

Multiplication Workshop for parents & carers
February 2020

Year group expectations for multiplication & division
How multiplication & division is taught
Resources
How you can support your child

Jan 31-13:25

Times Tables

Year 2
2, 5 & 10 x table

Year 3
3, 4 & 8 x table

Year 4
all tables up to 12 x 12

Jan 31-13:27

Multiplication Check for Year 4

Statutory for Year 4 2020

Trial for Year 4 2019

Year 4 Pilot Tables Check – June 2019						
Marks	Local School (1)		Sample WB Schools (9)		Downsway	
	Number of chn (56)	Percentage (/56)	Number of chn (663)	Percentage (/663)	Number of chn (30)	Percentage (/30)
25	0	0%	65	10%	4	13%
21+	11	20%	252	38%	11	37%
16+	30	54%	420	63%	18	60%
13+	42	75%	517	78%	28	93%
<13	14	25%	146	22%	2	7%

Jan 31-13:28

We want the children to be fluent in their times tables and their use of multiplication

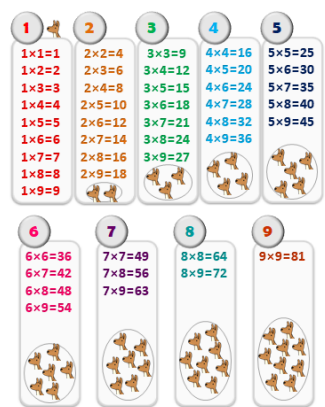
Fluency is "skill in carrying out procedures flexibly, accurately, efficiently and appropriately". (Common Core State Standards for Mathematics)
Using an appropriate strategy to find the answer efficiently.

The difference between know from memory and memorization

With repeated experience working with number, children can come to just know that $2 \times 6 = 12$ without ever having to memorize it.

Jan 31-13:30

Learning times tables



Jan 31-13:31

Times Table Tricks

The 9 x table trick

I know my 8s because I know my 4s

I have a favourite one. I have one that I always forget.

One of them is a song by Steps!

I know my tables because I dance!!

Jan 31-13:32

Follow Me!

Ooh Ahh!

Bingo!

Times Table Rockstars

Jan 31-13:33

Determination to learn them!

Downsway times table award

Competition

Jan 31-13:33

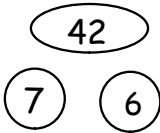
1	Purley CE Primary School	3.07
2	English Martyrs Catholic Primary School	3.63
3	Kidmore End CE Primary School, Reading	3.75
4	New Christ Church Primary School, Reading	3.97
5	John Madejski Academy	4.31
6	Theale C of E Primary School	4.35
7	Moorlands Primary School, Reading	4.74
8	The Palmer Academy	4.75
9	New Town Primary School	4.84
10	Meadow Park Academy, Reading	4.88
11	St Anne's Catholic Primary School, Reading	4.90
12	The Hill Primary School, Reading	4.93
13	Manor Primary School, Reading	5.10
14	Downsway Primary School, Reading	5.27
15	Whitley Park Primary And Nursery School, Reading	5.42
16	Geoffrey Field Junior School	5.48
17	Southcote Primary School	5.74
18	Caversham Primary School	6.80

Jan 31-13:36

Teaching times tables in school
Practising at school and at home

<https://www.youtube.com/watch?v=yXdHGBfoqfw>

Using times table multiplication facts to help with division



If we know that $6 \times 7 = 42$,
we also know that $42 \div 7 = 6$

Jan 31-13:36

Darts

Why children should get to know the 'beautiful game'!



Jan 31-14:18

Progression in multiplication across KS1 & KS2

Year 1

Counting in steps ('clever' counting)
Count in 2s

Count in 10s

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Year 2

Counting in steps ('clever' counting)
Count in 2s, 5s and 10s

Begin to count in 3s

Doubling and halving
Begin to know doubles of multiples of 5 to 100
e.g. double 35 is 70

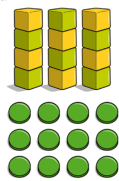
Begin to double 2-digit numbers less than 50 with 1s digits of 1, 2, 3, 4 or 5

Jan 31-13:37

Mental Multiplication

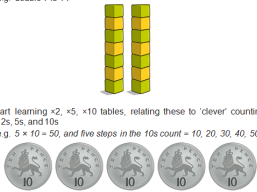
Year 1

Grouping
Begin to use visual and concrete arrays and sets of objects to find the answers to 'three lots of four' or 'two lots of five'
e.g. three lots of four



Year 2

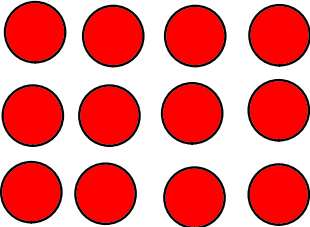
Using number facts
Know doubles to double 20
e.g. double 7 is 14



Start learning $\times 2$, $\times 5$, $\times 10$ tables, relating these to 'clever' counting in 2s, 5s, and 10s
e.g. $5 \times 10 = 50$, and five steps in the 10s count = 10, 20, 30, 40, 50

Jan 31-13:38

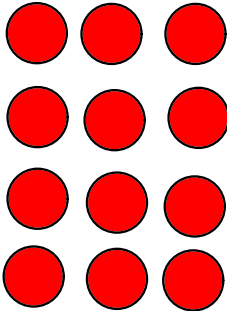
Arrays



$4 \times 3 =$
3 lots of 4
4 three times

Jan 31-13:43

Arrays

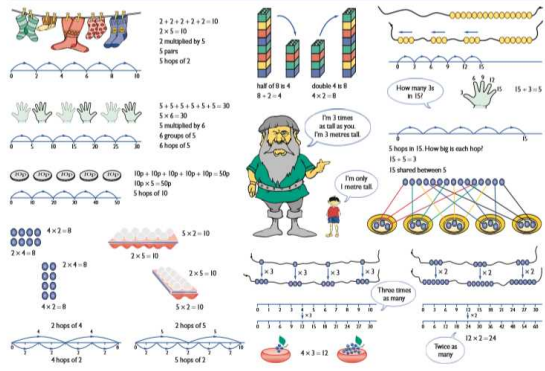


$3 \times 4 =$
4 lots of 3
3 four times

Jan 31-13:45

A range of representations

Models and images for understanding multiplication and division



Jan 31-13:43

The importance of mental methods and an understanding of multiplication.

Written methods provide a procedure to follow but not necessarily an understanding of what is happening.

The importance of knowing when mental methods can be used and when they are more appropriate.

125×4

45×99

17×20

860×5

Jan 31-13:47

Written methods

Upper Key Stage 2

Multiplication

Stage 1 Partitioning

$$\begin{array}{r} 43 \\ + 3 \\ \hline 240 + 18 = 258 \end{array}$$

Stage 2 Grid method

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

Stage 3 Expanded method

$$\begin{array}{r} 38 \\ \times 7 \\ 210 \\ 56 \\ \hline 266 \end{array}$$

Stage 4 Formal short and long multiplication

$$\begin{array}{r} 38 \\ \times 7 \\ \hline 266 \end{array}$$

Jan 31-14:11

Year 6 SATs

23

x

54

23

Show your method

2 marks

Jan 31-14:15

3 Ways

14 x 9

14

9

14 x 3 = 42

14 x 3 = 42

14 x 3 = 42

42 x 3 = 126

14

9

9 x 7 = 63

9 x 7 = 63

63 + 63 = 126

14

9

14 x 10 = 140

140 - 14 = 126

Jan 31-14:17

Division

Division

Can you solve these 10 division questions in 5 minutes?

256 ÷ 4

385 ÷ 5

648 ÷ 8

2.8 ÷ 4

7 ÷ 10

768 ÷ 12

768 ÷ 16

426 ÷ 6

208 ÷ 8

848 ÷ 8

F

Jan 31-14:21

Which methods did you use?

Were they the same for each question?

Could you solve some mentally?

Jan 31-14:21

Find half of even numbers up to 12, including realising that it is hard to halve an odd number

Year 1

1 2 3 4 5

Doubling and halving

Find half of numbers up to 40, including realising that half of an odd number gives a remainder of 1 or an answer containing a 1/2

e.g. 1/2 of 11 = 5 1/2

Year 2

10 20 30 40

Begin to know half of multiples of 10 to 100

e.g. half of 70 is 35

Feb 5-11:43

Grouping

Relate division to multiplication by using arrays or towers of cubes to find answers to division

e.g. 'How many towers of five cubes can I make from twenty cubes?' as $5 \times 4 = 20$ and also as $20 \div 5 = 4$

1 2 3 4 5

Relate division to 'clever' counting and hence to multiplication

e.g. 'How many fives do I count to get to twenty?'

Sharing

Begin to find half or a quarter of a quantity using sharing

e.g. find a quarter of 16 cubes by sorting the cubes into four piles

1 2 3 4 5

Feb 5-11:43

12 ÷ 2

Sharing or finding half

How many in one column?

Grouping in 2s

How many rows are there?

Which method is more efficient?

Feb 5-11:44

Grouping

18 ÷ 3

Feb 5-11:46

Written methods

How many groups of ...

The bus stop

Division

Stage 1 Partitioning

84 ÷ 7 = 12

84

70 + 14

10 + 2 = 12

Stage 2 Expanded method

6 | 198

- 120 6 × 10

- 78 6 × 10

- 18 6 × 10

- 18 6 × 10

- 12 6 × 2

- 4 32

Answer: 32 R 4

Stage 3 More efficient expansion

6 | 198

- 120 6 × 10

- 78 6 × 10

- 18 6 × 10

- 12 6 × 2

- 4 32

Answer: 32 R 4

Stage 4 Formal short and long division

27

3 | 81

23

24 | 560

- 480

80

- 72

8

Feb 5-11:47

34

3 7 2 3 3 1

Show your method

2 marks

Feb 5-12:56

Expressing remainders

£311 ÷ 4

How many 5 seater taxis will I need to take my class of 31 to the zoo?

Feb 5-12:56

Understanding relationships between numbers.

24 ÷ 4 = 6

12 ÷ 2 = 6

1134 ÷ 18

Feb 5-12:57

Simplifying a division

$$1024 \div 16 =$$

Feb 5-12:58

Explain the mistakes

$$564 \div 3$$

Mistake 1

Mistake 2

Mistake 3

$$\begin{array}{r} 121 \\ 3 \overline{)564} \end{array}$$

$$\begin{array}{r} 194 \text{ r } 2 \\ 3 \overline{)564} \end{array}$$

$$\begin{array}{r} 187 \\ 3 \overline{)564} \end{array}$$

Feb 5-12:59

A progression document

Resources

Feb 5-12:59

What you can do to help your child

Help them practise their times tables

Times Table Rockstars

Encourage them to explain what they have been doing in class

Being positive about maths

Make it as fun as possible

Get them to problem solve using their maths- pocket money, party planning, shopping, recipes

Feb 5-13:00