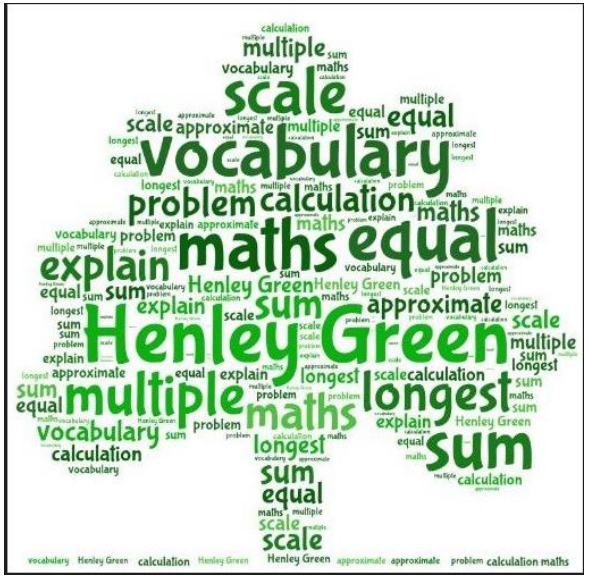
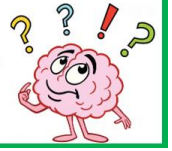
Henley Green Primary School Maths Information for Parents



At Henley Green, we are **confident** and **curious** mathematicians who like to be **challenged**.



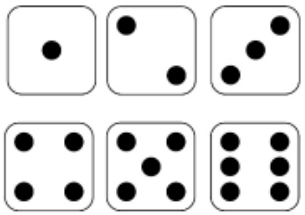
Early Years - Number

Cardinality and Counting

Counting:

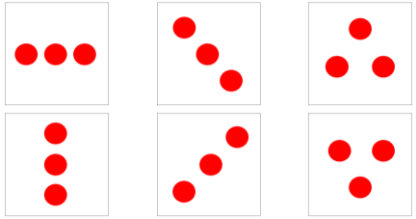
- saying number words in sequence.
- tagging each object with one number word.
- Knowing the last number counted gives the total so far.

Subitising: recognising small quantities without needing to count them all



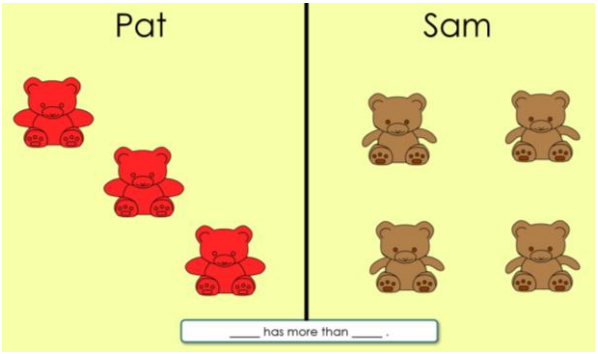
Knowing what each of these represents without having to count the spots – just 'seeing' the number.

Conservation: knowing the number does not change if things are rearranged.

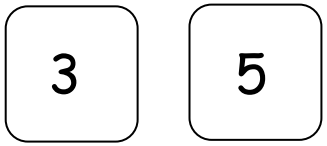


Comparison

More than/less than/the same



Comparing numbers and reasoning



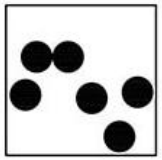
Which box of chocolates would you choose?
"I would choose 5 because 5 is more than 3 and I would like more"

Knowing the 'one more than/one less than' relationships between counting numbers

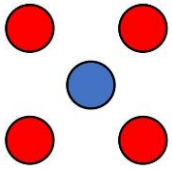
There are five frogs on a log, one jumps off. How many are left? How do you know?

Composition

Identifying smaller numbers within a number



"I know this is 6 because I can see 3 and 3."

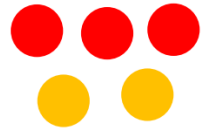


"There are 5 spots altogether. I can see 4 and 1, I can see 3 and 2, and I can see 1 and 1 and 1 and 1 and 1."

Partitioning a number

"Show me 4 fingers on two hands"

Number bonds to 5

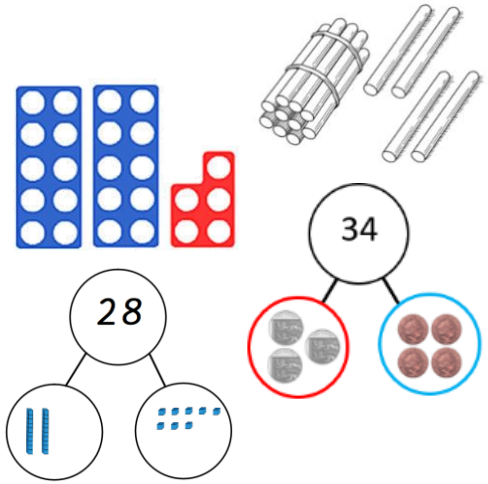


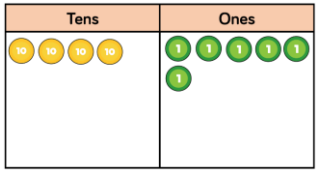
5 is made of 2 and 3
2 + 3 = 5

ADDITION AND SUBTRACTION

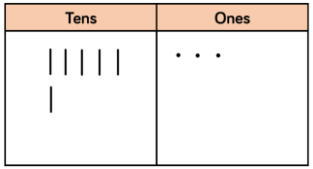
Year 1

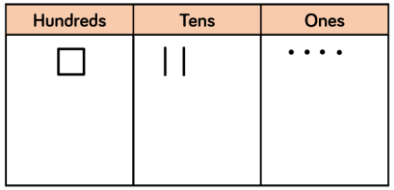
Making numbers using a range of representations e.g.





Leading to using jottings to represent the place value of numbers:



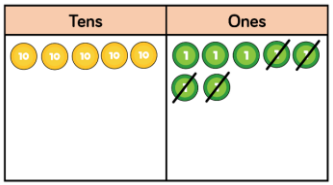


Year 2

Always work from the right to left when calculating.

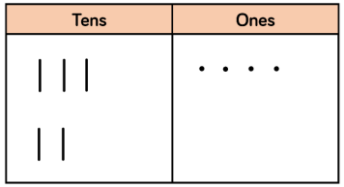
Use of a range of place value equipment to add and subtract e.g,

57 - 4 = 53



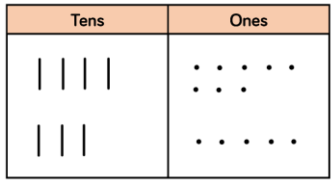
Leading to using place value jottings to add and subtract:

34 + 20 = 54



Leading to including carrying when adding:

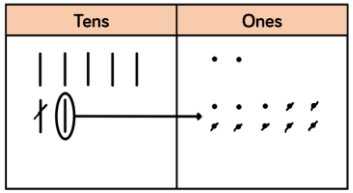
48 + 35 =



70 + 13 = 83

And exchanging when subtracting:

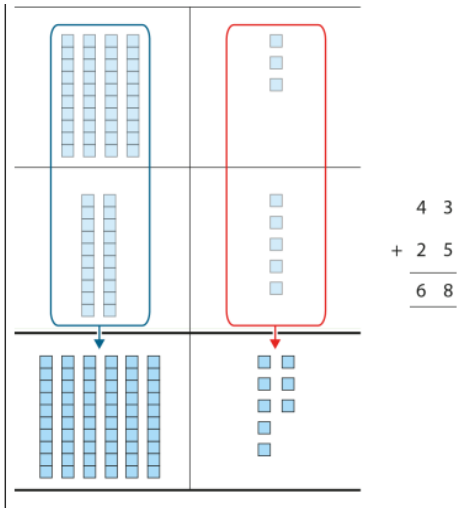
72 - 17 = 55



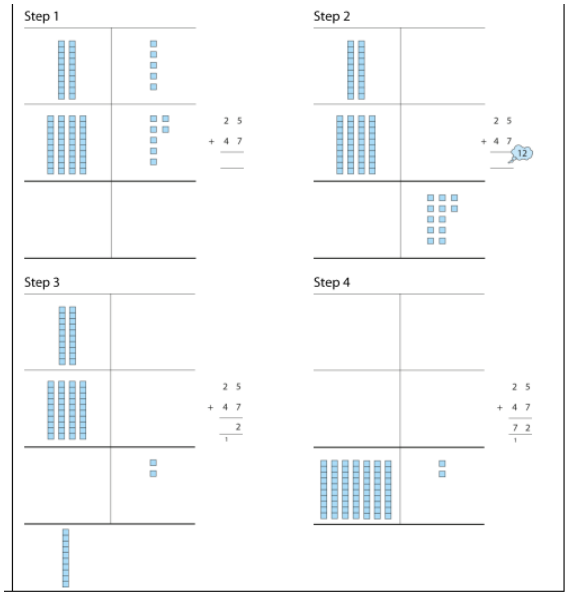
50 + 5 = 55

Year 3

Year 2 and introducing written methods alongside place value equipment e.g.



Adding/Subtracting without regrouping/exchanging



Adding/Subtracing with regrouping/exchannging.

Progression for WRITTEN ADDITION

Lower Key Stage 2 | Upper Key Stage 2

Year 3

Columnar addition

$$\begin{array}{r} 435 \\ +\ 287 \\ \hline 722 \\ \hline {\scriptstyle 1\ \ 1\ \ } \end{array}$$

$$\begin{array}{r} 251 \\ +\ \ 73 \\ \hline 334 \\ \hline {\scriptstyle 1\ \ } \end{array}$$

Year 4

Columnar addition

$$\begin{array}{r} 2938 \\ +\ 5423 \\ \hline 8361 \\ \hline {\scriptstyle 1\ \ \ \ 1\ } \end{array}$$

$$\begin{array}{r} 3778 \\ +\ \ 483 \\ \hline 4261 \\ \hline {\scriptstyle 1\ \ 1\ \ 1\ } \end{array}$$

$$\begin{array}{r} 355 \\ 234 \\ +\ 473 \\ \hline 1062 \\ \hline {\scriptstyle 1\ \ 1\ \ } \end{array}$$

Year 5

Columnar addition

$$\begin{array}{r} 2318 \\ \ \ \ 53 \\ +\ \ 925 \\ \hline 3296 \\ \hline {\scriptstyle 1\ \ \ \ 1\ } \end{array}$$

$$\begin{array}{r} 23.14 \\ 560.83 \\ +\ \ 46.71 \\ \hline 630.68 \\ \hline {\scriptstyle 1\ \ 1\ \ 1\ } \end{array}$$

Year 6

Columnar addition

$$\begin{array}{r} 5.234 \\ 43.190 \\ +\ 387.300 \\ \hline 435.724 \\ \hline {\scriptstyle 1\ \ 1\ \ \ \ \ 1\ } \end{array}$$

Progression for WRITTEN SUBTRACTION

Lower Key Stage 2 | Upper Key Stage 2

Year 3

Columnar subtraction

$$\begin{array}{r} {\scriptstyle 7}\,{\scriptstyle 1} \\ 7\,\cancel{8}\,4 \\ -\;2\,3\,7 \\ \hline 5\,4\,7 \end{array}$$

$$\begin{array}{r} {\scriptstyle 5}\,{\scriptstyle 9}\,{\scriptstyle 1} \\ \cancel{6}\,\cancel{0}\,3 \\ -\;2\,4\,7 \\ \hline 3\,5\,6 \end{array}$$

Year 4

Columnar subtraction

$$\begin{array}{r} {\scriptstyle 6}\,{\scriptstyle 1}\,{\scriptstyle 4}\,{\scriptstyle 1} \\ \cancel{7}\,5\,\cancel{5}\,3 \\ -\;3\,7\,2\,8 \\ \hline 3\,8\,2\,5 \end{array}$$

$$\begin{array}{r} {\scriptstyle 5}\,{\scriptstyle 9}\,{\scriptstyle 1} \\ \cancel{6}\,\cancel{0}\,4\,3 \\ -\;4\,7\,8\,1 \\ \hline 1\,2\,6\,2 \end{array}$$

$$\begin{array}{r} {\scriptstyle 2}\,{\scriptstyle 1}\,{\scriptstyle 4}\,{\scriptstyle 1} \\ \cancel{3}\,1\,\cancel{5}\,5 \\ -\;\;5\,3\,6 \\ \hline 2\,6\,1\,9 \end{array}$$

Year 5

Columnar subtraction

$$\begin{array}{r} {\scriptstyle 1}\,{\scriptstyle 1}\,{\scriptstyle 3}\,{\scriptstyle 1} \\ \cancel{2}\,0\,\cancel{4}\,3\,9 \\ -\;\;5\,2\,4\,7 \\ \hline 1\,5\,1\,9\,2 \end{array}$$

Year 6

Columnar subtraction

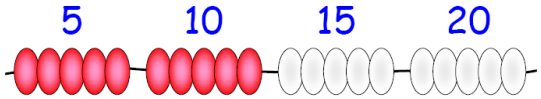
Numbers with different decimal places
327.5 - 62.63

$$\begin{array}{r} {\scriptstyle 2}\,{\scriptstyle 1}\,{\scriptstyle 6}\,\,{\scriptstyle 1}{\scriptstyle 4}\,{\scriptstyle 1} \\ \cancel{3}\,2\,\cancel{7}\,.\,\cancel{5}\,0 \\ -\;\;\;6\,2\,.\,6\,3 \\ \hline 2\,6\,4\,.\,8\,7 \end{array}$$

Progression for MULTIPLICATION

Year 1

Give children experience of counting equal group of objects in 2s, 5s and 10s.



Doubles of all numbers to 10

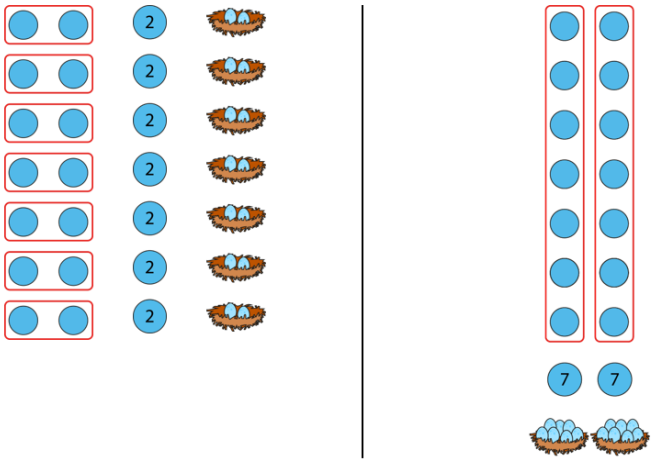
1 + 1 = 2
2 + 2 = 4
3 + 3 = 6

Year 2

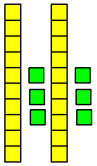
Repeated addition leading to
Multiplication facts for x2, x5 and x10

2 + 2 + 2 + 2 + 2 = 10
2 x 5 = 10
2 multiplied by 5
5 pairs

7 × 2 = 14



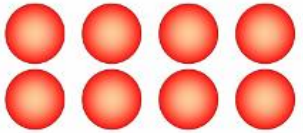
Doubles to 20
e.g. double 11, double 16, 13 + 13



Year 3

Multiplication facts for x3, x4 and x8
e.g. 8 x 6, 3 x 6, 4 x 7, 3 x ☐ = 24

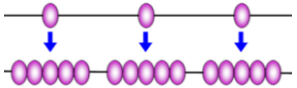
Describing an array



4 x 2 = 8

2 x 4 = 8

Scaling



3 x 5 = 15

Progression for WRITTEN MULTIPLICATION

Lower Key Stage 2 | Upper Key Stage 2

Year 3

Grid method

32 x 8

x	30	2	
8	240	16	= 256

Year 4

Grid method

135 x 6

x	100	30	5	
6	600	180	30	= 810

Expended Method

```
  24
 x  3
 ---
  12
  60
 ---
  72
 ---
```

Formal written layout

```
  273
 x  7
 ----
 1911
 ----
   52
```

Year 5

Long Multiplication

```
   124
 x  26
 ----
   744
  480
 ----
  3224
 ----
  11
```

Year 6

Formal written method

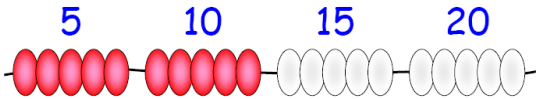
```
  41.68
 x    7
 ------
 291.76
 ------
   145
```

```
  31.56
 x   23
 ------
  94.68
 631.20
 ------
 725.88
 ------
 1
```

Progression for MULTIPLICATION

Year 1

Give children experience of counting equal group of objects in 2s, 5s and 10s.



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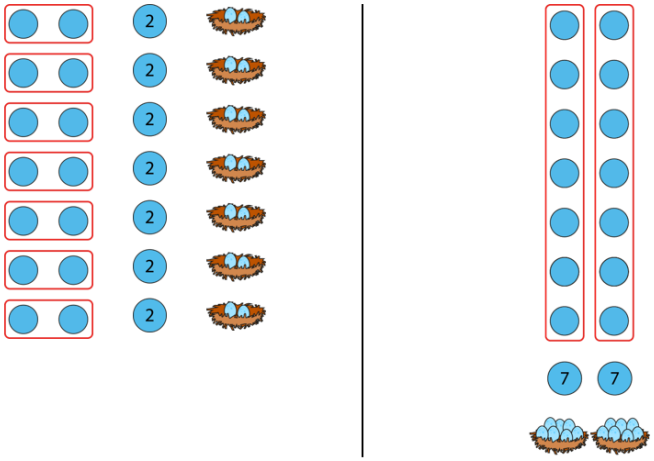
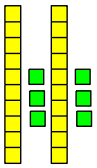


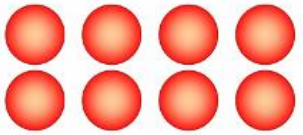
Doubles to 20
e.g. double 11, double 16, 13 + 13



Year 3

Multiplication facts for x3, x4 and x8
e.g. 8 x 6, 3 x 6, 4 x 7, 3 x ☐ = 24

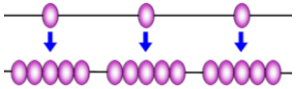
Describing an array



4 x 2 = 8

2 x 4 = 8

Scaling



3 x 5 = 15

Progression for WRITTEN MULTIPLICATION

Lower Key Stage 2 | Upper Key Stage 2

Year 3

Grid method

32 x 8

x	30	2	
8	240	16	= 256

Year 4

Grid method

135 x 6

x	100	30	5	
6	600	180	30	= 810

Expended Method

$$\begin{array}{r} 24 \\ \times\ 3 \\ \hline 12 \\ 60 \\ \hline 72 \\ \hline \end{array}$$

Formal written layout

$$\begin{array}{r} 273 \\ \times\ 7 \\ \hline 1911 \\ \hline 52 \end{array}$$

Year 5

Long Multiplication

$$\begin{array}{r} 124 \\ \times\ 26 \\ \hline 744 \\ 2480 \\ \hline 3224 \\ \hline 11 \end{array}$$

(1 2)

Year 6

Formal written method

$$\begin{array}{r} 41.68 \\ \times\ 7 \\ \hline 291.76 \\ \hline 145 \end{array}$$

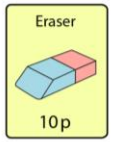
$$\begin{array}{r} 31.56 \\ \times\ 23 \\ \hline 94.68 \\ 631.20 \\ \hline 725.88 \\ \hline 1 \end{array}$$

(1 1 1 1)

Progression for DIVISION

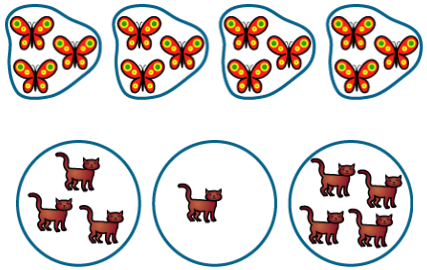
Year 1

Linking to Multiplication – Counting in 2s, 5s and 10s.



How many five-pence coins would you need to buy this eraser?

Grouping – Equal or Unequal



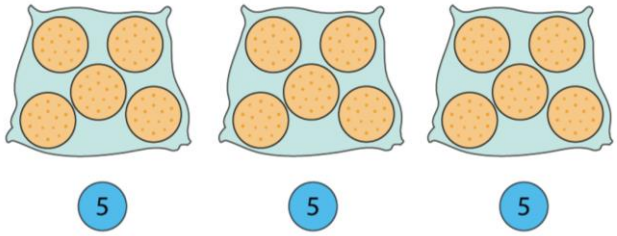
Halves of corresponding doubles to 10

Half of 10 is 5
Half of 8 is 4

Year 2

Division facts for the 2, 5 & 10 times tables
e.g. 10 ÷ 5, 30 ÷ 5, 50 ÷ 5, 20 ÷ ☐ = 4

15 biscuits in bags of 5. How many bags?



3 bags of 5 is 15.
15 ÷ 5= 3
15 is divided into groups of 5. There are 3 groups.
15 divided into groups of 5 is equal to 3.

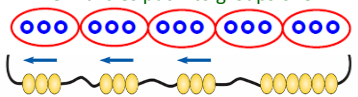
Halves of corresponding doubles to 20
e.g. half of 22, half of 32

Half of 22 is 11
Half of 24 is 12
Half of 26 is 13

GROUPING

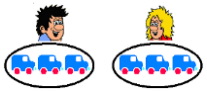
There are 6 cars; each child can have 2 cars.
How many children will get 2 cars?

15 marbles put into groups of 3.

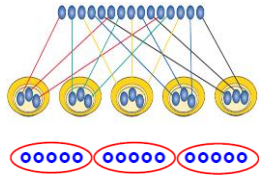


SHARING

6 toy cars are shared between 2 children.
How many will they have each?

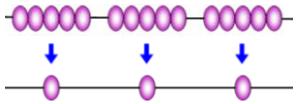


15 marbles are shared out equally among 5 children.



SCALING

5 times smaller



Progression for WRITTEN DIVISION

Lower Key Stage 2 | Upper Key Stage 2

Year 3

Partitioning

64 ÷ 4

$$4 \overline{)\ 40 + 24} = 10 + 6 = 16$$

72 ÷ 3

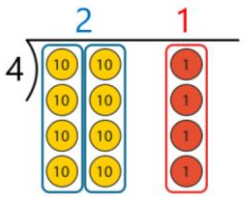
$$3 \overline{)\ 60 + 12} = 20 + 4 = 24$$

Year 4

Short Division

84 ÷ 4 = □

10s 1s



84 ÷ 6 =

$$6 \overline{)\ 8^{2}4} = 14$$

Year 5

Short Division

$$7 \overline{)\ 9^{2}4^{3}1^{3}5} = 1345$$

There are 421 children here today.
How many teams of 9 can we make?

$$9 \overline{)\ 4\ 2^{6}1} = 46 \text{ r } 7$$

= 46 teams

Year 6

Short Division

$$2\ 1 \overline{)\ 5\ 0^{8}4} = 24$$

$$6 \overline{)\ 3\ 4^{4}3\ .^{1}5^{3}6} = 57.26$$

Long Division

	× 31
1	31
2	62
3	93
4	124
5	155
6	186
7	217
8	248
9	279
10	310

$$31 \overline{)\ 4\ 3\ 4} = 14$$

3 1

1 2 4

1 2 4

0

1 ten × 31 = 31 tens

4 ones × 31 = 124 ones

When a number does not divide exactly – there are different ways to record the remainder.

354 ÷ 15 = ?

Remainder	Fraction	Decimal
$15 \overline{)\ 3\ 5\ 4} = 23 \text{ r } 9$	$15 \overline{)\ 3\ 5\ 4} = 23\frac{9}{15}$	$15 \overline{)\ 3\ 5\ 4.0} = 23.6$
30, 54, 45, 9	$\frac{9}{15} = \frac{3}{5}$	30, 54, 45, 90, 90, 0
So, 354 ÷ 15 = 23 r 9	So, $354 \div 15 = 23\frac{3}{5}$	So, 354 ÷ 15 = 23.6