Clifton Primary School

A Parent's Guide to Mathematics in the Curriculum

Year 6

Children's numeracy skills can be greatly boosted by help at home, in the same way that regular help with spelling and reading can nurture their literacy skills. Parents are often nervous to help in maths however, worried they may confuse their child by teaching them 'different' methods ("we didn't do it like this in my day…"!).

At Clifton Primary School, we aim to teach children to work with number in lots of different ways. We know that what works for one child will not always make sense to another and that by giving them a range of different methods, they will be well equipped to select one which works for them. So please, be encouraged to talk about maths with your child. You never know, they may even teach you a new thing or two!

We hope you and your child enjoy this guide.

Rachel Wilkes, Head Teacher

Children should be able to add numbers with up to seven digits, including solving calculations where the addends have different digits.

Children should be able to apply this knowledge to solve multi-step word problems.

Sally has saved £23,786, and John has saved six-thousand pound more. How much have they saved altogether?

```
    7648         6584              42
+   1486     +   5848            6432
    9134         12432            786
    1 11         111 1              3
                              +   4681
                                 11944
                                  12 1
```

Mental Addition Strategies

- Use knowledge of whole number addition to calculate addition facts with decimals.

0.63+ 0.27 = 0.9   6.3 + 2.7 = 9   63 + 27 = 90

- To use knowledge of number bonds to add larger numbers.

3,500,000 + 6,500,000=10,000,000   35 + 65 =100

- Add the nearest multiple of 10, 100 and 1000 and adjust.

456 + 699   456 + 700 - 1

Children should be able to subtract numbers with up to seven digits, including solving calculations where the subtrahend and the minuend have different digits. For example;

```
 T Th  Th  H   T   O
      4    1    2   1
   7  5,   5   3   2
-  2  2,   6   2   3
   5  2,   9   0   9
```

```
  1   9   14  15  11  10
  1   2   0   5   6   2   0
-     1   0   7   6   7   9   9
  0   1   2   8   8   2   1
```

Children should be able to apply this knowledge to solve multi-step word problems.

A supermarket has 1284 loaves of bread at the start of the day. During the day, 857 loaves are sold and a further 589 loaves are delivered. How many loaves of bread are there at the end of the day?

Find a small difference by counting up

82 – 79 = 3

-Subtract the nearest multiple of 10, 100 and 1000 and adjust

For example; 24 - 19 = 24 - 20 + 1 = 5

458 - 71 = 458 - 70 - 1 = 387

Use the relationship between addition and subtraction

3.6 + 4.7 = 8.3   4.7 + 3.6 = 8.3
8.3 - 4.7 = 3.6   8.3 – 3.6 = 4.7

Children may want to start with the informal method of the grid method. This allows them to see how multiplying makes each digit larger

X	1000	300	40	2
10	10000	3000	400	20
8	8000	2400	320	16

Children should be able to multiply multi-digit numbers up to 4 digits by a 2 digit whole number using the formal written method of long multiplication.

Missing number calculations. Children must apply knowledge of multiples to complete calculations.

```
    _ 6 5              4 _ 2 9
  ×   5 7          ×       4 _
    1 8 5 5            3 1 0 0 3
  1 3 2 5 0          1 7 7 1 6 0
  _____          _____
  _____          _____
```
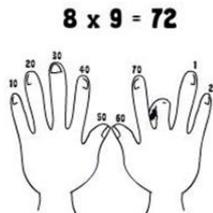
Apply knowledge to solve multi-step problems.

One can weighs 387g. There are 36 cans in a box. What is the total weight of 25 boxes in kilograms?

By Year 6, children should be fluent in the times tables. Here are some strategies to help with fluency

For the 9 x table

8 x 9 = 72

- Each finger to the left of the curled finger represents 10.
  - Say 10, 20, 30, 40, 50, 60, 70
- Each finger to the right of the curled finger represents one.
  - Count 1, **2.** (Or 71, **72**)
- 8 x 9 = 72

Children understand that:

- Multiplication is repeated addition;
- Multiplication is the inverse of division;
- Multiplication is commutative i.e. that 3 x 5 = 15 and 5 x 3 = 15

Multiplication	is inverse of	**Division**
is repeated		is repeated
Addition	is inverse of	**Subtraction**
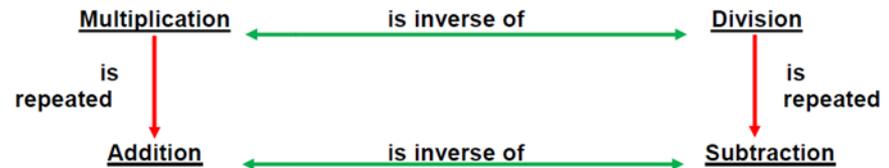
Understand and use knowledge of base 10 number system to relate 8 x 7 = 56 to 0.8 x 7 = 5.6

Children have a good knowledge and understanding of multiplication facts:

- All multiples of 10 end in 0
- All multiples of 5 end in 5 or 0
- All multiples of 2 are even
- The digits in multiples of 3 add up to 3, 6 or 9.
- The digits in multiples of 6 add up to 3, 6 or 9.
- The digits in multiples of 9 add up to 9.

Children should be able to divide numbers up to 4 digits by a 2 digit number using the formal written method of short division where appropriate. Begin with division where there are no remainders. Then move on to divisions with a remainder.

$$\begin{array}{r} 2\ \ 1\ \ 8 \\ ^{3}\ \ \ \ \ \\ \hline 4\ |\ 8\ \ 7\ \ 2 \end{array}$$

$$\begin{array}{r} 8\ \ 6\ \ r\ \ 2 \\ ^{3}\ \ \ \ \ \ \ \\ \hline 5\ |\ 4\ \ 3\ \ 2 \end{array}$$

Children should be able to divide numbers up to 4 digits by a 2 digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.

Long division

432 ÷ 15 becomes

```
        2  8  r 12
1  5 | 4  3  2
       3  0  0
       1  3  2
       1  2  0
          1  2
```

Answer: 28 remainder 12

432 ÷ 15 becomes

```
        2  8
1  5 | 4  3  2
       3  0  0    15×20
       1  3  2
       1  2  0    15×8
          1  2
```

$\frac{12}{15} = \frac{4}{5}$

Answer: 28 $\frac{4}{5}$

432 ÷ 15 becomes

```
        2  8 · 8
1  5 | 4  3  2 · 0
       3  0  ↓
       1  3  2
       1  2  0  ↓
          1  2  0
          1  2  0
                0
```

Answer: 28·8

Spot the Mistakes

Explain the mistakes in these calculations:

Mistake	Correct	Explanation
$\dfrac{207}{12\overline{)32\,^{8}4}}$	$\dfrac{27}{12\overline{)32\,^{8}4}}$	32÷12=2r8 The 2 goes above the 2 in 324 Answer = 27

Maths Mastery - Long Division

3. Explain the mistakes in this calculation.

```
        150.3
16  2504.0
    16
    80
    80
    040
      0
```

Mental Division Strategies

Children understand that:

- Division is sharing or grouping (repeated subtraction);
- Division is the inverse of multiplication;
- Division is **not** commutative unlike multiplication i.e.
  $3 \times 5 = 5 \times 3$ but $15 \div 3 \neq 3 \div 15$

Useful Websites

- ictgames.com
- www.woodlands-junior.kent.sch.uk – Woodlands resources for maths.
- topmarks.com
- kidsmathgamesonline.com
- bbc.co.uk/skillswise/maths
- http://www.mathschamps.co.uk/