

Maths Core Expectations

Year 4

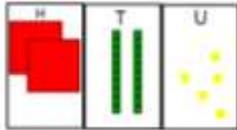
Autumn		Spring		Summer	
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
1000 more, 1000 less	Hundredths	Rounding	Our number system (inc the story of Zero)	Time	Scaling
Converting measure	Using my tables (multiplication and division)	Comparing angles	Perimeter	Multiplication and dividing by 10 and 100	Area
Adding and subtracting (mental and formal methods)	Symmetry	Equivalents (fractions and decimals)	Multiplication (formal method)	Factors	Going below zero
<p>Count backward through zero to include negative numbers</p> <p>Convert between different units and measure (for example, kilometre to metre)</p> <p>Add and subtract numbers with up to 4 digits</p> <p>Solve addition and</p>	<p>Compare and classify geometric shapes, including quadrilaterals and triangles, based on their property and sizes</p>	<p>Round any number to the nearest 10, 100, 1000</p> <p>Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$</p> <p>Add and subtract fractions with the same denominator</p> <p>Recognise and show, using diagrams, families of common equivalent</p>	<p>Know that over time, the numeral system changed to include the concept of zero and place value</p> <p>Use place value, known and derived facts to multiply and divide mentally</p>	<p>Convert between different units and measure (for example, hour to minute)</p> <p>Recognise and use factor pairs</p>	<p>Count backward through zero to include negative numbers</p> <p>Find the area of rectilinear shapes by counting in squares</p>

subtraction two-step problems in contexts		fractions count up and down in hundredths	Use the distributive law to multiply two-digit numbers by one digit		
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Mastery links

P:\Maths planning aids\Mastery and Greater Depth

Calculation Policy Pages

Addition: Phase 4			
Mental	Written	Visual images and models	Vocab
<p>Add numbers mentally including 2 digit numbers.</p> <p>Ensure pupils</p>	<p>Using the column method to add 3 and 4 digit whole numbers and £ and p.</p> <p> Children record: Use carrying below the line for the column method. Digits are lined up carefully in columns.</p> $\begin{array}{r} 225 \\ + 48 \\ \hline = 273 \end{array}$ $\begin{array}{r} 783 \\ + 342 \\ \hline = 1125 \end{array}$ $\begin{array}{r} 2367 \\ + 3185 \\ \hline = 5552 \end{array}$	<p>Adding units first, then 10s, then 100s</p> <p>Use base 10/Dienes to help children visualise exchanging units for tens and tens for hundreds:</p> 	<p>Add, addition, more, plus, make, sum, total, altogether, score.</p> <p>How many more to make...?</p> <p>How many more is...than..?</p> <p>Units</p> <p>Tens</p>

Subtract numbers mentally including two 2 digit numbers.

Estimate, calculate and check answers.

Practise mental methods with increasingly large numbers

Count back in steps of 2, 3, 4, 5, 6, 7, 8, 9, 10, 25, 50 and 100 and 1000 from any given number

Solve word problems including missing number problems using number facts, place value and addition/subtraction.

Refine and use efficient written methods to subtract 2 and 3 digit whole numbers including £ and p.

 Children use expanded decomposition to subtract 2 digit from 2 digit numbers.

Children record:

$$\begin{array}{r}
 40 \quad 1 \\
 54 \quad 50 + 4 \\
 - 27 \quad 20 + 7 \\
 \hline
 20 + 7 = 27
 \end{array}$$

 Progression to 3 digit subtract 3 digit numbers. Children record:

$$\begin{array}{r}
 600 \\
 754 = 700 + 150 + 4 \\
 - 273 \quad 200 + 70 + 3 \\
 \hline
 400 \quad 80 \quad 1 = 481
 \end{array}$$

754   

- 286   

10

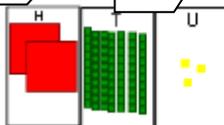
100

=



Subtract

Take away

Minus

Halve

Borrowing

Units

Tens

Hundreds

Difference between

How much less than...?

How much more is...?

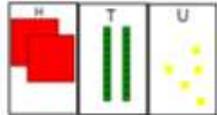
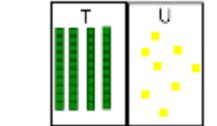
How many more make?

Resources:

Arrow cards

Base ten and place value boards

Money

	$ \begin{array}{r} 754 = \begin{array}{l} 600 \quad 1 \quad 40 \quad 1 \\ \diagdown \quad \diagdown \\ 700 + 50 + 4 \end{array} \\ - 286 \quad \begin{array}{l} 200 + 80 + 6 \\ \hline 400 \quad 60 \quad 8 \end{array} = 468 \end{array} $	$ \begin{array}{r} 273 \\ - \\ 215 \\ \hline = 48 \end{array} $  	
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Multiplication: Phase 4			
Mental method	Written method	Visual Images and Models	Vocabulary
<p>To learn times tables 7 and 12 and to consolidate times tables up to 12 x 12.</p> <p>Count in multiples of 25, 50, 100 and 1000 from any given number.</p>	<p>Use written methods to record, support and explain multiplication of 2 and 3 digits x 1 digit</p>  <p>Children record multiplication as a grid and then vertically using partitioning. First, TU x U with easier multipliers (2, 3, 5), then more difficult numbers (4,6,8,9 etc).</p> $5 \times 23 = 115$ $ \begin{array}{r} 5 \quad 20 \quad 3 \\ \hline \end{array} $	<p>Place value cards still used to support partitioning, to ensure the process is explicit.</p> 23×5   <p>x</p> 	<p>lots of, groups of, times, multiply, multiplication, multiplied by, multiple of, product, once, twice, three times... ten times... times as (big, long, wide... and so on), repeated addition,</p>

Respond rapidly to oral or written questions like:

Nine fives.

3 times 7 times 0.

4 multiplied by 8... by 0.

Multiply 9 by 5... by 1.

Use understanding of place value to multiply whole numbers by 10, 100 or 1000

To know that 23×8 is approximately $20 \times 10 = 200$.

To recognise and use factor pairs within 144.

100	15	= 115
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Moving on to:

$$\begin{array}{r}
 23 \\
 \times \quad 5 \\
 \hline
 5 \times 3 \quad 15 \\
 5 \times 20 \quad \underline{100} \\
 = \underline{115}
 \end{array}$$

(least significant digit first)



HTU x U. First, with easier multipliers (2, 3, 5), then more difficult numbers (4,6,8,9 etc).

	300	20	3	
5	1500	100	15	= 115

$$\begin{array}{r}
 323 \\
 \times \quad 5 \\
 \hline
 5 \times 3 \quad 15 \\
 5 \times 20 \quad 100 \\
 5 \times 300 \quad \underline{1500} \\
 = 1615
 \end{array}$$

$$\begin{array}{r}
 \\
 \hline
 20 \times 5 = 100
 \end{array}$$

$$3 \times 5 = 15$$

10	15
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array,
row, column,
double, halve,
factor

Resources

Numicon

Hundred grid

Number lines

Multilink

Coins

Dienes/Base 10

Counters

Counting stick

Bead strings

Containers

Arrow cards

Place value sliders

ITPs

Division: Phase 4

Mental

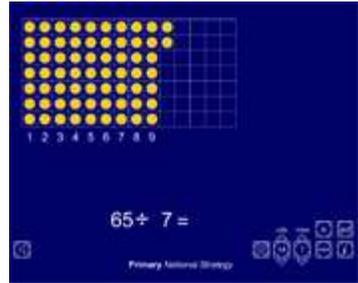
Written

Visual Images and Models

Vocab

Use understanding of place value to divide whole numbers and decimals by 10, 100 or 1000

Develop and use written method to record, support and explain division of 2 digit and 3 digit numbers by a 1 digit number including division with remainders e.g. $98 \div 5$



lots of, groups of, times, multiply, multiplication, multiplied by, multiple of, product, once, twice, three times... ten times... times as (big, long, wide... and so on),

Respond quickly to questions like:

Introduce vertical recording of repeated subtraction, focussing on place value.  Children record:

Make sensible decisions about rounding up or down after division. For example, $65 \div 7$ is 9 remainder 2, but whether the answer should be rounded up to 10 or rounded down to 9 depends on the context.

repeated addition, array, row, column, double, halve, share, share equally,

- Divide 36 by 4.
- What is 24 shared between 3?
- How many fives in 55?
- Half of 17.
- One quarter of 3.

$$\begin{array}{r} 5 \overline{) 75} \\ - 50 \\ \hline 25 \\ - 25 \\ \hline 0 \end{array} \quad \begin{array}{l} 10 \times 5 \\ 5 \times 5 \end{array}$$

Examples of rounding down

one each, two each, three each... group in pairs, threes... tens

Estimate, Calculate, Check (ECC)

 Move onto

• I have £62. Tickets cost £8 each.

$62 \div 8 = 7$ remainder 6. I can buy only 7 tickets.

• I have 62 cakes. One box holds 8 cakes. I could fill only 7 boxes of cakes.

Examples of rounding up

equal groups of, divide, division, divided by, divided into,

• I have 62 cakes. One box holds 8 cakes. I will need 8 boxes to hold all 62 cakes.

remainder, factor, quotient, divisible by,

$$5 \overline{) 196}$$

$$- \underline{150} \quad \mathbf{30} \times 5$$

46

$$- \underline{45} \quad \mathbf{9} \times 5$$

1

Answer: **39 r 1**

Ensure examples use times tables which the children are confident with.

• There are 62 people. There are 8 seats in a row. 8 rows of seats are needed to seat everyone.

inverse.