Clifton Primary School

A Parent's Guide to Mathematics in the Curriculum

Year 3

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

Written Addition Strategies

I can add numbers with up to 3 digits, using formal written methods of column addition.

Adding the least significant digits first (ones, tens, then hundreds)

Children will consolidate the above and move on to carrying below the line.

```
  67              267
+ 24            + 85
  11 ( 7+ 4)      12  (7 + 5)
  80 (60+20)     140  (60+80)
  91             200 (200+ 0)
                 352
```

Children will consolidate the above and move on to carrying below the line.

```
  625      783      367
+ 48     + 42     + 85
  673      825      452
  1        1        11
```

Mental Addition Strategies

I can add numbers mentally including

- 3d +1d 123 + 4 = 127 (124, 125, 126, 127) 425 + 3 = 428 (426, 427, 428)
- 3d + 10s 123 + 40 = 163 (133, 143, 153, 163) 425 + 30 = 455 (435, 445,455)
- 3d + 100s 123 + 400 = 523 (223, 323, 423, 523) 425 + 300 = 725 (525, 625, 725)

Try at Home!
Secret sums

♦Ask your child to say a number, e.g. 43.
♦Secretly do something to it (e.g. add 30). Say the answer, e.g. 73.
♦The child then says another number to you, e.g. 61.
♦Do the same to that number and say the answer.
♦The child has to guess what you are doing to the number each time!
♦Then they can have a turn at secretly adding or subtracting something to each number that you say to them.

Written Subtraction Strategies

I can subtract numbers with up to 3 digits, using formal written methods of column subtraction

Children develop their use of the empty number line to support their calculations. They begin to record subtraction calculations vertically that cannot be easily done mentally. They partition one of the numbers and subtract the ones, tens and hundreds separately:

267 - 149

```
  267
- 9
  258
- 40
  218
- 100
  118
```

Partitioning and decomposition

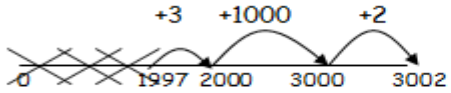
```
  754  =
- 86
Step 1   700 + 50 + 4
       -       80 + 6

Step 2   700 + 40 + 14 (adjust from T to U)
       -       80 + 6
Step 3   600 + 140 + 14 (adjust from H to T)
       -       80 + 6
         600 + 60 + 8 = 668
```

This would be recorded by the children as

```
      600   140
      7̶0̶0̶ + 5̶0̶ + 14
    -       80 + 6
      600 + 60 + 8 = 668
```

Where the numbers that are involved in the calculation are close together or near to multiples of 10, 100 etc counting on using a number line should be used.



Decomposition (Exchange)

When children are secure with the previous method they move on to decomposition.

```
  6 14 1
  7̶5̶4
- 86
  668
```

Mental Subtraction Strategies

I can subtract numbers mentally including

- 3d – 1d 786 – 4 = 782 (785, 784, 783, 782)
- 3d – 10s 786 – 40 = 746 (776, 766, 756, 746)
- 3d – 100s 786 – 400 = 386 (686, 586, 486, 386)

Try at Home!

Dice Subtraction!

Roll a die three times. Make two-digit numbers, e.g. if you roll a 6, 7 and 4, this could be 674. Ask your child to do one or more of the activities below. Then take it in turns to roll a die. Each time you roll an even number subtract 10 from the total. Explore when the hundreds change and when they stay the same. Each time you roll an odd number subtract 100 from the total. The winner is the first person to reach a number under ten.

Written Multiplication Strategies

I can write and calculate mathematical statements for multiplication including 2digit x 1digit (_ _ x _)

Partitioning

38 x 5 = (30 x 5) + (8 x 5)
= 150 + 40
= 190

Short multiplication

Start with vertical **expanded method**, if necessary

38
X 7
56 (7 x 8)
210 (7 x 30)
266

Grid method (not in NC)

TO X O

Children will approximate first

23 x 8 is approximately 25 x 8 = 200

x	20	3
8	160	24

160
+ 24
184

I am progressing to formal written methods of multiplication for 2d x 1d

Then expand to the **compact method (carrying)**

TO x O

38
X 7
266
2 5

Mental Multiplication Strategies

I can recall and use multiplication facts for 3x 4x 8x tables

3x table	4x table	8x table
1x3=3	1x4=4	1x8=8
2x3=6	2x4=8	2x8=16
3x3=9	3x4=12	3x8=24
4x3=12	4x4=16	4x8=32
5x3=15	5x4=20	5x8=40
6x3=18	6x4=24	6x8=48
7x3=21	7x4=28	7x8=56
8x3=24	8x4=32	8x8=64
9x3=27	9x4=36	9x8=72
10x3=30	10x4=40	10x8=80
11x3=33	11x4=44	11x8=88
12x3=36	12x4=48	12x8=96

Try at Home!
Times table games such as bingo

Write all the times tables for 3, 4 or 8 times tables up to x12 without the answers (eg 3x4 or 6x3) on pieces of paper. Turn them over so they can't be seen.

Two players both write 6 different answers from either 3,4 or 8 on a 'bingo board' (up to x12). Turn over the pieces of paper one by one. If you turn over a times table question you have the answer to sentence then cross it off. The winner is the first person to cross off all their numbers from their bingo boards.

Written Division Strategies

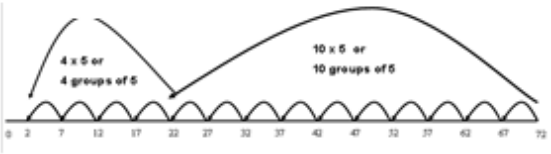
I am progressing to formal written methods of division for 2d÷1d

Children will develop their use of repeated subtraction to be able to subtract multiples of the advisor. Initially, these should be multiples of 10s, 5s, 2s and 1s – numbers with which the children are more familiar. Moving to multiples of 3,4 and 8 which are required by the NC.

TO ÷ O

72 ÷ 5 = 14 r 2

Use of number line:



Chunking

Then onto the vertical method: chunking (not recommended by the new curriculum)

72 ÷ 5 lies between 50 ÷ 5 = 10 and 100 ÷ 5 = 20

72
- 50 (10 groups) or (10 x 5)
22
- 20 (4 groups) or (4 x 5)
2

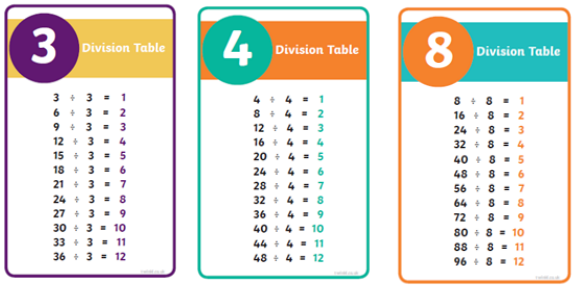
Answer : 14 remainder 2

Any remainders should be shown as integers, i.e. 14 remainder 2 or 14 r 2.

Children need to be able to decide what to do after division and round up or down accordingly.

Mental Division Strategies

I can recall and use division facts for ÷3 ÷4 ÷8 tables



Try at Home!

Chanting division facts
Sharing out objects at home

Other Maths Concepts

Fractions

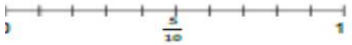
Children should be able to recognise that tenths arise from dividing an object into 10 equal parts and I can count up and down in tenths.

Finish the sequences:

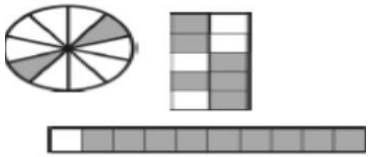
$\frac{1}{10}, \frac{2}{10}, \frac{3}{10}, \_\_, \_\_, \_\_$

$\frac{10}{10}, \frac{9}{10}, \frac{8}{10}, \_\_, \_\_, \_\_$

Here is a number line from 0 - 1. Can you fill in the missing fractions on the number line?



Write the fraction of the shape that is shaded.



Children should be able to recognise, find and write fractions of a discrete set of objects.

1 out of 6 (one sixth)

5 out of 7 (5 sevenths)

Other Maths Concepts

Measurement

Children should be able to measure and compare lengths using m, cm &mm.

- 1cm = 10mm 100cm = 1m

Children should be able to tell and write the time from an analogue clock.

- What time is shown on the analogue clocks below?

Quarter past 2

Half past 2

Quarter to 3

Children should be able to estimate and read time with increasing accuracy to the nearest minute.

I can use the following vocabulary: o'clock, am, pm, morning, afternoon, noon & midnight. I know the number of seconds in a minute.

- 60 seconds = 1 minute

Other Maths Concepts

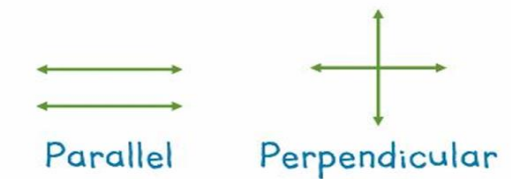
Measurement

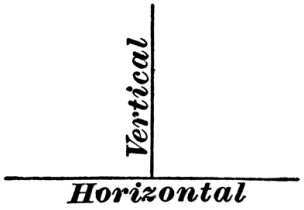
I know the number of days in each month/ year/ leap year.

- 365 days = 1 year
- 366 days = 1 leap year (February 29th every 4 years)
- 28 days in February.
- 30 days in April, June, September and November
- 31 days in January, March, May, July, August, October and December

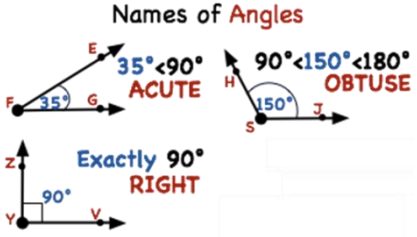
Geometry

Children should be able to identify horizontal, vertical lines and pairs of perpendicular and parallel lines.





Children should be able to identify right angles and use the terms acute and obtuse.



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/