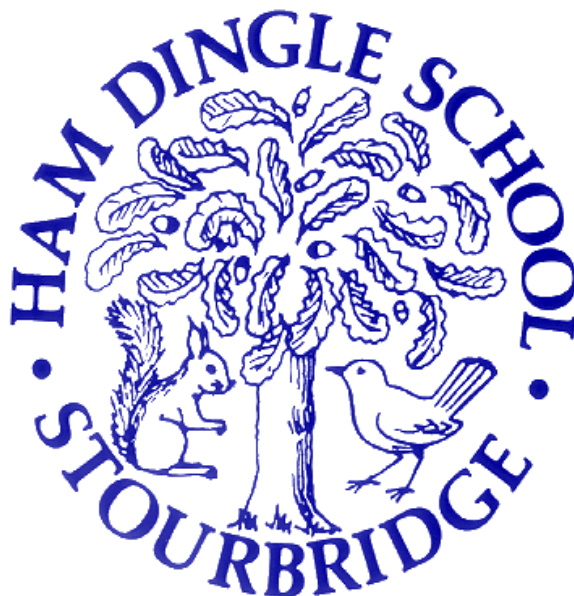


Ham Dingle Primary School



Calculations Policy

Responsibility for monitoring this policy: Mr M. Allen

Review Annually

Updated February 2016

Approved by Governing Body.....Mr George
Craig - Chair of Governors

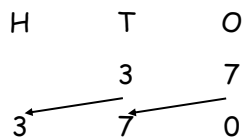
Vocabulary

Addition	Subtraction
Add Altogether Count On Increase More Than Plus Put Together Sum Total	Decrease Difference Between Distance Between Fewer Less Than Minus Reduce Subtract Take Away Take From
Multiplication	Division
Array Grouping Groups Of Lots Of Multiply Product Sets Of Times	Divide Divisible By Divide Into Group Share Share Equally Sharing
Equals	
Balance Equal To Same As Same Value	

Top Tips

Multiplying and Dividing by 10, 100, etc.

- The decimal point NEVER moves
- You DO NOT add a 0 when \times by 10 or remove a 0 when \div by 10 because this doesn't work for decimals
- Always talk about the numbers (digits) moving to the left when multiplying and numbers (digits) moving to the right when dividing.
e.g. 37×10 move all the numbers (digits) 1 place to the left and there are no ones, so 0 is the placeholder



Inverses

Encourage children to use the inverse (opposite) operation to check calculations.

To check addition, you subtract.

$$13 + 7 = 20$$

$$20 - 7 = 13$$

To check subtraction, you add.

$$20 - 13 = 7$$

$$7 + 13 = 20$$

To check multiplication, you divide.

$$5 \times 8 = 40$$

$$40 \div 8 = 5$$

To check division, you multiply.

$$40 \div 5 = 8$$

$$8 \times 5 = 40$$

Calculation Policy

This calculation policy has been written by the staff of Ham Dingle Primary School for Ham Dingle children. Please use this to help your children at home. We have all been taught maths in different ways - this is how we do it at Ham Dingle. Ask your children which stage they are on, the teacher will move them on when they are ready. Some steps are revisited with larger numbers and decimal numbers.

What is important is that your children can understand the method.

Any questions please see your child's maths teacher.

Assessing Children's Calculation Level

Each method of calculation has a code.

For example, the initial stage for multiplication will be represented as M1; for division it would be D1 etc.

These codes are to help teachers judge where the children are in terms of their calculation skills.

Children should be regularly assessed against these codes and the information will be passed on to the next class teacher at the end of each year.

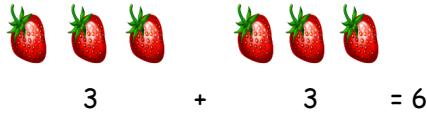
This is to ensure that all teachers, children and parents are aware of the stage which the children are working at and that greater depth of understanding and competence can be achieved.

These codes should be used alongside the 2014 national curriculum statutory framework. We will endeavour to make sure all children are working at the age related level, but understand that some children in each year group may be at the stage of a lower year or even higher year.

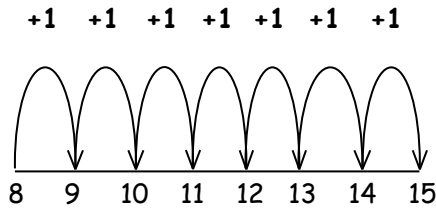
Steps in Addition

Lots of practical and verbal adding games or activities

A1

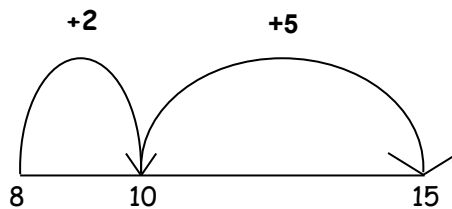


A2



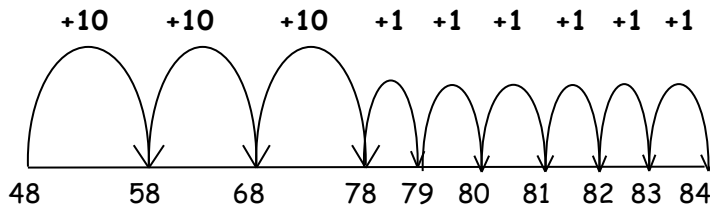
$8 + 7 = 15$

A3



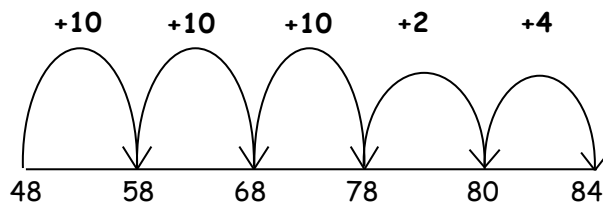
Bridging through 10
 $8 + 7 = 15$

A4



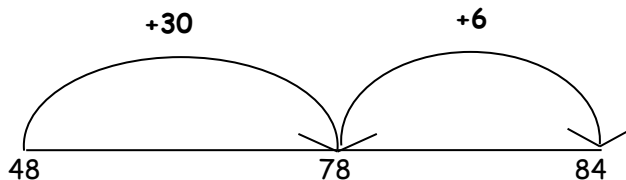
Add tens first
 $48 + 36 = 84$

A5



Add tens first
 $48 + 36 = 84$

A6



Add tens first
 $48 + 36 = 84$

A7

$$\begin{array}{r} 48 \\ + 36 \\ \hline \hline \end{array} \longrightarrow \begin{array}{r} 40 + 8 \\ 30 + 6 \\ \hline 70 + 14 \\ \hline = 84 \end{array}$$

Partition numbers then add them

Steps in Addition

A8

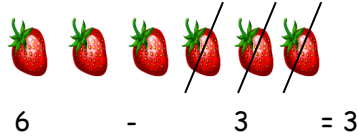
$$\begin{array}{r} 48 \\ + 36 \\ \hline 84 \\ \hline 1 \end{array}$$

Any questions please see your child's maths teacher.

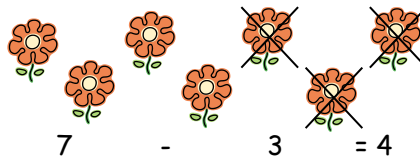
Steps in Subtraction

Lots of practical and verbal subtraction games or activities

S1



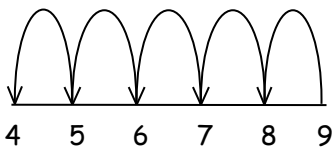
S2



S3

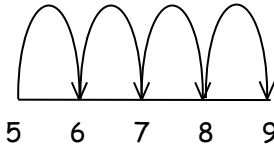
Counting backwards

-1 -1 -1 -1 -1



Counting forwards

+1 +1 +1 +1

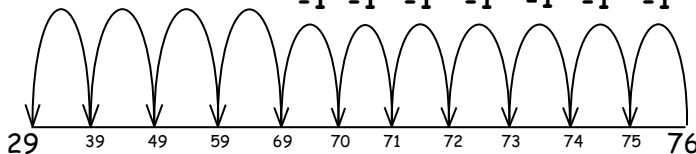


$$9 - 5 = 4$$

S4

Counting backwards

-10 -10 -10 -10 -1 -1 -1 -1 -1 -1 -1

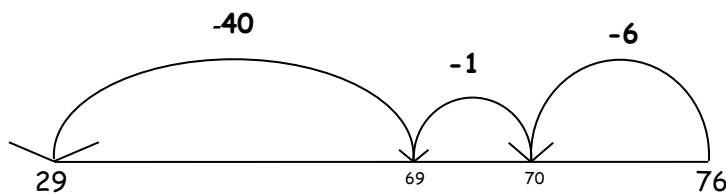


Subtract units first

$$76 - 47 = 29$$

S5

Counting backwards to a multiple of 10

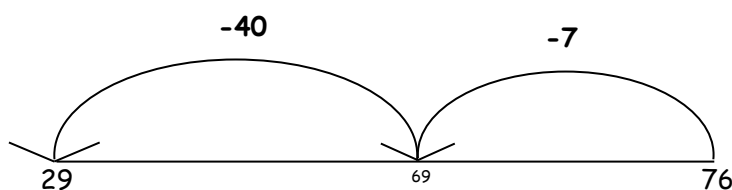


Subtract units first

$$76 - 47 = 29$$

S6

Counting backwards

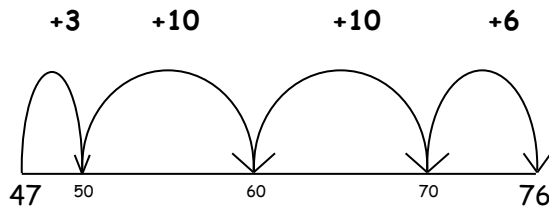


Subtract units first

$$76 - 47 = 29$$

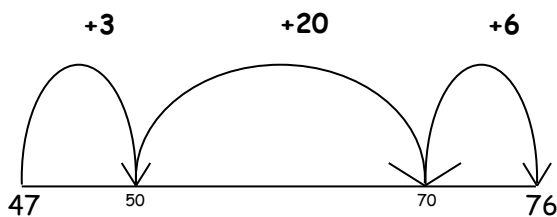
Steps in Subtraction

S4a Counting forwards instead of counting backwards



$$76 - 47 = 29$$

S5a Counting forwards



$$76 - 47 = 29$$

$$\begin{array}{r} 76 \\ - 45 \\ \hline \\ \hline \end{array}$$

(Without exchanging)

$$\begin{array}{r} 70 + 6 \\ 40 + 5 \\ \hline 30 + 1 = 31 \end{array}$$

$$\begin{array}{r} 76 \\ - 47 \\ \hline \\ \hline \end{array}$$

(With exchanging)

$$\begin{array}{r} \overset{6}{0} \overset{+6}{7} \overset{+6}{6} \\ \overset{4}{0} + \overset{+7}{1} \\ \hline 20 + 9 \\ \hline = 29 \end{array}$$

$$\begin{array}{r} 76 \\ - 45 \\ \hline 31 \\ \hline \end{array}$$

(Without exchanging)

$$\begin{array}{r} \overset{6}{7} \overset{1}{6} \\ - 47 \\ \hline 29 \\ \hline \end{array}$$

(With exchanging)

Calculations S4 and S5 can be taught alongside S4a and S5a, depending on the needs of the child or preference of the teacher.

Any questions please see your child's maths teacher.

Steps in Multiplication

Lots of practical and verbal multiplication games and activities

Doubling

$2+2=4$

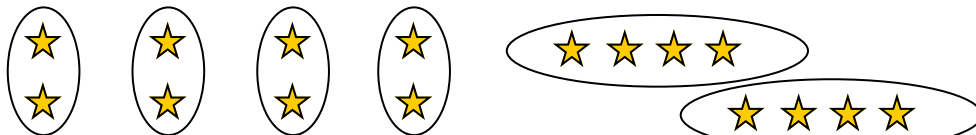
$2 \times 2 = 4$

M1

$4 \times 2 = 8$

$2 \times 4 = 8$

Array

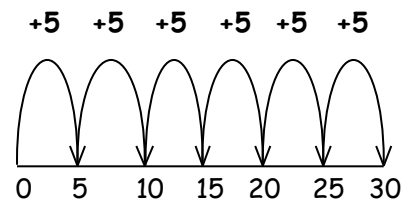


4 lots of 2 = 8

$2 + 2 + 2 + 2 = 8$

M2

Repeated addition

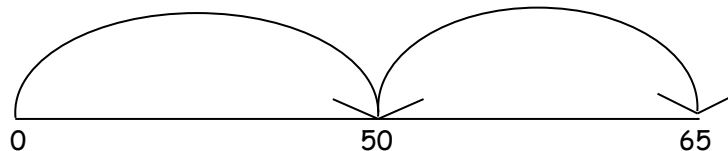


$6 \times 5 = 30$

M3

10×5

3×5



$13 \times 5 = 65$

M4

TUxU

$38 \times 7 = 266$
 (partition 38 into 30 and 8)

Grid Method

X	30	8
7	210	56

$$\begin{array}{r} 210 \\ +56 \\ \hline 266 \end{array}$$

TUxTU

$45 \times 27 = 1215$
 (partition 45 into 40 and 5
 partition 27 into 20 and 7)

X	40	5
20	800	100
7	280	35

$$\begin{array}{r} 800 \\ +100 \\ 280 \\ +35 \\ \hline 1215 \end{array}$$

Steps in Multiplication

M5

$$\begin{array}{r} 38 \\ \times 7 \\ \hline 56 \quad (7 \times 8) \\ 210 \quad (7 \times 30) \\ \hline 266 \end{array}$$

M6

$$\begin{array}{r} 45 \\ \times 27 \\ \hline 315 \\ 900 \\ \hline 1215 \end{array}$$

Our preferred method of multiplication is to multiply the ones first. However, if the teacher feels it may best meet the needs of a child, they may teach the method where the tens are multiplied first.

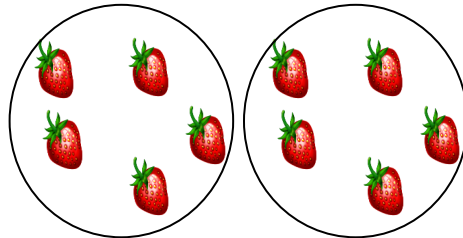
Any questions please see your child's maths teacher.

Steps in Division

Lots of practical and verbal division games and activities
e.g. halving, sharing

D1

Grouping

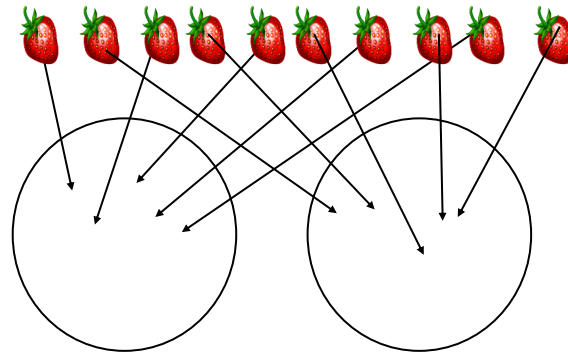


$$10 \div 2 = 5$$

D2

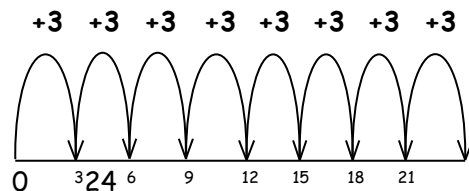
Sharing

The arrows show what the children do and might not be drawn.



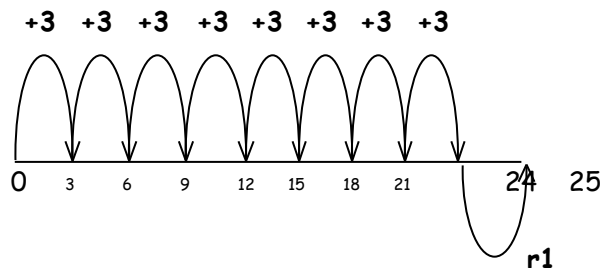
D3

Count On
(without remainders)



$$24 \div 3 = 8$$

(with remainders)



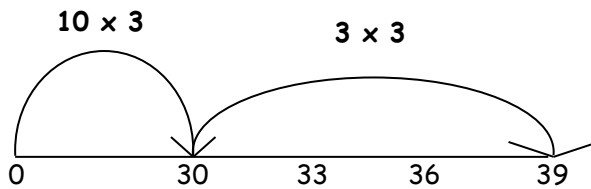
$$25 \div 3 = 8r1$$

Steps in Division

Count on in multiple chunks

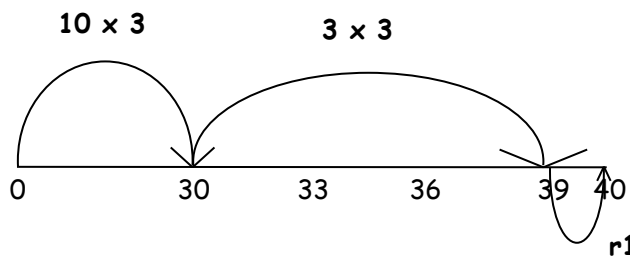
D4

(without remainders)



$$39 \div 3 = 13$$

(with remainders)



$$40 \div 3 = 13r1$$

D5

$$72 \div 5 = 14r2$$

$$\begin{array}{r}
 14r2 \\
 5 \overline{) 72} \\
 \underline{- 50} \quad (10 \times 5) \\
 22 \\
 \underline{- 20} \quad (4 \times 5) \\
 2
 \end{array}$$

Chunking

As you are dividing by 5, take away chunks of 5
e.g. 10 chunks of 5 = 50

4 chunks of 5 = 20

Where required, express remainders as a fraction eg. $14r2 = 14 \frac{2}{5}$ (two fifths)

D6

$$\begin{array}{r}
 14r2 \\
 5 \overline{) 72}
 \end{array}$$

D7

$$\begin{array}{r}
 28 \\
 15 \overline{) 432} \\
 \underline{300} \quad 15 \times 20 \\
 132 \\
 \underline{120} \quad 15 \times 8 \\
 12
 \end{array}$$

The answer is 28 r 12,

$$\begin{array}{r}
 \cancel{12} \quad 4 \\
 \hline
 \cancel{15} \quad 5
 \end{array}$$

Or $28 \frac{4}{5}$

Any questions please see your child's maths teacher.

X Tables

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

To use this table to work out 7×9 , find 7 on one side of the grid and 9 on the other. Follow the lines until they meet.

$$7 \times 9 = 63$$

Times Tables

Learning the times tables is so important. Please help your child learn them.

Current expectations are:

Year 2 = 2, 5, 10 times table

Year 3 = 2, 3, 4, 5, 6, 10 times table

Year 4 = All tables up to 12×12