

This is the Swalecliffe calculation policy that the teachers use to plan their work in teaching Division. Our aim is to develop deep understanding through these steps so that by the end of Key Stage 2 all children have a compact method that they are able to apply confidently to problem solving.

Success Ladder for Number-Division

Focus Area: Division	Examples		
By the end of Year 6	16. Compact method for long division involving decimals. $\begin{array}{r} \underline{\quad 13.36} \\ 26) 347.36 \end{array}$ <u>Estimate >10,<20</u>		
	13. Extend written methods for division, encouraging estimation first. Continue to divide using repeated subtraction (HTU ÷ TU) chunking in tens. e.g. $972 \div 36 =$ estimate $1000 \div 40 = 25$ $\begin{array}{r} \underline{10 + 10 + 7 = 27} \\ 36) 972 \\ - 360 \quad (10 \times 36) \\ \hline 612 \\ - 360 \quad (10 \times 36) \\ \hline 252 \\ - 252 \quad (7 \times 36) \\ \hline 0 \end{array}$ Check using inverse $36 \times 27 = 972$	14. Extend written methods for division, encouraging estimation first. Continue to divide using repeated subtraction (HTU ÷ TU) chunking in multiples of ten e.g. $972 \div 36 =$ estimate $1000 \div 40 = 25$ $\begin{array}{r} \underline{\quad 27} \\ 36) 972 \\ - 720 \quad (20 \times 36) \\ \hline 252 \\ - 252 \quad (7 \times 36) \\ \hline 0 \end{array}$ Check using inverse $36 \times 27 = 972$	15) Compact method for long division $\begin{array}{r} \underline{\quad 27} \\ 36) 972 \end{array}$

Year 5	<p>10) Short division giving quotient as remainder e.g. $90 \div 7 = 12 \text{ R}6$</p> $\begin{array}{r} 12 \text{ R}6 \\ 7 \overline{) 920} \end{array}$ <p>Check using inverse $(12 \times 7) + 6 = 90$</p>	<p>11) Short division giving quotient as mixed number e.g. $90 \div 7 = 12 \frac{6}{7}$</p> $\begin{array}{r} 12 \frac{6}{7} \\ 7 \overline{) 920} \end{array}$	<p>12) Short division giving quotient as decimal (to 1 or 2 decimal places) e.g. $90 \div 7 = 12.5$</p> $\begin{array}{r} 12.5 \\ 7 \overline{) 920.60} \end{array}$
Year 4	<p>8) Extend written methods, encouraging estimation first Children continue using the chunking method, before progressing to a more compact form with repeated subtraction (HTU \div U) e.g. $196 \div 6$</p> $\begin{array}{r} \underline{32} \quad \text{r } 4 \\ 6 \overline{) 196} \\ - \underline{60} \quad (10 \times 6) \\ 136 \\ - \underline{60} \quad (10 \times 6) \\ 76 \\ - \underline{60} \quad (10 \times 6) \\ 16 \\ - \underline{12} \quad (2 \times 6) \\ 4 \end{array}$ <p>Answer 32 r 4</p>	<p>9) This then contracts to the more compact form of repeated subtraction using nearest multiple of 10 chunks.</p> $\begin{array}{r} \underline{32} \quad \text{r } 4 \\ 6 \overline{) 196} \\ - \underline{180} \quad (30 \times 6) \\ 16 \\ - \underline{12} \quad (2 \times 6) \\ 4 \end{array}$ <p>Answer 32 r 4</p>	

Year 3

5) Derive quickly division facts corresponding to 2, 5, and 10 times table

- Continue to use empty number lines for division and introduce remainders.
- Understand effect of dividing by 10
- Divide a 3-digit multiple of 100 by 10 or 100

$$800 \div 100 = 8$$

$$300 \div 10 = 30$$

- Given three numbers such as 4, 5, 20; say or write four different multiplication and division statements.
- Solve division calculations by using multiplication strategies
- Round remainders up or down depending on the context.

6) Develop and refine written methods for division, building upon mental strategies.

- Divide a 2-digit number by a single-digit, by using multiples of the divisor

Either:

- Use informal jottings

$$\text{E.g.: } 84 \div 7 =$$

$$70 + 14$$

$$\begin{array}{cc} \downarrow & \downarrow \\ & \div 7 \end{array}$$

$$10 + 2 = 12$$

As the mental method is recorded, ask: 'How many sevens in seventy?' and: 'How many sevens in fourteen?'

Or: Record mental division using partitioning:

$$\begin{aligned} 64 \div 4 &= (40 + 24) \div 4 \\ &= (40 \div 4) + (24 \div 4) \\ &= 10 + 6 = 16 \end{aligned}$$

7) Use the repeated subtraction or 'chunking' method
Subtract chunks of the divisor, such as multiples of 10

$$148 \div 4$$

$$\begin{array}{r} 148 \\ - \underline{40} \quad (10 \times 4) \\ 108 \end{array}$$

$$\begin{array}{r} 108 \\ - \underline{40} \quad (10 \times 4) \\ 68 \end{array}$$

$$\begin{array}{r} 68 \\ - \underline{40} \quad (10 \times 4) \\ 28 \end{array}$$

$$\begin{array}{r} 28 \\ - \underline{28} \quad (7 \times 4) \\ 0 \end{array}$$

$$148 \div 4 = 10 + 10 + 10 + 7 = 37$$

NB: national expectation is that children will be using an efficient method by the end of Y4. The chunking method is accepted as an 'efficient method!'

Year 2

3. I can use informal jottings using partitioning

- Derive quickly division facts corresponding to 2, 5, and 10 times table
- Halve any multiple of 10 up to 100

$$40 \div 2 = 20, 20 \text{ is half of } 40$$

$$\square \div 2 = 35, 35 \text{ is half of } 70$$

4. Solve one-step problems using materials, arrays, repeated subtraction and mental methods.

1. Develop use of vocabulary for division.

- Use \div symbol.

Count confidently in steps of 2, 5 and 10.

- Recall division facts for 2, 5 and 10.

Practical tasks:

- Sharing equally:

$$15 \div 3 =$$

15 shared between 3

- Grouping:

$15 \div 3$ how many 3s in 15?

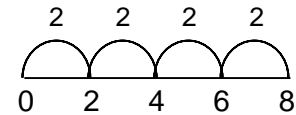
2. Relate grouping to arrays

- Use \div and $=$ to record number calculations

$$6 \div 2 = 3$$

$$6 \div 3 = 2$$

- Use a number line to illustrate grouping e.g. $8 \div 2 = 4$



Begin to solve practical problems involving remainders