

Year 6 Four Operations Knowledge

addition

- add
- more
- plus
- sum
- total
- altogether

subtraction

- subtract
- minus
- leave
- less
- take away
- difference between

multiplication

- lots of
- times
- multiply
- groups of
- product
- multiplied by
- multiple of
- repeated addition
- array

division

- divide
- divided by
- divided into
- share
- share equally
- equal groups of

$+\leftrightarrow-$
 $\times\leftrightarrow\div$

inverse operation

estimate

Add and Subtract Whole Numbers

Column Method

	4	5	8	6	4
+	2	3	4	9	7
	6	9	3	6	1
		1	1	1	

Starting with the ones, add each column in turn. Regroup tens, hundreds, thousands, ten thousands as required.

	3	5	6	13	1
-		3	4	7	6
	3	2	2	6	6

Starting with the ones, subtract each column in turn. Exchange tens, hundreds, thousands and/or ten thousands as required.

Multiply up to 4-digit by 2-digit

1	2	2	
	1	5	4
x		2	6
	9	2	4
3	0	8	0
4	0	0	4
1	1		

Start with the ones.
 $154 \times 6 = 924$
 $154 \times 20 = 3080$
 $3080 + 924 = 4004$

Short Division

Start from the left.

		4	4	0	5
12	5	⁵ 2	⁴ 8	⁶ 0	

$5 \div 12 = 0 \text{ r}5$
 $52 \div 12 = 4 \text{ r}4$
 $48 \div 12 = 4$
 $6 \div 12 = 0 \text{ r}6$

Long Division

		1	2	0	r	3
14	1	6	8	3		
	1	4	0	0		
		2	8	3		
		2	8	0		
				3		

Common Factors

Factors of 48

1	2	3	4	6	8	12	16	24	48
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Factors of 30

1	2	3	5	6	10	15	30
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Common factors: 1, 2, 3, 6

Common Multiples

Multiples of 3

3	...	18	21	24	...	39	42
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Multiples of 7

7	14	21	28	35	42
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Common multiples: 21, 42...

Primes

A prime number has only 1 and itself as factors: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43

A composite number has factors other than 1 and itself.

Squares and Cubes

Square numbers result from a number being multiplied by itself (e.g. $5 \times 5 = 25$):

1, 4, 9, 16, 25, 36, 49, 64, 81, 100

Cube numbers result from a number being multiplied by itself twice ($2 \times 2 \times 2 = 8$):

1, 8, 27, 64, 125

Order of Operations

B	Brackets	$10 \times (4 + 2) = 10 \times 6 = 60$
O	Order	$5 + 2^2 = 5 + 4 = 9$
D	Division	$10 + 6 \div 2 = 10 + 3 = 13$
M	Multiplication	$10 - 4 \times 2 = 10 - 8 = 2$
A	Addition	$10 \times 4 + 7 = 40 + 7 = 47$
S	Subtraction	$10 \div 2 - 3 = 5 - 3 = 2$

Reason from Known Facts

$90 \div 10 = 9$ so $90 \div 20 = 4.5$ and $90 \div 5 = 18$

$16 \times 9 = 144$ so $1.6 \times 9 = 14.4$

$4352 \div 17 = 256$
so $256 \times 18 = 4352 + 256 = 4608$

$3786 + 2850 = 6636$
so $4786 + 2850 = 7636$
and $2786 + 3850 = 6636$
and $8636 - 3786 = 4850$

Mental Calculations and Estimation

Order of calculations:

$50 \times 34 \times 2 = 50 \times 2 \times 34 = 100 \times 34 = 3400$

Money: $\pounds 8.99 + \pounds 3.49 = \pounds 12.48$

Use $\pounds 9 + \pounds 3.50 = \pounds 12.50$ and subtract 2p

Estimate on a number line

Subdivide line to estimate: **17**