KS2 Mathematics

Parent Information Session

November 2017

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Maths Leaders

Contents

- The 4 operations – including calculation methods and progression
- End of Year Expectations
- Your turn to have a go/Using and Applying
- Problem Solving
- How you can help at home
- Online applications

Aims

- Enable you to understand the changes occurring in mathematics due to the new curriculum
- Provide you with a greater understanding of how mathematics is taught in school and progression of the 4 operation methods through Key Stage 2.
- Enable you to see the types of different questions children are asked in their assessments including Year 6 SATS and Greater depth.
- See the importance of mental mathematical skills and the strategies children are taught.
- Help you understand how you can help your child at home.

The New Curriculum

- More cross curricular
- Problem Solving no longer taught discretely but embedded within each area/domain of mathematics
- Divided into Lower Key Stage 2 and Upper Key Stage 2
- The 2017 assessment tests will be based on the new curriculum content

The New Curriculum

New Expectations

By the end of Year 4 pupils should

- memorise their multiplication tables up to and including the 12 times table
- show precision and fluency in their work

By the end of Year 6 pupils should

- Be fluent in written methods for all four operations, including long multiplication and division, and in working with fractions, decimals and percentages.
-Pupils should read, spell and pronounce mathematical vocabulary correctly.

The 4 Operations

Calculation Methods and Progression

The 4 operations

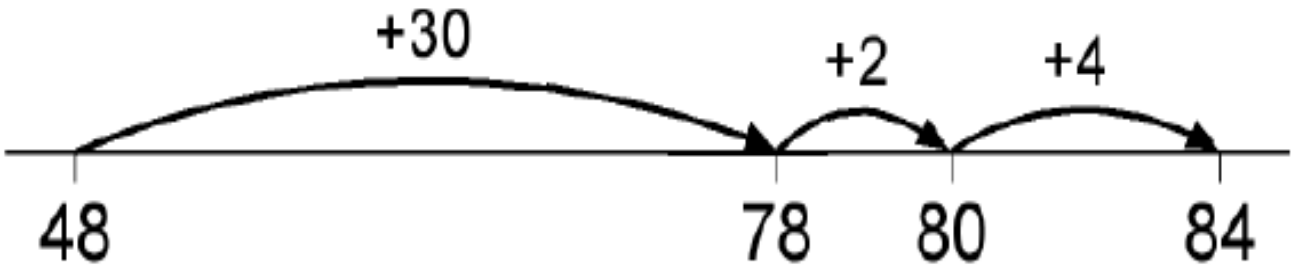
Why so many methods?

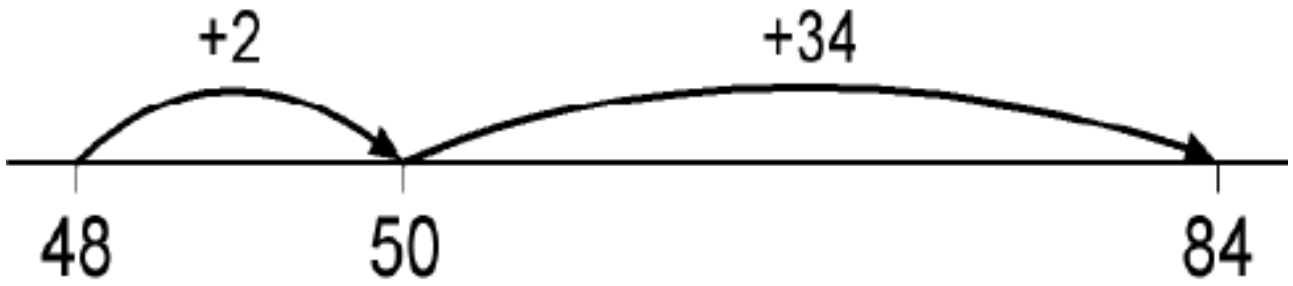
- Children are entitled to be taught and to acquire secure mental methods and efficient written methods of calculation for each operation which they know they can rely on when mental methods are not appropriate. We teach them a range so they can choose the one they prefer and proves most accurate for them.

The Four Operations

Addition – Lower KS2

Number Lines:





The Four Operations

Addition – Lower KS2

Partitioning:
Partitioning means splitting the number into the tens and units.

48 + 36 = **40 + 30 = 70** 40 + 8

8 + 6 = **14** 30 + 6

= 84 70 + 14 = 84

The Four Operations

Addition – Lower KS2

Expanded methods in columns:

Children's understanding of place value has to be **secure**.

48 + 36 = 84

4 8
3 6 +
1 4 – adding units first
7 0 – adding tens
8 4

The Four Operations

Addition – Upper KS2

Column Method:

This method remains efficient when adding larger numbers and decimals. It is a quick and reliable method.

48 + 36 = 84

```
  4 8
+ 3 6
-----
  8 4
  1
```

carrying ‘ten’

The Four Operations

Addition – Upper KS2

Column Method

This method remains efficient when adding larger numbers and decimals. It is a quick and reliable method.

379 + 92 = 471

```
  3 7 9
    9 2 +
  -------
  4 7 1
  -------
  1  1
```

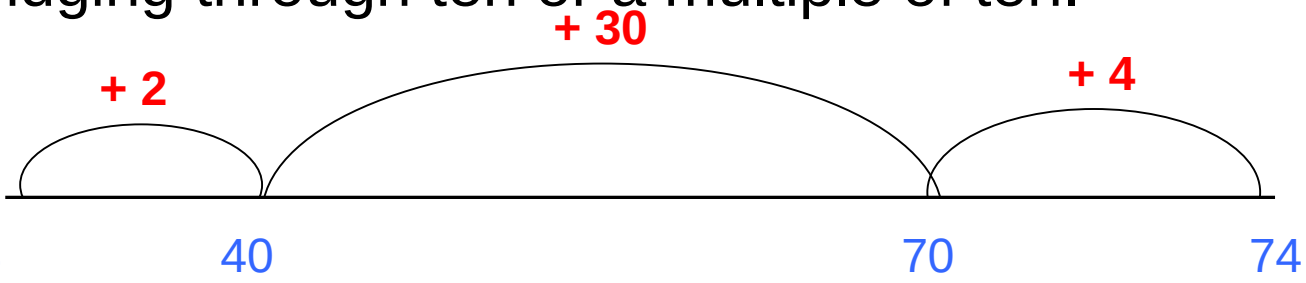
carrying ‘ten’ and ‘one hundred’

The Four Operations

Subtraction – Lower KS2

Counting On ‘Finding the difference’

Count on from the smallest to the largest once again bridging through ten or a multiple of ten.

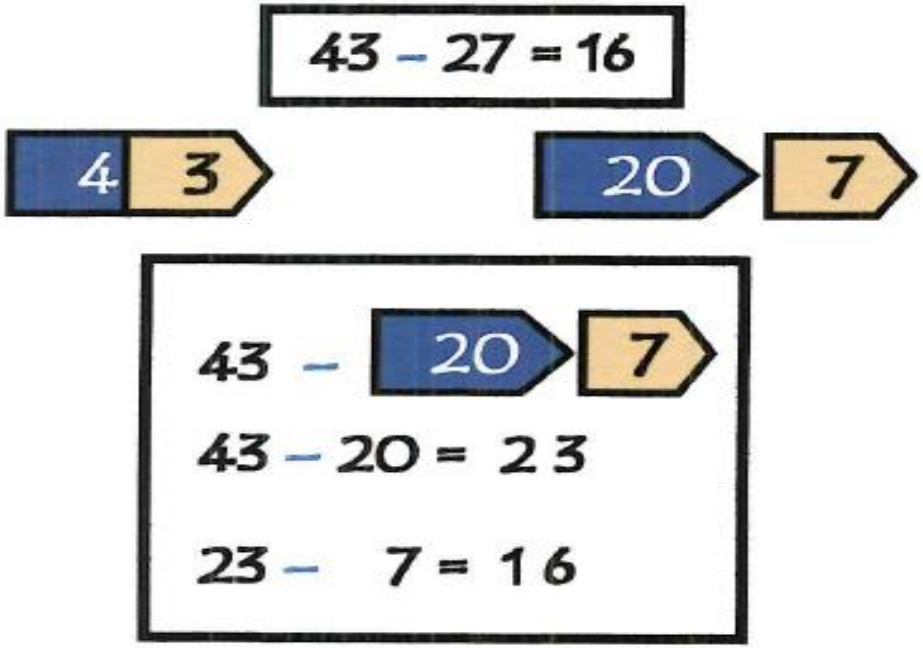


74 – 38 = (2 + 30 + 4) = 36

The Four Operations

Subtraction – Lower KS2

Partitioning:

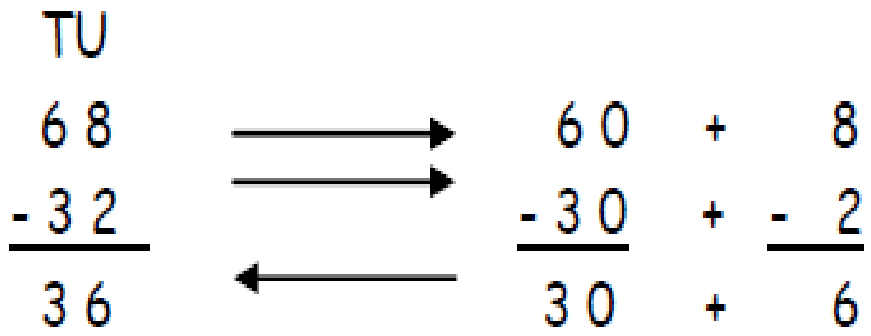


The Four Operations

Subtraction – Lower KS2

Partitioning:

68 - 32 = 36



The Four Operations

Subtraction – Lower & Upper KS2

Column Method – Decomposition:

The Four Operations

Subtraction – Lower & Upper KS2

Column Method – Decomposition:

$$\begin{array}{r} {\scriptstyle 1} \\ 6\not{7}\,6 \\ 3\,9\,- \\ \hline 3\,7 \end{array}$$

$$\begin{array}{r} {\scriptstyle 1\quad 1} \\ 1\not{2}\,3\,7 \\ 8\,4\,- \\ \hline 1\,5\,3 \end{array}$$

Borrowing ‘ten’ not 1

The Four Operations

Subtraction –Upper KS2

64.21 - 21.72 = 42.49

	T	U	$\frac{1}{10}$	$\frac{1}{100}$
	6	$^{3}\cancel{4}$	. $^{1}2$	$^{1}\cancel{1}$
-	2	1	. 7	2
	4	2	. 4	9

The Four Operations

Multiplication – Lower & Upper KS2

Expanded Short Method:

32 x 3

30 + 2

3 x

6 = 2 x 3

90 = 30 x 3

96

The Four Operations

Multiplication – (Lower) & Upper KS2

Short Multiplication:

4 3 X 6

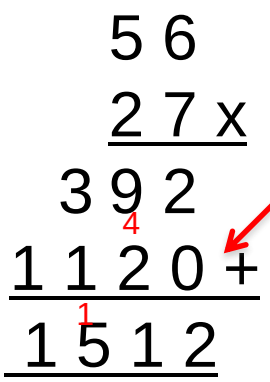
```
  4  3
     6  x
  ------
  2 5 8
  ------
    1
```

The Four Operations

Multiplication – Upper KS2

Short Multiplication for 2-digit x 2 digit:

5 6 x 2 7 =



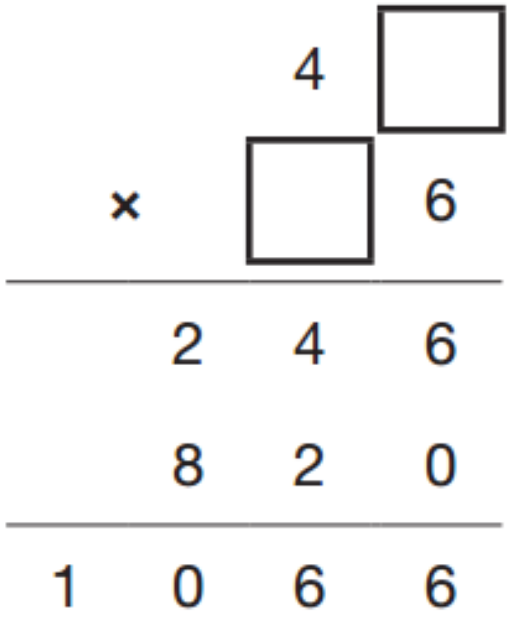
When multiplying by the ten (20 in this example) children must remember to put the place holder ‘0’ in the units column.

The Four Operations

Now it's your turn!

1. Calculate **602 × 57**

10 Write the two missing digits to make this **long multiplication** correct.



2 marks

The Four Operations

Division – Lower KS2

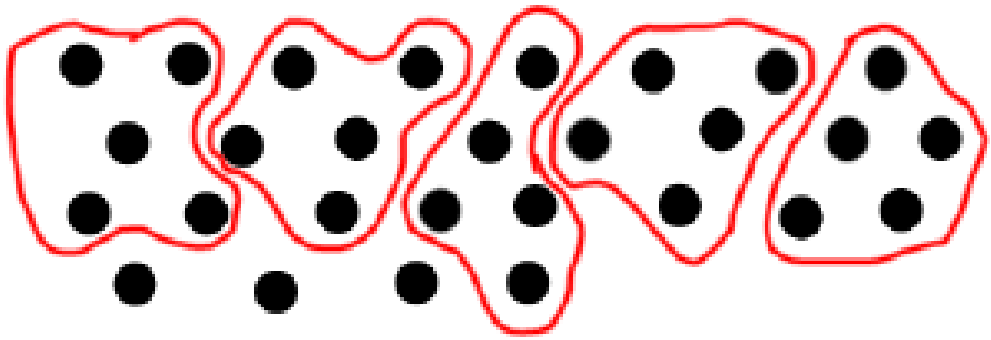
Grouping using jottings

This enables the introduction of remainders

28 children into groups of 5

How many children left without a group?

28 ÷ 5 = 5 r 3



The Four Operations

Division – Lower KS2

Grouping using multiplication knowledge:

This method uses children's understanding on times tables and links to their mental calculations.

e.g. 43 ÷ 7 =

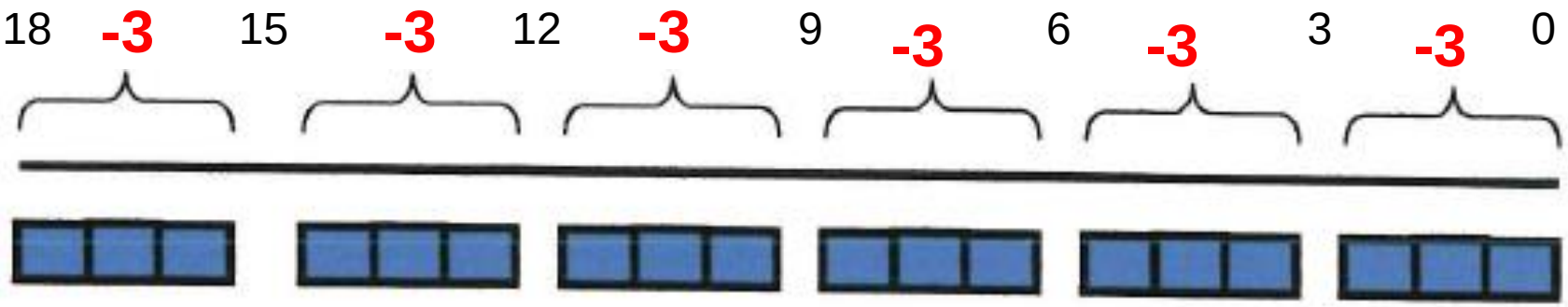
I know 6 X 7 = 42 so …

43 ÷ 7 = 6 remainder 1

The Four Operations

Division – Lower KS2

Division as repeated subtraction 18 ÷ 3 = 6



The Four Operations

Division – (Lower) & Upper KS2

Expanded Method – Chunking:

87 ÷ 6 =

$$6\overline{)87}$$

60 - 6 x **10**

27

24 - 6 x 4

3

Answer = 14 r 3

The Four Operations

Division – (Lower) & Upper KS2

Expanded Method – Chunking HTU ÷ U:

191 ÷ 6 =

6 | 1 9 1

1 2 0 - 6 x 20

7 1

6 0 - 6 x 10

1 1

6 - 6 x 1

5

Children building up confidence, using their multiplication knowledge, to subtract larger ‘chunks’.

Answer = 31 r 5

The Four Operations

Division – (Lower KS2) & Upper KS2

Short Division - TU ÷ U:

This method is the next step after chunking. It is a more compact method.

81 ÷ 3 =

$$\begin{array}{r} 2\ 7 \\ 3\overline{)\,8^{2}1} \end{array}$$

Links to chunking:
3 x 20 = 60
80 – 60 = 20 which the ‘2’ represents
3 x 7 = 21
No remainder

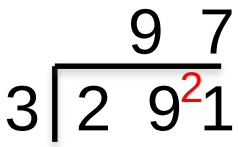
Answer = 27

The Four Operations

Division – Upper KS2

Short Division – HTU ÷ U:

291 ÷ 3 =



Answer = 97

Reasoning

What do you notice? 1/10 of 10 = 1 2/10 of 10 = 2 3/10 of 10 = 3 Continue the pattern. What do you notice? What about 1/10 of 20? Use this to work out 2/10 of 20, etc.	**What do you notice?** 1/10 of 100 = 10 1/100 of 100 = 1 2/10 of 100 = 20 2/100 of 100 = 2 How can you use this to work out 6/10 of 200? 6/100 of 200?	**What do you notice?** One tenth of £41 One hundredth of £41 One thousandth of £41 Continue the pattern What do you notice? 0.085 + 0.015 = 0.1 0.075 + 0.025 = 0.1 0.065 + 0.035 = 0.1 Continue the pattern for the next five number sentences.	**What do you notice?** One thousandth of my money is 31p. How much do I have?

6 Here are six cards.

× 10	× 100	× 1000
÷ 10	÷ 100	÷ 1000

Use a card to complete each calculation.

5.3 ☐ = 0.53

5.3 ☐ = 5300

5.3 ☐ = 0.053

2 marks

How you can help at home

-Lots of repetition – times tables, number facts

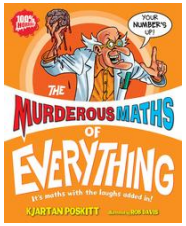
-Playing games – cards, snakes and ladders, dominoes

-Cooking

-Telling the time

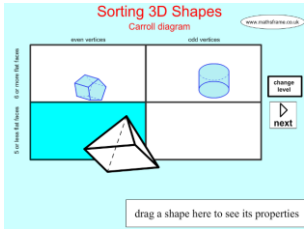
-Online Applications

Online Help



www.murderousmaths.co.uk

www.coolmath.com



www.mathsframe.co.uk

www.supermathsworld.com

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Any other questions?

Thank you