Year 6 Compact Calculations: [For Parents & Carers | White Rose Maths] **Addition and Subtraction**

Addition and subtraction of whole numbers and decimals…the same method is followed. Just check that the numbers are written in the correct place value column and the decimal points are all positioned in the same column.

789 + 642 becomes

```
   7 8 9
+  6 4 2
-------
 1 4 3 1
   1 1
```

Answer: 1431

874 – 523 becomes

```
  1.665
+ 0.780
-------
  2.445
  1 1
```

932 – 457 becomes

```
   8  12  1
   9  3  2
-  4  5  7
---------
   4  7  5
```

Answer: 475

```
  2.499
- 2.444
-------
  0.055
```

Multiplication with decimals… again… just check that the numbers are written in the correct place value column and the decimal points are all positioned in the same column.

Long Multiplication

```
     3 4 2
  ×      7
---------
  2 3 9 4
    2 1
```

Answer: 2394

```
     2 7 4 1
  ×        6
-----------
  1 6 4 4 6
    4 2
```

Answer: 16 446

```
  23.75
x    3
-------
  71.25
  2 1
```

```
     1 2 4
  ×    2 6
---------
  2 4 8 0
    7 4 4
---------
  3 2 2 4
  1 1
```

Answer: 3224

Short division

98 ÷ 7 becomes

$$7 \overline{)\,9^{2}\,8}\quad 1\;4$$

Answer: 14

432 ÷ 5 becomes

$$5 \overline{)\,4\,3^{3}\,2}\quad 8\;6\;r\,2$$

Answer: 86 remainder 2

496 ÷ 11 becomes

$$1\;1 \overline{)\,4\,9^{5}\,6}\quad 4\;5\;r\,1$$

Answer: $45\frac{1}{11}$

Fraction	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{3}{4}$
Decimal	0.5	0.25	0.75
Percentage	50%	25%	75%

Long divisi..

1 2

432 ÷ 15 becomes

$$\begin{array}{r} 2\;8\;r\,12 \\ 1\;5 \overline{)\,4\,3\,2} \\ 3\;0\;0 \\ \hline 1\;3\;2 \\ 1\;2\;0 \\ \hline 1\;2 \end{array}$$

Answer: 28 remainder 12

432 ÷ 15 becomes

$$\begin{array}{r} 2\;8 \\ 1\;5 \overline{)\,4\,3\,2} \\ 3\;0\;0 \quad 15\times20 \\ \hline 1\;3\;2 \\ 1\;2\;0 \quad 15\times8 \\ \hline 1\;2 \end{array}$$

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

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

432 ÷ 15 becomes

$$\begin{array}{r} 2\;8\cdot8 \\ 1\;5 \overline{)\,4\,3\,2\cdot0} \\ 3\;0 \downarrow \\ \hline 1\;3\;2 \\ 1\;2\;0 \downarrow \\ \hline 1\;2\;0 \\ 1\;2\;0 \\ \hline 0 \end{array}$$

Answer: 28·8

$\frac{3}{5}$	$\frac{7}{10}$	$\frac{9}{10}$	$2\frac{1}{2}$
0.6	0.7	0.9	2.5
60%	70%	90%	250%

Division of decimals again… just check that the numbers are written in the correct place value column and the decimal points are all positioned in the same column.

$$5 \overline{)\,2.^{2}0}\quad 0.4$$

$$6 \overline{)\,23.^{5}0^{2}0^{2}0}\quad 3.833\ldots$$

Multiplying and Dividing by 10, 100 and 1000

10 000	1000	100	10	1 ●	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
				●			

Multiplying

X 10	digits move LEFT **1** space
X 100	digits move LEFT **2** spaces
X 1000	digits move LEFT **3** spaces

←

Dividing

÷ 10	digits move RIGHT **1** space
÷ 100	digits move RIGHT **2** spaces
÷ 1000	digits move RIGHT **3** spaces

→

Addition and Subtraction Strategies

Counting Forwards and Backwards

90 - 27 = 90 – 20 – 7 = (Count back in tens then ones)
3.2 + 0.6 = (Count on in tenths)
87 – 85 = 85 **+ 3** = 87 (Counting up to find the difference)

Reordering

12 + 17 + 8 + 3 = 12 + 8 + 17 + 3 =
45 – 7 – 5 = 45 – 5 – 7 =
5 + 7 + 9 + 11 + 13 =

Partitioning: Place Value (Partitioning 2nd no. is best as subtraction can't always be done by partitioning both)

365 – 44 = 365 – 40 – 4 = 325 – 4 =
55 + 33 = 55 + 30 + 3 85 + 30 + 3 =

Partitioning: Bridging through a multiple of 10 or 100

57 + 34 = 57 + 30 + 3 + 1 =
85 – 37 = 85 – 30 – 5 – 2 =
84 – 35 = 35 + 5 + 40 + 4 =
607 – 288 (Count up – bridging through 10s/100s) 288 + 12 + 307

Compensating

95-78 95 – 80 + 2
138 + 69 138 + 70 - 1

Partitioning: Near Doubles

15 + 16 = 15 + 15 + 1
9 + 8 = 8 + 8 - 1
160 + 170 = 160 + 160 + 10 (Using 16 + 16 to help)

Adjusting both numbers

1265 – 997 = 1268 – 1000 = (Add three to each number)
5 – 2.98 = 5.02 – 3 = (Add 0.02 on to each number)
98 + 297 = 100 + 300 – 2 – 3

Multiplication and Division Strategies

Doubling and Halving

16 x 2 = Double 16
62 ÷ 2 = Half of 62
18 x 4 = 18 x 2 x 2 (double then double again)

Using Factors

35 x 6 = 35 *x 3 x 2* **=**
240 ÷ 6 = 240 ÷ *3 ÷ 2* **=**
4 x 200 = 4 x *100 x 2* **=**

Nearby Facts

8 x 8 =64 so 9 x 8 = 64 + (1x 8)
10 x 6 = 60 so 9 x 6 will be one less group of 6
100 x 6 = 600 so 99 x 6 will be one less group of 6 (take 6 from previous product)

Distributive Law (partitioning)

18 x 6 = (10 x 6) + (8 x 6)
21 x 7 = (11 x 7) + (10 x 7)

Commutativity (commute move around)

I know 9 groups of 5 is 45 (5x9=45) so 5 groups of 9 also equal 45 (9x5=45)
Arrays should be used to illustrate this.

Using equivalent/related facts to multiply & divide by multiples of 10 & 100

4 x 5 = 20 so 40 x 5 = 200
7 x 8 = 56 so 700 x 8 = 5600

Moving the digits to make a number 10/100/1000 times larger or smaller.

23 x 10 = 230 (20 x 10 = 200 3 x 10 = 30)

Check using the inverse (particularly division)

350 ÷ 5 = 70 70 x 5 = 350

Year 6 Autumn 1: White Rose Hub Learning Videos [For Parents & Carers | White Rose Maths]

Week 1: a) 2,140 + 794 + 83 = b) 10,000 – 4,192 = c) 3,261 × 7 = d) 276 ÷ 8 =

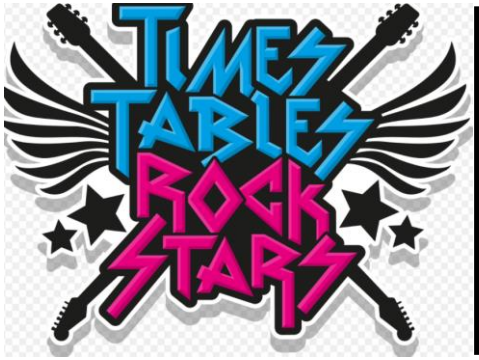
Week 2: a) £653, 000 + £179, 000 = b) £653, 000 - £179, 000 = c) 1045 x 12 = d) 1045 x 12 =

Week 3: a) 1890 + ? = 3715 b) 3715 - ? = 1890 c) 450 x ? = 45000 d) 54000 ÷ ? = 540

Week 4: a) 23,500 + ? + 120,578 = 1,201,045 b) ? – 233,233 = 322,321 c) 12^2 = d) 5^3

Week 5: a) 4 m + 257cm + 6704cm = b) £20 - £3.56 = c) 25 x 4^2 = d) $9^3 \div 3$ =

Week 6: a) 4 km + 257m + 6704 = b) £50 – 567p - £3 98 = c) 1009 x 25 x 4 = d) 4440 ÷ 12 =



Concentrate on the…

3x / 6x / 12 x tables and related division facts.

9 x 12 = 108 108 ÷ 12 = 9

12 x 9 = 108 108 ÷ 9 = 12

And related multiples 30x / 60x / 120x

Worksheets on…

Year 6 Autumn 2: White Rose Hub Learning Videos [For Parents & Carers | White Rose Maths]

Week 1: a) 48 + ? = 109 + 345 b) 500 – 346 = ? – 298 = c) 8 x 60 = 4 x ? d) ? ÷ 6 = 444 ÷ 12

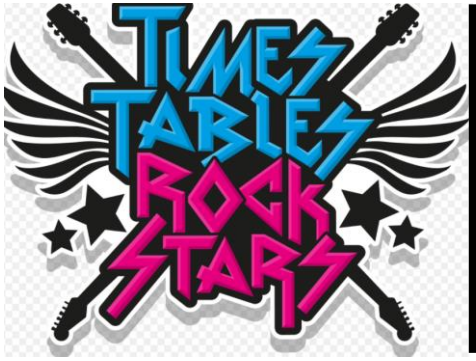
Week 2: a) 542 + 3,824 = 742 + ? = b) 26,000 – 4,752 = 25,000 - ? c) 48,000 = 16 × ? × 1,000 d) 880 ÷ 8 = 220 ÷ ?

Week 3: a) one seventh + 5 sevenths b) one tenth - ten hundredths = c) ? x 10 x 10 = 6400 d) 3800 ÷ 10 ÷ ? = 38

Week 4: a) $\frac{1}{5} + \frac{3}{10} =$ b) 5.2 – 1.67 = c) 45 x 27 = d) ? ÷ 10 = 578.4

Week 5: a) $\frac{1}{4} + \frac{1}{20} =$ b) $\frac{3}{5} - \frac{1}{10} =$ c) 65 x 23 = d) 562 ÷ 18 =

Week 6: a) 76.439 + 67.842 = b) 56,789 – 1,294.76 = c) 165 x 17 = d) 709 ÷ 14 =



Concentrate on the…

4x / 8x / 7 x tables and related division facts.

70 x 8 = 560 560 ÷ 8 = 70

80 x 7 = 560 560 ÷ 70 = 8

And related multiples 40x / 80x / 70x

Worksheets on…