value.

Children will need to solve problems set in real life contexts and apply their adding skills. For example:

It is 5.45 a.m. what will be the time in 20 minutes?

Jack had saved up £7.23. His Mum gave him £1.50 and his Aunt gave him £2.50. how much money did he have altogether?

It is important that children can explain their methods and reasoning orally and in writing and, where appropriate, they will attempt simple Year 7 algebraic problems.

E.g. $7+a+17 = 25$ What is a?

Aims

Foundation

By the end of the Foundation Stage most children should show an interest in numbers and recognise situations which require addition.
They should be able to find one more than a given number to ten and use words related to adding.

Year 1

By the end of Y1 all children should understand the operation of addition as counting on and record using the + sign. They should be able to add three one digit numbers together and to add one and two digit numbers to twenty, including zero.

Year 2

By the end of Y2 all children should rapidly recall addition facts to twenty. They should be able to add numbers with up to two digits using column addition and solve word problems involving addition.

Year 3

By the end of Y3 all children should be able to add numbers with up to three digits, using column addition. They need to accurately add numbers mentally, including pairs of one digit and two digit numbers. They need to solve word problems, including those with missing numbers.

Year 4

By the end of Year 4 most children should be able to add numbers of up to four digits using formal written methods. They should estimate the answer to adding problems and check their work using subtraction.

Year 5

By the end of Year 5: Most children should be add numbers with up to five digits using formal written methods. They should add numbers mentally with increasing fluency.

Year 6

By the end of Year 6 Children should be able to add negative integers, perform mental calculations (including with mixed numbers e.g. decimals), use estimation to check answers and solve problems involving combined operations.