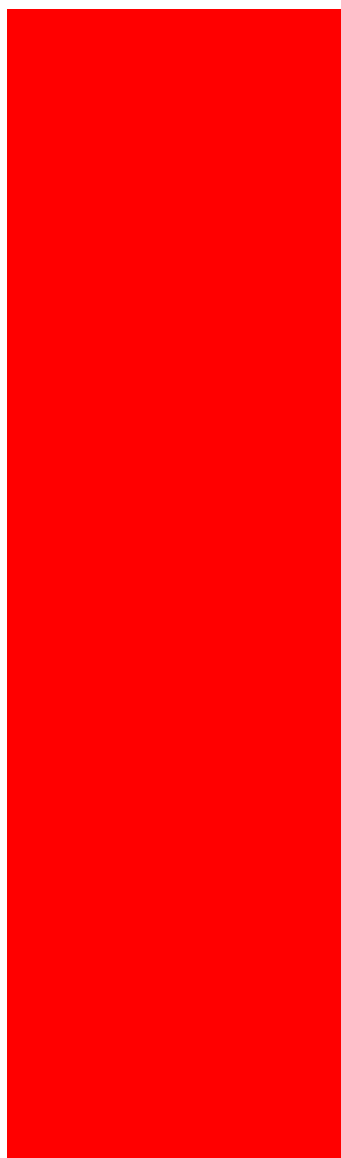


MAKE YOUR CHILD A MATHS STAR!

**A PARENTS' GUIDE TO HELPING
YOUR CHILDREN WITH MATHS**



Booklet 2 of 3:

**Key Stage 2
Year 3 to Year 4**

“IT WASN’T LIKE THIS WHEN I WAS AT SCHOOL!”

Have you ever wished that you understood current Maths methods better? Many parents find that their children are using methods or strategies, which are very different from those used in the past. This can often cause confusion when trying to support your child at home. This booklet has been prepared by First and Middle School teachers of the Dorchester Area Schools Partnership (DASP) to give you a record of the strategies your child will be using in school.

The main methods used in each year group by the majority of pupils for addition, subtraction, multiplication and division are shown. These methods are introduced throughout the teaching year so most pupils should be familiar with all methods by the end of the year. Each sheet also shows typical maths vocabulary that children will be acquiring and using at this stage.

This is a guide only, children will always progress at different speeds. However, support from you will undoubtedly be of great benefit to them at all times. If you have any questions, your child’s teacher will be pleased to discuss the strategies with you.

This booklet is part of a series of 3, covering Year 1 to Year 6. This booklet will be supplemented with extra resources available on the DASP website.

www.dasp.org.uk/maths.htm

N.B. If you have downloaded this booklet to print it, you may need to expand your print margins slightly to make it fit.

Turn your child into a Mathemagician!

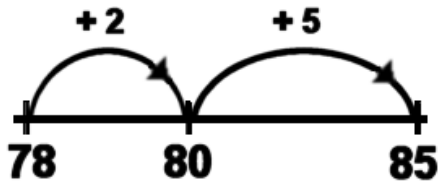


YEAR 3 - Addition

Number line (left to right)

$$78 + 7 \quad (7 = 2 + 5)$$

Jump forward to the next ten



$$78 + 7 = 85$$

Partitioning: Splitting into tens and units

$$\begin{aligned} & 75 \quad + \quad 48 \\ = & 70 + 5 \quad + \quad 40 + 8 \\ = & 70 + 40 \quad + \quad 5 + 8 \\ = & 110 + 13 \\ = & 123 \end{aligned}$$

Use the same method for HTU + HTU

$$\begin{aligned} & 364 \quad + \quad 123 \\ = & 300 + 60 + 4 \quad + \quad 100 + 20 + 3 \\ = & 300 + 100 + 60 \quad + \quad 20 + 4 + 3 \\ = & 400 + 80 + 7 \\ = & 487 \end{aligned}$$

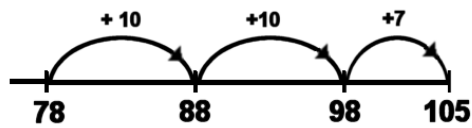
Vocabulary:

add, addition, more, plus, make, sum, total, altogether, how many more to make...? how many more is... than...? Numberline, partition, hundreds, tens, units, count on.

YEAR 4 - Addition

Numberline (left to right)

$$78+27 \quad (27=10 + 10 +7)$$



$$78+27=105$$

Expanded partition $175 + 248$

Write sum vertically

Step 1

$$\begin{array}{r} 175 = 100 + 70 + 5 \\ + 248 = 200 + 40 + 8 \end{array}$$

Partitioning

Step 2

$$423 \quad 300 + 110 + 13$$

Step 3

Column Addition

Step 4

Recombine

Expanded column (units first)

$$175 + 248$$

$$\begin{array}{r} 175 \\ + 248 \\ \hline 13 \quad (5+8=13) \\ 110 \quad (70+40=110) \\ 300 \quad (100+200=300) \\ \hline 423 \end{array}$$

Compact column (most able only)

$$175 + 248$$

$$\begin{array}{r} 175 \\ + 248 \\ \hline 423 \\ 11 \end{array}$$

For the middle column
children are taught to say
“70+40+10=120”
Rather than
“7+4+1=12”

Vocabulary:

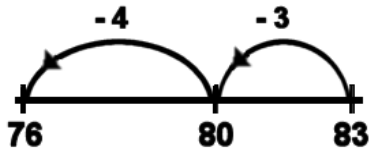
add, addition, more, plus, increase, sum, total, altogether, score, adjust, near double, how many more to make...? numberline, partition, hundreds, tens, units, count on

YEAR 3 - Subtraction

Numberline (right to left)
(when subtracting with large difference)

$$83 - 7 \quad (7=3+4)$$

Jump back to the nearest 10 first

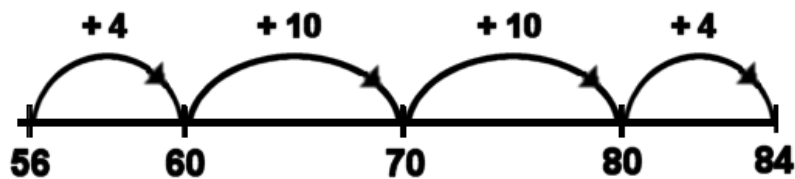


$$83 - 7 = 76$$

Some children may be shown this method for counting on.

Find the difference (left to right)
(when subtracting near numbers)

$$84 - 56$$



Start from 56 and count on until reaching 84

$$4 + 10 + 10 + 4 = 28$$

$$84 - 56 = 28$$

Vocabulary

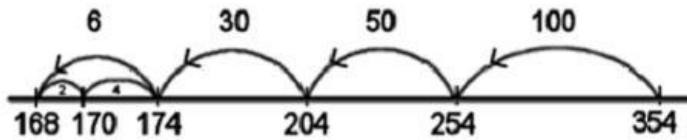
□ subtract, subtraction, take (away), minus, leave, how many are left/left over? one less, two less... ten less... one hundred less how many fewer is... than...? how much less is...? difference between, equals, sign, is the same as, tens boundary, hundreds boundary, gap

YEAR 4 - Subtraction

Expanded Partition (no exchanging)

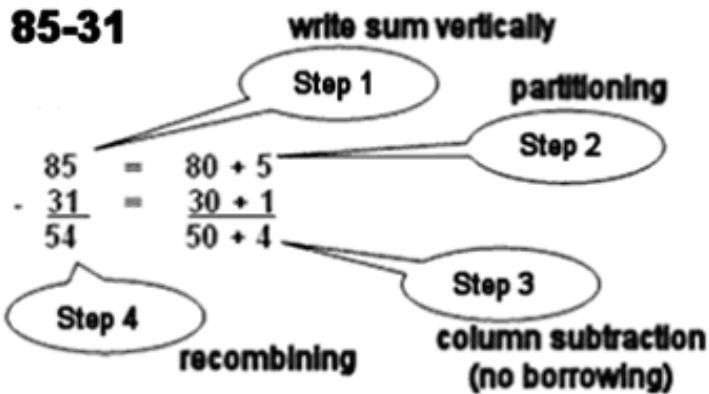
Numberline for HTU – TU and HTU – HTU

354-168



Expanded partitioning (no exchanging)

85-31



$$85 - 31 = 54$$

Expanded partition with exchanging

$$181 - 57$$

$$\begin{array}{r} 181 \\ - 57 \\ \hline 124 \end{array}$$

$$= \begin{array}{r} 100 + \cancel{80} + \cancel{1} \\ - 50 + 7 \\ \hline 100 + 20 + 4 \end{array}$$

The children are taught to say:

"80 exchanges to 70 and 10"

Compact column (most able only)

$$181 - 57$$

$$\begin{array}{r} \cancel{8} \\ \cancel{8} \\ - \cancel{7} \\ \hline \\ \\ \\ \hline \end{array}$$

(80+1=70+11)

Vocabulary:

subtract, subtraction, take (away), minus, decrease, leave, how many are left/left over? difference between, how many more/fewer is... than...? how much more/less is...? is the same as, tens boundary, hundreds boundary, inverse

YEAR 3 - Multiplication

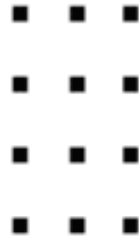
Tables: x2, x3, x4 x5, x10

Working out multiplications using an array: 4×3

3 rows of 4



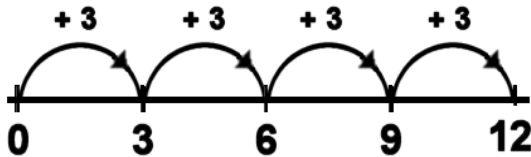
or 4 rows of 3



$$4 \times 3 = 12$$

Repeated addition using a number line.

4×3 (4 jumps of 3)



$$4 \times 3 = 12$$

Grid Method (Teens x U)

13×8 (13 partitions to 10 and 3)

$$\begin{array}{r} \times \quad 10 \quad 3 \\ 8 \quad \boxed{\begin{array}{|l|l|} \hline 10 \times 8 \\ \mathbf{80} \\ \hline 8 \times 10 \\ \mathbf{80} \\ \hline \end{array}} \quad \boxed{\begin{array}{|l|l|} \hline 3 \times 8 \\ \mathbf{24} \\ \hline 8 \times 3 \\ \mathbf{24} \\ \hline \end{array}} = 104 \end{array}$$

$$(80+24=104)$$

$$13 \times 8 = 104$$

Vocabulary:

lots of, groups of, times, multiply, multiplication, multiplied by multiple of, product, once, twice, three times... ten times... times as, repeated addition, array, row, column, double, grid method

YEAR 4 - Multiplication

Tables: x6, x7, x8, x9

Grid method:

$$23 \times 8$$

$$23 = 20 + 3$$

X	20	3	
8	160 <small>(8 x 20)</small>	24 <small>(8 x 3)</small>	= 184

More able moving to TU x TU

$$23 \times 28$$

$$23 = 20 + 3$$

	X	20	3	
28 = 20 + 8	20	400	60	400 + 60 = 460
	8	160	24	160 + 24 = 184
			= 644	Total: 644

Partitioned short multiplication TU x U (Units first)

$$23 \times 8$$

23	
X <u>8</u>	
24	(8 x 3)
<u>160</u>	(8 x 20)
184	

$$23 \times 8 = 184$$

Vocabulary:

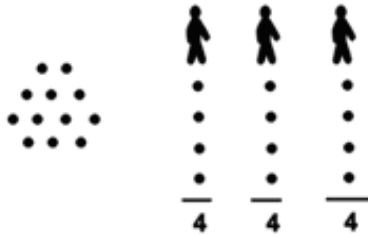
lots of, groups of, times, multiply, multiplication, multiplied by, multiple of, product, once, twice, three times... ten times... times as, repeated addition, array, row, column, double, grid method, short multiplication.

YEAR 3 - Division

Try to give your child plenty of hands on and practical activities in real life situations, such as sharing a packet of 12 biscuits between 3 people.

Sharing and grouping using arrays:

$$12 \div 3$$



Each person gets 4 biscuits.

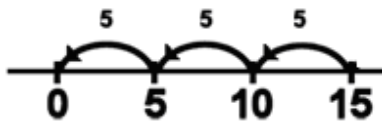
$$14 \div 3$$



Each person gets 4 biscuits and 2 left over.

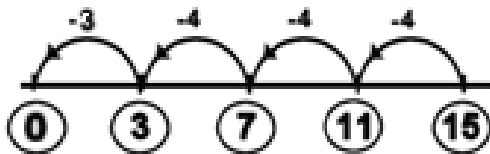
Repeated subtraction using a horizontal number line:

$$15 \div 5$$



3 jumps of 5
so $15 \div 5 = 3$

With a remainder: $15 \div 4$



3 jumps of 4 and 3 left over

$$15 \div 4 = 3 \text{ r } 3$$

Vocabulary:

share, share equally, one each, two each, three each... group in twos, threes... tens, equal groups of, divide, division, divided by, divided into, left over, remainder, halve, arrays, jumps, repeated subtraction.

YEAR 4 - Division

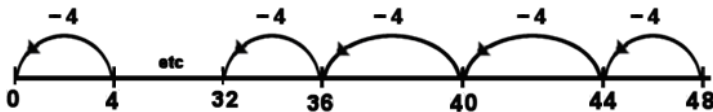
Division facts from tables and fact families

e.g. $2 \times 9 = 18$
 $9 \times 2 = 18$
 $18 \div 2 = 9$
 $18 \div 9 = 2$

Repeated subtraction along a horizontal number line

TU \div U

$48 \div 4$



12 jumps of 4 so $48 \div 4 = 12$
(Also with remainders, see Year 3 example)

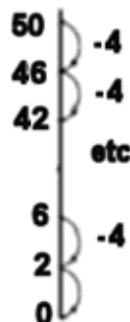
Moving to a vertical number line

$48 \div 4$



12 jumps of 4 so
 $48 \div 4 = 12$

$50 \div 4$

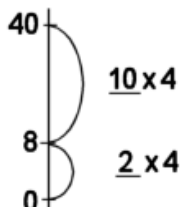


12 jumps of 4
with 2 left over

$50 \div 4 = 12 \text{ r } 2$

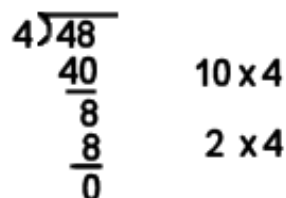
More able moving to chunking

$48 \div 4$



$48 \div 4 = 12$

$48 \div 4$



$48 \div 4 = 12$

Vocabulary:

Halve, share, share equally, one each, two each, three each... group in pairs, threes... tens, equal groups of, divide, division, divided by, divided into, remainder, factor, quotient, divisible by, inverse, halve, fact families, chunking.

The following are some suggested websites that can help support your child's maths.

BBC Maths

<http://www.bbc.co.uk/learning/subjects/maths.shtml>

Woodlands Junior School Maths Zone

<http://www.woodlands-junior.kent.sch.uk/maths/index.html>

Ambleside Primary School

<http://www.amblesideprimary.com/ambleweb/numeracy.htm>

TopMarks Education Resources

<http://www.topmarks.co.uk/>

Loders primary Schools – Maths Problem Solving

<http://www.loders.dorset.sch.uk/HomeSchool/witches/problemsolv.htm>

CoolMath4kids (US Site)

<http://www.coolmath4kids.com/>

Rain Forest Maths

<http://www.rainforestmaths.com/>



The Dorchester Area Schools Partnership (DASP) came into being in 1992. Its mission is simple: to provide the best education for all the students who are educated in the Dorchester area.