Aims

Foundation

Most children understand sharing as giving 'everybody' the same amount and solve problems by sharing objects into equal groups.

Year 1

All children understand sharing as giving 'everybody' the same amount and solve problems by sharing objects into equal groups.
Most count in 2s, 5s and 10s.

Year 2

All children understand the different interpretations of division.

- Sharing
- Grouping
- Inverse of multiplication

Most are able to derive division facts for 2, 5 and 10x tables.

Year 3

All children understand the different interpretations of division.

Most are able to derive division facts for 2, 3,4,5, 6 and x10 tables

Year 4

Most children are able to use the 'chunking' method of division (using 10x/ 20 x/ 30x as the divisor)

All children are able to explain methods and reasoning and whether to round up or down after division.
Most children have rapid recall of division facts for tables to 10 x 10.

Year 5

Most children are able to use the 'chunking' method division (using multiples of 100, 10 and 1 as the divisor, if appropriate) and the schools' chosen method of recording with HTU ¸ U calculations.
All children are able to explain methods and reasoning and whether to round up or down after division. They should have rapid recall of all table facts to 10 x10.
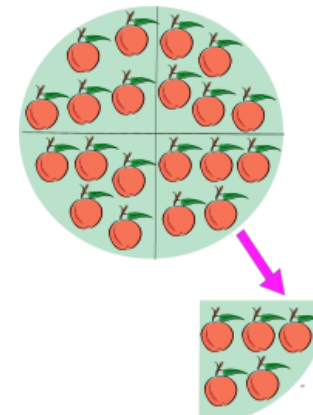
Year 6

Children should be able to use an appropriate method for division for any numbers, including decimals.
Some children able to use 'short division' .
Some children are able to use chunking for long division.
All children are able to explain methods and reasoning and whether to round up or down after division.
All children can recall division facts for tables up to 10x10 and use this and knowledge of place value to derive division facts involving decimals.

Holy Trinity C.E. (C) Primary School

division
How is your child taught to divide?

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 range of different methods for division in order to allow children to decide on the method that works best for them. These may be very different from the ways you as parents were taught and so this booklet will hopefully give you an insight into the methods your children will be using at school so that you can support them at home.

Year 6

In Year 6, children continue to develop method of recording division from Year 5, 'chunking' multiples of 10x the divisor (20/30x etc) –

If children are secure in their knowledge then children will move to standard compact method.

Eg 197 ÷ 6

Can I get 100 groups of 6? No.

Partition into 190 and 7.

Can I get 10 groups of 6? Yes.

More than 10 groups? Yes.

What multiple of 10 can I chunk in? **30** *groups of 6. How much is left over? 10*

So we are left with 17 ÷ 6 = 2 r 5

197 ÷ 6 = 32 r. 5

Some children may progress to short division.

```
6 |  196
   - 180 ( 3 0 x 6 )        32 r.4
   ———
      16
    - 12  (2 x 6 )
    ———
       4
```

Money will be used as a context to extend children's understanding of division to decimals with up to 2 decimal places.

Year 5

During Year 5, children understand the different aspect of division taught in previous years. They use approximations before attempting calculations and continue to develop methods of recording progressing to HTU ÷ U. They need to chunk in the largest possible multiple of 100, 10 and 1.

$256 \div 7$

```
       256
   -   140   (7 x 20)
       116              Answer =    36 r 4
   -    70   (7 x 10)
        46
   -    42   (7 x 6)
         4   (remainder)
```

At this stage children should have a secure knowledge of place value and use this understanding to divide whole numbers and decimals by 10, 100 and 1000.

Children will explain methods and reasoning orally and in writing, including whether to **round up or down after division (involving remainders)** depending on the context.

Children should be secure in their knowledge of multiplication and related division facts for times tables to 10 x10.
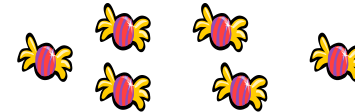
Foundation Stage

In Reception children begin to work with division in the form of sharing, solving practical problems in real or role-play contexts.

6 sweets are shared between 2 people. How many sweets does each one get?
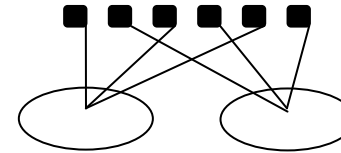
The children share objects into equal groups. Three children may be asked to share 6 sweets equally between them.

Halving is introduced by looking at pairs of objects. How many altogether ? How many pairs?

How many pairs of socks?   How many pairs of shoes?

Year 1

In Year 1 children continue to see division as sharing into equal amounts.

We have 9 cakes. We need to put them into boxes of 3 how many boxes will we have?
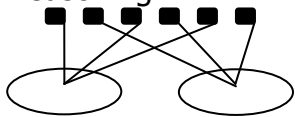
Children will also solve problems:

We have 12 lego wheels, how many cars can we make? Children will be encouraged to draw a car to go with each group of 4 wheels until all the wheels have been used.

It is important to encourage children to make jottings and use diagrams to help them think through and explain their reasoning.

6 sweets are shared between 2 people. How many sweets does each one get?

Tallies are modelled when sorting children into groups:

Blue   Green   Yellow   Red

Division is also taught using money.

How many 2ps are needed to pay 12p

Year 4

In Year 4 children understand division as sharing and grouping and that multiplication is the inverse of division and now use this to check results. Grouping should still be shown on blank numberlines and this leads to **chunking'** ie.10 times the divisor is calculated in one 'chunk' because it is quicker and more efficient .

10x5

$72 \div 5$

Answer: 14 r. 2

0   50   55 60 65
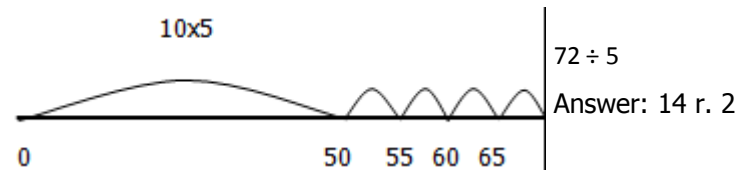
Numberlines can also be drawn vertically

Children will also be taught to record using partitioning:

$72 \div 5 = (50 + 22) \div 5$

$= 10 + 4$ remainder 2

$= 14$ r.2

At this stage division can be related to counting on or finding the difference. This may be recorded using the following method.

$72 \div 5$ 50   (10 x 5)

+ 20   (4 x 5)

70

+ 2   (remainder)

72   Answer: 14 r. 2

Children should approximate before attempting calculations to gain an idea of a sensible answer.

During Year 4 children should derive and recall multiplication and corresponding division facts for times tables to 10x 10

Year 3

In addition to understanding the operation of division as sharing equally and grouping, children also need to understand that division is the inverse of multiplication.

Ensure that **grouping** continues to be modelled by adults and used by children on prepared numberlines. Children should move onto blank numberlines to record their reasoning.

How many 5s make 35?

Answer: Seven 5s make 35

Children should be able to explain methods and reasoning orally and in writing. This includes being able to interpret division number sentences eg
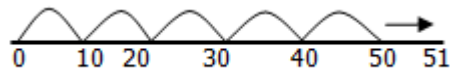
24 ÷4 could mean:

'If 24 tulips are shared equally between 4 plant pots, how many will be in each pot?'

64 ÷ 2 could mean:

'I wanted half of 64 so I halved 60 to get 30, then halved 4 to get 2, then I recombined the numbers to get 32.'

In Year 3 children should begin to understand the concept of a **remainder**. Eg.

How many lengths of 10 cms can you cut from 51 cm of tape? How many will be left?

Answer: 5 lengths and 1 cm left over

Children should understand the relationship between multiplication and division and therefore be able to derive division facts for 2, 5 and 10x tables and begin to know division facts for 3, 4 and 6 x tables.

Eg

8 x 4 =32   so   32 ÷ 4 = 8 etc.

Year 2

In Year 2 children continue to understand division as sharing equally but also as grouping in the form of repeated subtraction.

Eg There are 15 apples in a box. How many bags of 5 apples can be filled?

ie. How many groups of 5 can you make from 15?

Children should use diagrams to support their reasoning when dividing but should also begin to understand and show repeated subtraction on a prepared numberline.

Eg. 8 children are put into teams of 2. How many teams are there?

ie How many groups of 2 are there in 8?

$8 \div 2 = 4$
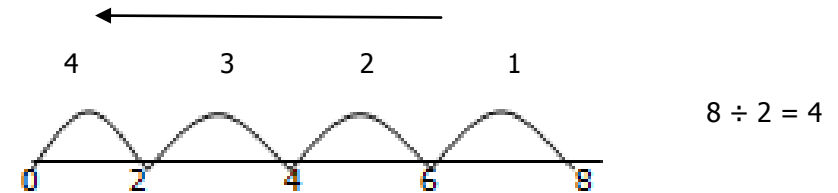
Children are taught to write number sentences to show the operation that is required.

Share 18 between 2 will be recorded as: $18 \div 2 =$

Halving should be recognised as dividing by 2 and this can be easily taught through money. Eg. The shop is having a half price sale can children change the prices?

When learning multiplication tables division facts should be highlighted alongside the multiplication facts so that the connection is recognised.

Children should know facts from the 2, 5 and 10x tables by the end of Year 2.

Mathematical Vocabulary

For division

Foundation

Share

Share out

Year 1

Half   Halve

(Equal groups of)

Share   Share out

Year 2

Equal groups of

Divide   Divided by

Divided into   **(Remainder)**

Half,   halve

Share,   share out

Year 3

Remainder   *Equal groups of*

Divide   Divided by

Divided into   Half, halve

share,   share out

Year 4

Divisible by

Factor   Quotient

Inverse *Remainder*

Equal groups of   Divide

Divided by   Divided into

Half   Halve

Year 5 and Year 6

Divisible by

Factor   Quotient

Inverse   *Remainder*

Equal groups of

Divide   Divided by

Divided into

Half   Halve

The multiplication grid is a resource that children can use when solving division problems when their recall of tables is not yet secure.