Castlefield School- Maths

Topic: Multiply and divide 4 digit numbers	Year: Six	Theme: Multiplication and Division

Key concepts and questions

Which operation should be used?

There will be key words within the question to help you. For multiplication, ***multiply, by, times, lots of, equal groups, groups of, multiplied by, per.*** For division, ***divide, each, equal parts, evenly, split, share, group.***

What order should operations be completed in?

Operations must be completed in a certain order. Brackets, division, multiplication, addition then subtraction. E.g. 2 + 3 x 5 – 7 + (3 x 2).

Solve the brackets first: 2 + 3 x 5 – 7 + **6**.

Then do the multiplication: 2 + **15** – 7 + 6

When only addition and subtraction are left, work out from left to right: 2+15=17 17-7=10 10+6=16

Key Vocabulary

remainder	multiple	factor	Inverse
order of operations	Brackets, division, multiplication, addition, subtraction.		
prime factor	A factor that is a prime number.		
prime number	Divides by only itself and one.		
composite number	Divides by itself, one and other integers.		
squared (x^2)	Multiply a number by itself e.g. 8x8=64. 64 is a square number.		
cubed (x^3)	Multiply a number by itself 3 times. E.g. 2x2x2=8 8 is a cube number.		
commutative	Multiplication can be done in any order e.g. 6x4 and 4x6 equal 24.		

Representations

Number lines

Help to identify common factors and multiples.

Factors of 48

1	2	3	4	6	8	12	16	24	48

Multiples of 3

3	...	18	21	24	...	39	42

Factors of 30

1	2	3	5	6	10	15	30

Multiples of 7

7	14	21	28	35	42

Common factors: 1, 2, 3, 6

Common multiples: 21, 42...

Bar models

50 x 6 = 300

300 ÷ 6 = 50

Whole	300				
50	50	50	50	50	50
Parts					

Arrays

3x6=18 6x3=18

18÷6=3 18÷3=6

Making connections

Partitioning and place value – For example, this is a 20 not a 2, so there needs to be a place holder.

$$\begin{array}{r} 547 \\ 3\overline{)1641} \\ -15 \\ \hline 14 \\ -12 \\ \hline 21 \\ -21 \\ \hline 0 \end{array}$$

Ten and a hundred times bigger and smaller

This is 1600 ÷ 3 but it is made 100 times smaller to 16 ÷ 3

Then, 4 ÷ 3 is completed instead of 40 ÷3

$$\begin{array}{rr} & 34 \\ \times & 27 \\ \hline & 238 \quad 34 \times 7 \\ & 680 \quad 34 \times 20 \\ \hline & 918 \quad 34 \times 27 \end{array}$$

Efficient methods

Use known multiplication and division facts.

2 x 8 = 16 so 20 x 8 = 160 and 200 x 8 = 1,600

6 ÷ 2 = 3 so 60 ÷ 2 = 30 and 60 ÷ 20 = 3