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# Numeracy – Support Booklet

## Rationale

After consultation with parents, pupils and teaching colleagues, it is unsurprising to report that developing and consolidating pupils' numeracy skills, is seen as a key objective in preparing all learners for the challenges of the wider curriculum and work beyond Sirius Academy North. This support document, along with weekly exercises, has been designed to support our less confident mathematicians and challenge our more numerate youngsters. Furthermore, the outlined methods ensure a consistent teaching approach to numerical exercises.

Running alongside the KS3/4 courses, we envisage this document will support intervention in the following ways:

### Parents

Parents often intimate that they find it difficult to keep track of their child's homework. They find it frustrating as they are eager to get involved in the learning and support with homework when necessary. In some cases, they are concerned that they might be teaching alternative methods as they were taught differently when they were in school.

The maths department welcome parental support with all aspects of their child's learning. It is hoped this document helps parents to support pupils with their numeracy skills at regular intervals.

### Pupils

Basic numeracy skills is an integral part of KS3/4 courses to ensure pupils become more confident with number. When youngsters fail to grasp and practise basic skills, this can create a real barrier to learning across many other subjects. We believe practice can make perfection and alongside delivery of the S1 maths curriculum, pupils will regularly complete homework exercises to consolidate and develop their numeracy skills. Pupils should look to progress and challenge themselves to complete the more difficult column of exercises.

### Teaching Colleagues

It is an all too familiar complaint for other teachers to comment on pupils' difficulties with percentages, fractions and data handling in context. Even when our pupils are proficient in these skills, transferring knowledge from a maths classroom to another department causes youngsters a challenge. Publishing these methods, as taught in the maths department, will support our teaching colleagues by demonstrating the methods which are used so there can be consistency across the curriculum.

# Numeracy – Support Booklet

## Addition

$364 + 278$

$$\begin{array}{r} 364 \\ + 278 \\ \hline 642 \\ \hline 11 \end{array}$$

$3842 + 905$

$$\begin{array}{r} 3842 \\ + 905 \\ \hline 4747 \\ \hline 1 \end{array}$$

$36472 + 87 + 758 + 9086$

$$\begin{array}{r} 36472 \\ 87 \\ 758 \\ + 9086 \\ \hline 46403 \\ \hline 1132 \end{array}$$

## Subtraction

$92 - 38$

$$\begin{array}{r} \overset{8}{\cancel{9}} \overset{1}{2} \\ - 38 \\ \hline 54 \end{array}$$

$3708 - 526$

$$\begin{array}{r} \overset{3}{\cancel{7}} \overset{6}{0} \overset{1}{8} \\ - 526 \\ \hline 3182 \end{array}$$

$8026 - 345$

$$\begin{array}{r} \overset{9}{\cancel{8}} \overset{7}{0} \overset{1}{2} \overset{6}{} \\ - 345 \\ \hline 7681 \end{array}$$

## Multiplication

$694 \times 4$

$$\begin{array}{r} 694 \\ \times 4 \\ \hline 2776 \\ \hline 231 \end{array}$$

$157 \times 93$

$$\begin{array}{r} 157 \\ \times 93 \\ \hline \overset{1}{4} \overset{2}{7} \overset{1}{1} \\ 14 \overset{5}{1} \overset{6}{3} \mathbf{0} \\ \hline 14601 \\ \hline 1 \end{array}$$

$592 \times 836$

$$\begin{array}{r} 592 \\ \times 836 \\ \hline 35 \overset{5}{5} \overset{1}{2} \\ 17 \overset{2}{7} \overset{6}{6} \mathbf{0} \\ 47 \overset{7}{3} \overset{1}{6} \mathbf{0} \mathbf{0} \\ \hline 494912 \\ \hline 111 \end{array}$$

## Division

$564 \div 3$

$$\begin{array}{r} 188 \\ 3 \overline{) 564} \\ \underline{3} \phantom{00} \\ 26 \phantom{0} \\ \underline{24} \phantom{0} \\ 20 \\ \underline{18} \\ 20 \\ \underline{18} \\ 2 \end{array}$$

$32592 \div 7$

$$\begin{array}{r} 04656 \\ 7 \overline{) 32592} \\ \underline{21} \phantom{000} \\ 115 \phantom{00} \\ \underline{77} \phantom{00} \\ 389 \phantom{0} \\ \underline{28} \phantom{0} \\ 1092 \\ \underline{77} \phantom{0} \\ 322 \\ \underline{28} \\ 42 \\ \underline{42} \\ 0 \end{array}$$

$749 \div 4$

$$\begin{array}{r} 187.25 \\ 4 \overline{) 749.00} \\ \underline{4} \phantom{000} \\ 34 \phantom{00} \\ \underline{28} \phantom{00} \\ 69 \phantom{0} \\ \underline{68} \phantom{0} \\ 10 \phantom{0} \\ \underline{8} \phantom{0} \\ 20 \\ \underline{20} \\ 0 \end{array}$$

No Remainders  
Add decimal point  
and zeros

## Decimals

$29.1 + 6 + 104.42$

$$\begin{array}{r} \text{HTU . t h} \\ 29.1 \\ \phantom{0}6 \\ + 104.42 \\ \hline 139.52 \\ \phantom{00}1 \end{array}$$

$30.6 - 9.58$

$$\begin{array}{r} \overset{2}{\cancel{3}}\overset{1}{0}.\overset{5}{\cancel{6}}\overset{1}{0} \\ - 9.58 \\ \hline 21.02 \end{array}$$

$53.28 \times 9$

$$\begin{array}{r} 53.28 \\ \times 9 \\ \hline 479.52 \\ \phantom{00}227 \end{array}$$

## Simple Fractions

$\frac{1}{4} \text{ of } \pounds 20$

One quarter  $\rightarrow 20 \div 4 = 5$

$\frac{2}{5} \text{ of } \pounds 35$

One fifth  $\rightarrow 35 \div 5 = 7$   
Two fifths  $\rightarrow 2 \times 7 = \pounds 14$

$\frac{5}{6} \text{ of } \pounds 18$

One sixth  $\rightarrow 18 \div 6 = 3$   
Five sixths  $\rightarrow 5 \times 3 = \pounds 15$

## Simple Percentages

$$50\% = \frac{1}{2} \quad 25\% = \frac{1}{4} \quad 75\% = \frac{3}{4} \quad 10\% = \frac{1}{10} \quad 20\% = \frac{1}{5} \quad 40\% = \frac{2}{5}$$

$$50\% \text{ of } 30 = 15$$

$$25\% \text{ of } 20 = 5$$

$$40\% \text{ of } 30 = 12$$

$$60\% \text{ of } \pounds 60$$

$$45\% \text{ of } \pounds 80$$

$$34\% \text{ of } \pounds 90$$

$$10\% = 6$$

$$\underline{\underline{60\% = \pounds 36}}$$

$$10\% = 8$$

$$40\% = 32$$

$$5\% = 4$$

$$\underline{\underline{45\% = \pounds 36}}$$

$$10\% = 9$$

$$30\% = 27$$

$$1\% = 0.90$$

$$4\% = 3.60$$

$$\underline{\underline{34\% = \pounds 30.60}}$$

## Simple Decimals (tens, hundreds, thousands)

TH	H	T	U	t	h	th	tth
			2	7			
		2	7				

 $\times 10$ 


$$2.7 \times 10 = 27$$

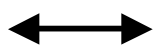
$$0.901 \div 10 = 0.0901$$



TH	H	T	U	t	h	th	tth
			0	9	0	1	
			0	0	9	0	1

 $\div 10$ 

TH	H	T	U	t	h	th	tth
	4	6	0				
			4	6			

 $\div 100$ 


$$460 \div 100 = 4.6$$

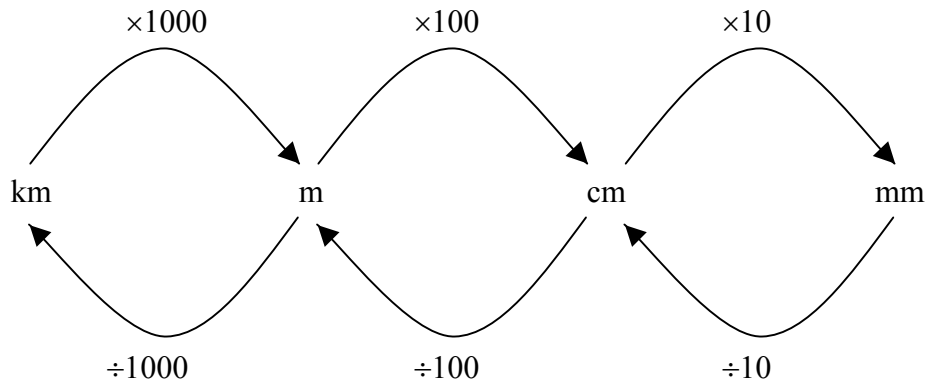
$$0.056 \times 10\,000 = 560$$



TH	H	T	U	t	h	th	tth
			0	0	5	6	
	5	6	0				

 $\times 10\,000$

## Metric Measure



$$3\text{km} \rightarrow \text{m}$$

$$3 \times 1000 = 3000 \text{ m}$$

$$750 \text{ cm} \rightarrow \text{m}$$

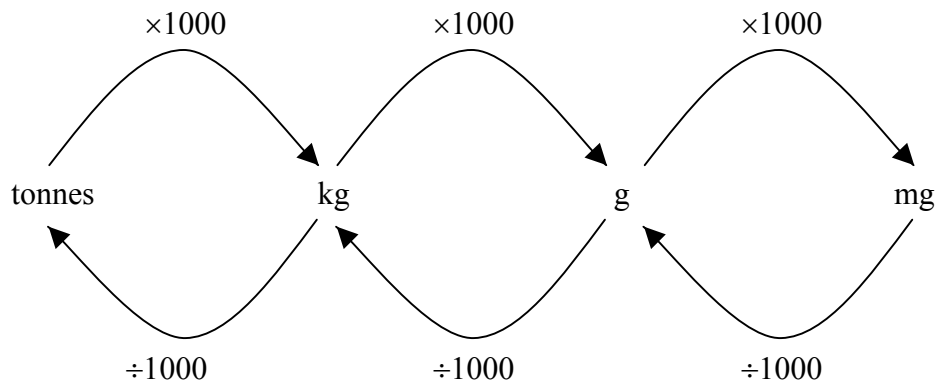
$$750 \div 100 = 7.5 \text{ m}$$

$$67\text{mm} \rightarrow \text{m}$$

$$67 \div 10 \div 100 = 0.067 \text{ m}$$

or  $67 \div 10 = 6.7 \text{ cm}$   
 $6.7 \div 100 = 0.067 \text{ m}$

## Metric Weight



$$5 \text{ tonnes} \rightarrow \text{kg}$$

$$5 \times 1\,000 = 5\,000 \text{ kg}$$

$$8.7 \text{ kg} \rightarrow \text{g}$$

$$8.7 \times 1\,000 = 8\,700 \text{ g}$$

$$80\,900\,000\text{mg} \rightarrow \text{kg}$$

$$80\,900\,000 \div 1\,000 \div 1\,000 = 80.9 \text{ mg}$$

or  $80\,900\,000 \div 1\,000 = 80\,900 \text{ g}$   
 $80\,900 \div 1\,000 = 80.9 \text{ mg}$

## Working with Multiples of Ten

1.  $348 \times 30$

Step 1: Find  $348 \times 3$

$$\begin{array}{r} 348 \\ \times 3 \\ \hline 1044 \end{array}$$

Step 2: Now do  $1044 \times 10$

$$1044 \times 10 = 10\,440$$

$$\text{So, } 348 \times 30 = 10\,440$$

2.  $5430 \div 30$

Step 1: Find  $5430 \div 10$

$$5430 \div 10 = 543$$

Step 2: Now do  $543 \div 3$

$$\begin{array}{r} 181 \\ 3 \overline{)543} \end{array}$$

$$\text{So, } 5430 \div 30 = 181$$

## Rounding Decimals

1. Round the following to 1 decimal place

a.  $3.\underline{4}2 \approx 3.4$

b.  $93.\underline{5}821 \approx 93.6$

c.  $9.\underline{9}5 \approx 10.0$

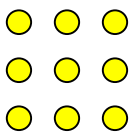
2. Round the following to the nearest penny (two decimal places)

a.  $\pounds 5.\underline{2}29 \approx \pounds 5.23$

b.  $\pounds 10.\underline{3}74 \approx \pounds 10.37$

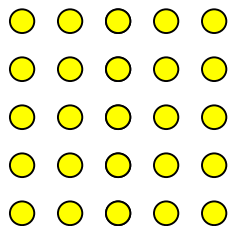
c.  $\pounds 0.\underline{0}25231 \approx \pounds 0.03$  or 3p

## Squares, Square Roots and Powers



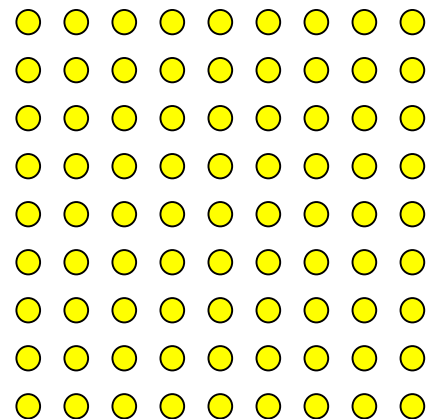
$$3^2 = 3 \times 3 = 9$$

$$\sqrt{9} = 3$$



$$5^2 = 5 \times 5 = 25$$

$$\sqrt{25} = 5$$

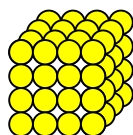


$$9^2 = 9 \times 9 = 81$$

$$\sqrt{81} = 9$$

$$4^3 = 4 \times 4 \times 4 = 64$$

$$\sqrt[3]{64} = 4$$



$$3^5 = 3 \times 3 \times 3 \times 3 \times 3 = 243$$

## BODMAS

When carrying out a calculation we give priority to certain operations. For example, on your calculator type  $5 + 2 \times 3$ . Older calculators will give the answer 21, while newer calculators give the correct answer of 11. This is because multiplication gets priority before addition. The complete order is:

### **B**rackets, **O**thers, **D**ivision and **M**ultiplication, **A**ddition and **S**ubtraction

$$\begin{array}{llll} \text{a.} & 3 + 4 \times 2 & \text{b.} & 3 + 8 \div 4 - 1 & \text{c.} & 27 \div 3^2 + 2 & \text{d.} & 4 \times (7 - 5) + 3 \\ & = 3 + 8 & & = 3 + 2 - 1 & & = 27 \div 9 + 2 & & = 4 \times 2 + 3 \\ & = 11 & & = 4 & & = 3 + 2 & & = 8 + 3 \\ & & & & & = 5 & & = 11 \end{array}$$

## Basic Data Handling

Recall      MEAN:      Add up and divide by the number of results  
              MEDIAN:      The middle entry (or entries) of an ordered set of results  
              MODE:      The most frequent entry, the one that appears the most  
              RANGE:      The spread of results, highest subtract lowest

E.g Find the mean, median, mode and range of the following temperatures

22°C, 24°C, 22°C, 18°C, 25°C, 26°C, 25°C, 22°C

$$\text{Mean :} \quad \frac{(22 + 22 + \dots + 22)}{8} = \frac{184}{8} = 23^\circ\text{C}$$

$$\begin{aligned} \text{Median : order} & \quad 18^\circ\text{C}, 22^\circ\text{C}, 22^\circ\text{C}, 22^\circ\text{C}, \uparrow 24^\circ\text{C}, 25^\circ\text{C}, 25^\circ\text{C}, 26^\circ\text{C} \\ & = \frac{(22 + 24)}{2} = 23^\circ\text{C} \end{aligned}$$

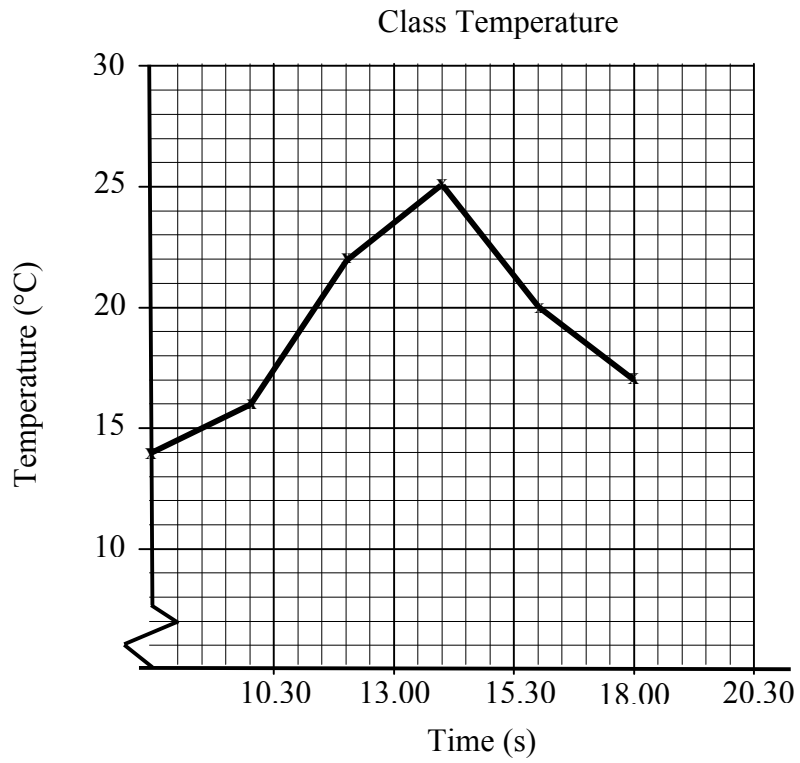
Mode :      Most common = 22°C

Range :      26 – 18 = 8°C



## Line Graphs

Time	8am	10am	12pm	2pm	4pm	6pm
Temperature (°C)	14	16	22	25	20	17



## Exercise 1

Work through all questions in one of the columns below. Ensure you look at the notes and set out your working correctly.

1.  $43 + 27$

1.  $408 + 78$

1.  $8948 + 983$

2.  $78 + 29$

2.  $69 + 8326$

2.  $84926 + 5978$

3.  $785 - 63$

3.  $374 - 158$

3.  $74926 - 4809$

4.  $52 - 18$

4.  $4264 - 273$

4.  $800371 - 737$

5.  $74 \times 3$

5.  $746 \times 5$

5.  $71342 \times 8$

6.  $147 \times 4$

6.  $2156 \times 7$

6.  $837 \times 47$

## Exercise 2

Work through all questions in one of the columns below. Ensure you look at the notes and set out your working correctly.

1.  $83 - 47$

1.  $815 - 342$

1.  $7082 - 4258$

2.  $73 \times 5$

2.  $469 \times 6$

2.  $485 \times 27$

3.  $414 \div 3$

3.  $2106 \div 6$

3.  $61144 \div 8$

4.  $984 \div 4$

4.  $2156 \div 7$

4.  $36837 \div 5$

5.  $73.1 + 4.8$

5.  $59.39 + 104.2$

5.  $58.3 \div 4$

6.  $46.3 - 13.8$

6.  $81.4 - 37.36$

6.  $802.1 - 4.82 + 9$

### Exercise 3

Work through all questions in one of the columns below. Ensure you look at the notes and set out your working correctly.

1.  $584 - 108$

1.  $8153 \times 7$

1.  $467 \times 458$

2.  $\frac{1}{2}$  of £30

2.  $\frac{1}{6}$  of £54

2.  $\frac{2}{3}$  of £120

3.  $\frac{1}{4}$  of £28

3.  $\frac{1}{5}$  of £40

3.  $\frac{3}{7}$  of £56

4.  $\frac{1}{5}$  of £40

4.  $\frac{3}{4}$  of £40

4.  $\frac{7}{12}$  of £48

5.  $\frac{3}{5}$  of £10

5.  $\frac{5}{8}$  of £24

5.  $\frac{4}{5}$  of £6

6. 50% of £8

6. 25% of £20

6. 75% of £200

## Exercise 4

Work through all questions in one of the columns below. Ensure you look at the notes and set out your working correctly.

1. 25% of £20

1. 20% of £20

1. 40% of £40

2. 10% of £70

2. 30% of £70

2. 35% of £40

3. 10% of £90

3. 70% of £30

3. 45% of £30

4. 20% of £50

4. 15% of £60

4. 12.5% of £80

5. 30% of £120

5. 65% of £40

5. 55% of £70

6.  $2.7 \times 10$

6.  $4.2 \times 100$

6.  $4.8 \div 10$

## Exercise 5

Work through all questions in one of the columns below. Ensure you look at the notes and set out your working correctly.

1. 30% of £60

1. 35% of £40

1. 42% of £60

2.  $840 \div 100$

2.  $3.1 \div 100$

2.  $0.0803 \times 1000$

3.  $3.5 \times 10$

3.  $0.32 \times 100$

3.  $0.024 \div 100$

4.  $4\text{km} \rightarrow \text{m}$

4.  $500\text{cm} \rightarrow \text{m}$

4.  $3.7\text{km} \rightarrow \text{m}$

5.  $6\text{g} \rightarrow \text{mg}$

5.  $400\text{mg} \rightarrow \text{g}$

5.  $0.702\text{kg} \rightarrow \text{g}$

6.  $90\text{mm} \rightarrow \text{cm}$

6.  $850\text{cm} \rightarrow \text{m}$

6.  $122\text{km} \rightarrow \text{cm}$

7.  $8000\text{cm} \rightarrow \text{m}$

7.  $2080\text{m} \rightarrow \text{km}$

7.  $703\text{mm} \rightarrow \text{cm}$

8.  $1.2\text{km} \rightarrow \text{m}$

8.  $401\text{cm} \rightarrow \text{m}$

8.  $4.09\text{km} \rightarrow \text{m}$

9.  $8.3\text{tonnes} \rightarrow \text{kg}$

9.  $14\text{mg} \rightarrow \text{g}$

9.  $10\text{g} \rightarrow \text{kg}$

10.  $0.2\text{m} \rightarrow \text{cm}$

10.  $0.5\text{mm} \rightarrow \text{cm}$

10.  $0.601\text{mg} \rightarrow \text{g}$

## Exercise 6

Work through all questions in one of the columns below. Ensure you look at the notes and set out your working correctly.

1.  $349 - 65$

1.  $4629 \times 8$

1.  $3629 \times 285$

2.  $4.58 + 9.6$

2.  $3800201 - 62894$

2.  $28746.91 \div 5$

3.  $8.52 \times 10$

3.  $0.92 \div 100$

3.  $0.024 \times 100000$

4.  $30 \times 40$

4.  $300 \times 70$

4.  $3.4 \times 200$

5.  $\frac{1}{4}$  of £12

5.  $\frac{2}{5}$  of £35

5.  $\frac{3}{8}$  of £56

6.  $20\text{km} \rightarrow \text{m}$

6.  $4200\text{m} \rightarrow \text{km}$

6.  $522\text{m} \rightarrow \text{km}$

7.  $8000\text{cm} \rightarrow \text{m}$

7.  $480\text{m} \rightarrow \text{km}$

7.  $9\text{mm} \rightarrow \text{cm}$

8.  $6.4\text{g} \rightarrow \text{mg}$

8.  $2608\text{cm} \rightarrow \text{m}$

8.  $5.0903\text{kg} \rightarrow \text{mg}$

9.  $2.3\text{mm} \rightarrow \text{cm}$

9.  $940\text{kg} \rightarrow \text{g}$

9.  $10.002\text{cm} \rightarrow \text{mm}$

10.  $0.5\text{m} \rightarrow \text{cm}$

10.  $10.4\text{m} \rightarrow \text{cm}$

10.  $0.601\text{m} \rightarrow \text{km}$

## Exercise 7

Work through all questions in one of the columns below. Ensure you look at the notes and set out your working correctly.

Round each of the following to the nearest penny.

1.  $13.2\text{p} \approx$

1.  $58.6\text{p} \approx$

1.  $34.5\text{p} \approx$

2.  $17.6\text{p} \approx$

2.  $19.5\text{p} \approx$

2.  $69.9\text{p} \approx$

3.  $28.5\text{p} \approx$

3.  $\text{£}6.274 \approx$

3.  $\text{£}43.324 \approx$

4.  $\text{£}20.057 \approx$

4.  $\text{£}13.4723 \approx$

4.  $\text{£}6.1491 \approx$

5.  $\text{£}28.395 \approx$

5.  $\text{£}89.5378\text{p} \approx$

5.  $\text{£}25.99521 \approx$

Carry out each these mental calculations involving money.

6.  $\text{£}2.40 + \text{£}3.10 + \text{£}1$

6.  $\text{£}7.80 - \text{£}2.30$

6.  $\text{£}6.60 + \text{£}3.40$

7.  $\text{£}3.90 + \text{£}4.60$

7.  $\text{£}22.30 - \text{£}1.40$

7.  $\text{£}19.00 + \text{£}16.40$

8.  $\text{£}10 - \text{£}4.60$

8.  $\text{£}3.78 + \text{£}4.90 + \text{£}0.31$

8.  $\text{£}22 - \text{£}2.30 - \text{£}2$

9.  $\text{£}20 - 6.50$

9.  $\text{£}100 - 5.20$

9.  $\text{£}4.99 \times 3$

10.  $\text{£}50 - \text{£}19.99$

10.  $\text{£}100 - 54.99$

10.  $\text{£}100 - \text{£}0.99$



## Exercise 8

Work through all questions in one of the columns below. Ensure you look at the notes and set out your working correctly.

Round each of the following to the nearest penny.

1.  $39.2\text{p} \approx$

1.  $28.7\text{p} \approx$

1.  $39.5\text{p} \approx$

2.  $86.3\text{p} \approx$

2.  $11.4\text{p} \approx$

2.  $99.9\text{p} \approx$

3.  $28.7\text{p} \approx$

3.  $\text{£}9.636 \approx$

3.  $\text{£}43.028 \approx$

Evaluate each of the following.

4.  $4^2 =$

4.  $7^2 =$

4.  $12^2 =$

5.  $9^2 =$

5.  $2^2 =$

5.  $16^2 =$

6.  $\sqrt{16} =$

6.  $\sqrt{81} =$

6.  $\sqrt{100} =$

7.  $\sqrt{64} =$

7.  $\sqrt{121} =$

7.  $\sqrt{169} =$

8.  $2^3 =$

8.  $4^3 =$

8.  $2^5 =$

9.  $3^3 =$

9.  $3^4 =$

9.  $1^9 =$

10. can you arrange 8  
£1 coins into a square?

10. can you arrange 50  
£1 coins into a square?

10. can you arrange 625  
£1 coins into a square?

Challenge ???

$$\sqrt[3]{125} =$$

## Exercise 9

Work through all questions in one of the columns below. Ensure you look at the notes and set out your working correctly.

1.  $2 + 4 \times 3$

1.  $6 \div 2 + 5$

1.  $2 + 4 \times 5 - 1$

2.  $9 - 3 \times 2$

2.  $8 + 10 \div 5$

2.  $(2 + 4) \times 3$

3.  $10 - 4 \times 2$

3.  $3 + 4^2 - 2$

3.  $4 \times (5 - 2)^2$

4.  $3 - 24 \div 8$

4.  $8 - \frac{1}{2} \text{ of } 12$

4.  $15 - 7 \times 2 + 4$

5.  $1 + 2 \times 3 + 4$

5.  $2 \times 3^2$

5.  $10 - 2^3 + 3$

6.  $3 \times (6 - 5) + 2$

6.  $2 + 4 \times (5 - 2)$

6.  $(2 + 3) \times (8 - 2)$

7.  $(8 \times 6) \div (15 - 13)$

7.  $4 - 25 \div 5 + 1$

7.  $18 \div (3 + 6) - 2$

Challenge

$$13 + 2^3 \div 4 - 3 \times 2$$

## Exercise 10

Work through all questions in one of the columns below. Ensure you look at the notes and set out your working correctly.

1.  $4.3 \times 100$

1.  $600 \div 1000$

1.  $24000 \div 80$

2.  $340\text{cm} \rightarrow \text{m}$

2.  $21.4\text{g} \rightarrow \text{mg}$

2.  $0.209\text{km} \rightarrow \text{m}$

3.  $8 - 6 \div 2$

3.  $3 + 4 \times 2 - 7$

3.  $4 \times 3^2 - (3 + 2)$

4.  $3 + 2 \times 8$

4.  $8^2 - 10 \times 4$

4.  $15 - 7 \times 2 + 8 \div 2$

5.  $10 - 3 \times 3 + 1$

5.  $2 \times (7 - 3)^2$

5.  $10^2 - (8 - 2)^2 - 8$

6.  $3 + (9 - 5) \times 2$

6.  $16 \div 2 \times (6 - 2)$

6.  $(2 \times 3^2) \div (7 - 1)$

7.  $(4 \times 6) \div (8 \div 2)$

7.  $\sqrt{81} - 3^2 + 8 \div 2$

7.  $8^2 \div \sqrt{16} \times (18 \div \sqrt{4})$

Challenge

$$(2 + 3 \times 4 + 6) \div (6 - 8 \div 2 + 3)$$

## Exercise 11

Work through all questions in one of the columns below. Ensure you look at the notes and set out your working correctly.

1.  $4.3 \times 100$

1.  $600 \div 1000$

1.  $24000 \div 80$

2.  $380\text{mm} \rightarrow \text{cm}$

2.  $61.2\text{km} \rightarrow \text{m}$

2.  $1.209\text{m} \rightarrow \text{cm}$

3.  $490 - 79$

3.  $523.2 \times 8$

3.  $56284 \times 94$

4.  $8.9 + 46.29$

4.  $68.2 - 6.532$

4.  $6238.3 \div 4$

5.  $4.13 \times 4$

5.  $3 + 8.3 \times 5$

5.  $9.2 + 5.9 \times 8$

6. 20% of £70

6. 30% of £8

6. 35% of £12

7.  $3 + 4 \times 5$

7.  $19 - 4 \times 5$

7.  $3^2 - \sqrt{16}$

8.  $721 \div 3$

8.  $826 \div 5$

8.  $5^3 \div 4$

## Exercise 12

Without any working and in 12 minutes, write down the answer to as many of the sums below as you can. Take a note of how many you get correct in the time allowed. **Challenge a parent!**

- |                             |  |                      |
|-----------------------------|--|----------------------|
| 1. $13 + 9$                 | 2. $34 - 21$                           | 3. $4 \times 5$      |
| 4. $27 + 14$                | 5. $24 - 7$                            | 6. $7 \times 6$      |
| 7. $40 \div 5$              | 8. $45 + 27$                           | 9. $64 \div 8$       |
| 10. $68 - 47$               | 11. $4 + 19 + 21$                      | 12. $21 \times 4$    |
| 13. $424 \div 2$            | 14. $14 \times 3$                      | 15. $36 - 19$        |
| 16. $93 \div 3$             | 17. $124 + 61$                         | 18. $132 - 34$       |
| 19. $16 \times 4$           | 20. $235 + 68$                         | 21. $246 - 99$       |
| 22. $72 \div 8$             | 23. $56 \div 7$                        | 24. $126 \div 3$     |
| 25. $34 \times 100$         | 26. $86.1 \times 100$                  | 27. $2410 \div 100$  |
| 28. $30 \times 40$          | 29. $200 \times 60$                    | 30. $34 \times 20$   |
| 31. $25 \times 300$         | 32. $1600 \div 20$                     | 33. $4500 \div 50$   |
| 34. $50 \times 43 \times 2$ | 35. $4 \times 74.3 \times 25$          | 36. $300 \times 1.3$ |
| 37. $18 + 36 - 11$          | 38. $241 - 42 + 5$                     | 39. $56 + 144 - 34$  |
| 40. $8 + 16 + 61 + 10$      | 41. $45 \times 4$                      | 42. $27 \times 8$    |
| 43. $240 \times 5$          | 44. $3600 \div 40$                     | 45. $134 + 78$       |
| 46. $\text{£}3.99 \times 4$ | 47. $\text{£}5.98 \times 6$            | 48. $340 \div 17$    |
| 49. $56000 \div 800$        | 50. $20 \times 200 \times 20 \times 3$ |                      |

Number correct \_\_\_\_\_

## Exercise 13

Work through all questions in one of the columns below. Ensure you look at the notes and set out your working correctly.

1.  $584 - 108$

1.  $8153 \times 7$

1.  $467 \times 458$

2.  $\frac{1}{2}$  of £30

2.  $\frac{1}{6}$  of £54

2.  $\frac{2}{3}$  of £120

3. 20% of £110

3. 85% of £60

3. 52.5% of £160

4.  $£8.45 \times 3$

4.  $89 \times 84$

4.  $8093 \times 289$

5.  $\frac{2}{5}$  of £30

5.  $\frac{4}{9}$  of £36

5.  $\frac{3}{4}$  of £17

6. 5.8 km  $\rightarrow$  m

6. 95cm  $\rightarrow$  m

6. 3.7m + 83cm

7. 0.8 m  $\rightarrow$  cm

7. 9.03km  $\rightarrow$  m

7. 80.1cm + 0.034km

## Exercise 14

Without any working and in 12 minutes, write down the answer to as many of the sums below as you can. Take a note of how many you get correct in the time allowed. **Challenge a parent!**

- |                             |   |                      |
|-----------------------------|---|----------------------|
| 1. $15 + 7$                 | 2. $37 - 24$                            | 3. $5 \times 6$      |
| 4. $36 + 15$                | 5. $54 - 8$                             | 6. $6 \times 8$      |
| 7. $24 \div 6$              | 8. $27 + 28$                            | 9. $42 \div 8$       |
| 10. $88 - 47$               | 11. $4 + 18 + 32$                       | 12. $23 \times 3$    |
| 13. $363 \div 3$            | 14. $15 \times 3$                       | 15. $53 - 19$        |
| 16. $84 \div 4$             | 17. $104 + 67$                          | 18. $122 - 23$       |
| 19. $17 \times 4$           | 20. $266 + 39$                          | 21. $368 - 99$       |
| 22. $32 \div 8$             | 23. $56 \div 2$                         | 24. $153 \div 3$     |
| 25. $74 \times 100$         | 26. $53.7 \times 100$                   | 27. $2810 \div 100$  |
| 28. $20 \times 40$          | 29. $200 \times 70$                     | 30. $43 \times 20$   |
| 31. $22 \times 400$         | 32. $1800 \div 20$                      | 33. $45000 \div 50$  |
| 34. $50 \times 76 \times 2$ | 35. $4 \times 23.6 \times 25$           | 36. $200 \times 1.4$ |
| 37. $13 + 48 - 11$          | 38. $237 - 39 + 4$                      | 39. $42 + 158 - 76$  |
| 40. $9 + 24 + 35 + 10$      | 41. $38 \times 6$                       | 42. $36 \times 7$    |
| 43. $340 \times 5$          | 44. $3200 \div 40$                      | 45. $234 + 78$       |
| 46. $\text{£}2.99 \times 6$ | 47. $\text{£}5.97 \times 4$             | 48. $3800 \div 19$   |
| 49. $81000 \div 900$        | 50. $30 \times 200 \times 20 \times 30$ |                      |

Number correct \_\_\_\_\_

## Exercise 15

Work through all questions in one of the columns below. Ensure you look at the notes and set out your working correctly.

Round each of the following to the nearest penny.

1.  $15.8\text{p} \approx$

1.  $89.2\text{p} \approx$

1.  $101.5\text{p} \approx$

2.  $63.9\text{p} \approx$

2.  $29.6\text{p} \approx$

2.  $89.8\text{p} \approx$

3.  $7.5\text{p} \approx$

3.  $\text{£}6.274 \approx$

3.  $\text{£}23.7549 \approx$

4.  $\text{£}50.063 \approx$

4.  $\text{£}16.1783 \approx$

4.  $\text{£}6.4592 \approx$

Carry out each these mental calculations involving money.

5.  $\text{£}5.40 + \text{£}1.10 + \text{£}2$

5.  $\text{£}17.80 - \text{£}6.70$

5.  $\text{£}3.70 + \text{£}3.45$

6.  $\text{£}1.80 + \text{£}4.90$

6.  $\text{£}25.30 - \text{£}2.40$

6.  $\text{£}16.00 + \text{£}14.40$

7.  $\text{£}10 - \text{£}7.80$

7.  $\text{£}3.05 + \text{£}1.90 + \text{£}2.05$

7.  $\text{£}20 - \text{£}8.60 - \text{£}5$

Show your working.

8.  $4^2 \times 3$

8.  $\sqrt{81} + 2 \times (9 - 5)$

8.  $2^3 + (9 - 6)^2 - \sqrt{9}$

9.  $20 - 7 \times 3$

9.  $(9 - 5)^2 \times 2$

9.  $(4 + 2 \times 3) \div \sqrt{25}$



## Exercise 16

Without any working and in 12 minutes, write down the answer to as many of the sums below as you can. Take a note of how many you get correct in the time allowed. **Challenge a parent!**

- |                             |  |                      |
|-----------------------------|--|----------------------|
| 1. $15 + 7$                 | 2. $36 - 24$                           | 3. $7 \times 3$      |
| 4. $25 + 18$                | 5. $64 - 7$                            | 6. $9 \times 5$      |
| 7. $35 \div 5$              | 8. $38 + 27$                           | 9. $42 \div 6$       |
| 10. $46 - 28$               | 11. $6 + 18 + 33$                      | 12. $32 \times 3$    |
| 13. $864 \div 2$            | 14. $18 \times 4$                      | 15. $56 - 17$        |
| 16. $104 \div 2$            | 17. $125 + 68$                         | 18. $356 - 58$       |
| 19. $16 \times 6$           | 20. $255 + 48$                         | 21. $456 - 99$       |
| 22. $48 \div 8$             | 23. $54 \div 6$                        | 24. $306 \div 3$     |
| 25. $67 \times 100$         | 26. $56.4 \times 100$                  | 27. $8750 \div 100$  |
| 28. $50 \times 30$          | 29. $30 \times 600$                    | 30. $24 \times 200$  |
| 31. $32 \times 300$         | 32. $2400 \div 20$                     | 33. $4500 \div 90$   |
| 34. $50 \times 72 \times 2$ | 35. $25 \times 35.3 \times 4$          | 36. $200 \times 4.3$ |
| 37. $29 + 26 - 21$          | 38. $345 - 46 + 7$                     | 39. $26 + 244 - 74$  |
| 40. $7 + 25 + 43 + 20$      | 41. $56 \times 4$                      | 42. $47 \times 6$    |
| 43. $340 \times 5$          | 44. $2700 \div 90$                     | 45. $564 + 78$       |
| 46. $\text{£}5.99 \times 5$ | 47. $\text{£}1.98 \times 7$            | 48. $2600 \div 13$   |
| 49. $48000 \div 80$         | 50. $20 \times 100 \times 40 \times 3$ |                      |

Number correct \_\_\_\_\_

## Exercise 17

Work through all questions in one of the columns below. Ensure you look at the notes and set out your working correctly.

1.  $139 - 75$

1.  $205626 \times 7$

1.  $229 \times 787$

2.  $7.98 + 8.5$

2.  $780201 - 42524$

2.  $2806.49 \div 5$

3.  $8.2 \times 10$

3.  $0.702 \div 100$

3.  $0.0204 \times 100000$

4.  $30 \times 60$

4.  $800 \times 60$

4.  $4.8 \times 2000$

5.  $\frac{1}{4}$  of £20

5.  $\frac{3}{5}$  of £45

5.  $\frac{5}{8}$  of £48

6.  $26\text{km} \rightarrow \text{m}$

6.  $8200\text{m} \rightarrow \text{km}$

6.  $904\text{m} \rightarrow \text{km}$

7.  $30000\text{cm} \rightarrow \text{m}$

7.  $740\text{m} \rightarrow \text{km}$

7.  $0.4\text{mm} \rightarrow \text{cm}$

8.  $7.4\text{kg} \rightarrow \text{g}$

8.  $2608\text{m} \rightarrow \text{km}$

8.  $0.0903\text{kg} \rightarrow \text{g}$

9.  $7.3\text{m} \rightarrow \text{cm}$

9.  $1140\text{g} \rightarrow \text{kg}$

9.  $10.02\text{cm} \rightarrow \text{mm}$

10.  $0.6\text{km} \rightarrow \text{m}$

10.  $17.4\text{m} \rightarrow \text{cm}$

10.  $8.01\text{m} \rightarrow \text{km}$

## Exercise 18

Without any working and in 12 minutes, write down the answer to as many of the sums below as you can. Take a note of how many you get correct in the time allowed. **Challenge a parent!**

- |                             |  |                      |
|-----------------------------|--|----------------------|
| 1. $17 + 7$                 | 2. $38 - 25$                           | 3. $6 \times 3$      |
| 4. $25 + 36$                | 5. $68 - 9$                            | 6. $3 \times 8$      |
| 7. $28 \div 4$              | 8. $48 + 34$                           | 9. $36 \div 6$       |
| 10. $55 - 27$               | 11. $5 + 17 + 23$                      | 12. $72 \times 3$    |
| 13. $8626 \div 2$           | 14. $17 \times 5$                      | 15. $74 - 48$        |
| 16. $132 \div 2$            | 17. $546 + 37$                         | 18. $377 - 79$       |
| 19. $23 \times 6$           | 20. $235 + 48$                         | 21. $753 - 99$       |
| 22. $48 \div 12$            | 23. $72 \div 8$                        | 24. $906 \div 3$     |
| 25. $85 \times 100$         | 26. $26.4 \times 100$                  | 27. $8490 \div 100$  |
| 28. $50 \times 70$          | 29. $40 \times 600$                    | 30. $31 \times 300$  |
| 31. $23 \times 400$         | 32. $2200 \div 20$                     | 33. $3200 \div 80$   |
| 34. $2 \times 37 \times 50$ | 35. $25 \times 29.3 \times 4$          | 36. $200 \times 3.4$ |
| 37. $36 + 28 - 17$          | 38. $328 - 29 + 3$                     | 39. $48 + 242 - 57$  |
| 40. $5 + 38 + 23 - 10$      | 41. $67 \times 4$                      | 42. $48 \times 6$    |
| 43. $270 \times 5$          | 44. $21000 \div 70$                    | 45. $534 + 188$      |
| 46. $\text{£}7.99 \times 4$ | 47. $\text{£}4.97 \times 3$            | 48. $6800 \div 340$  |
| 49. $480000 \div 600$       | 50. $40 \times 200 \times 20 \times 6$ |                      |

Number correct \_\_\_\_\_