

# Maths Core Expectations

## Year 3

Autumn		Spring		Summer	
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Counting higher (up to 1000)	Comparing fractions	10 more and 10 less and 100 more and 100 less	Adding efficiently (formal method)	Counting in multiples (inc. 50s and 100s)	Subtracting efficiently (formal method)
2d and 3d shapes	Mass	Measuring (length and angles)	Telling the time	Adding and subtracting fractions	Duration of time
Partitioning (inc. expanded column methods)	Multiplying and dividing	Tenths	Money (multiplying and dividing emphasis)	Volume and capacity	Scaling
	Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators Write and calculate mathematical statements for multiplication and division using the multiplication	Measure, compare, add and subtract: Lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) Solve number problems and practical problems involving these ideas	Add and subtract numbers with up to three digits, using formal and written methods of columnar addition and subtraction Tell and write the time from an analogue clock, including Roman numerals from I	Recognise and show, using diagrams, equivalent fractions with small denominators	Add and subtract numbers mentally  Solve problems, including missing numbers problems, using number facts, place value, and more complex addition and subtraction

	tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods		to XII and 12 hour and 24 hour clocks  Add and subtract amounts of money to give change, using both £ and p in practical contexts		
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**Mastery links**

**P:\Maths planning aids\Mastery and Greater Depth**

**Calculation Policy Pages**

<b>Addition: Phase 3</b>			
<b>Mental methods</b>	<b>Written methods</b>	<b>Visual images and models</b>	<b>Vocabulary</b>

Count on in steps of 2, 3, 4, 5, 8, 10, 50 and 100 from any given number.

Say what is 10 or 100 more than a given number.

Derive number facts to 1000.

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

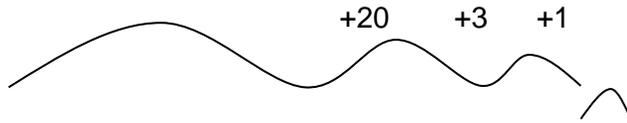
(Continue to extend understanding of place value in numbers, counting in units, tens and hundreds up to 1000)

### Adding up to 3 digit numbers:

Add tens and units separately on a number line (count on).

 Children record:

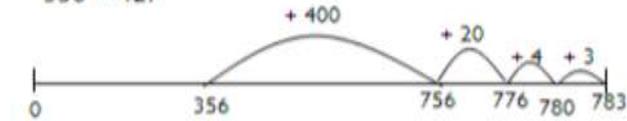
$$67 + 24 = 91$$



67                      87                      90 91

Leading to:

$$356 + 427$$

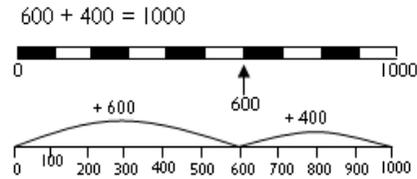


Add using vertical expanded methods (partitioning). Adding least significant digits first.

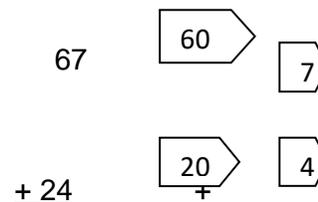
 Children record :

67	
	<u>+24</u>
(7 + 4)	11
(60 + 20)	<u>80</u>
(11 + 80)	91

Introduce carrying with column addition TU + TU



Use base 10/Dienes and place value cards to help children move towards exchanging units for tens.



Add, addition, more, plus, make, sum, total, altogether score

How many more to make...?

How many more is...than...?

Tens

Units

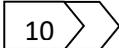
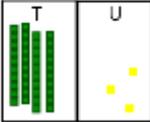
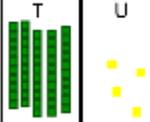
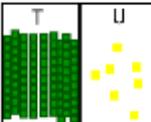
Hundreds

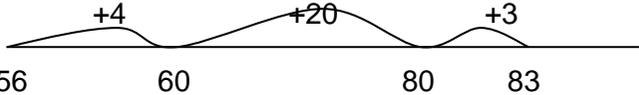
### Resources:

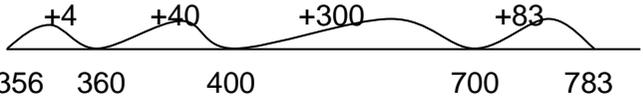
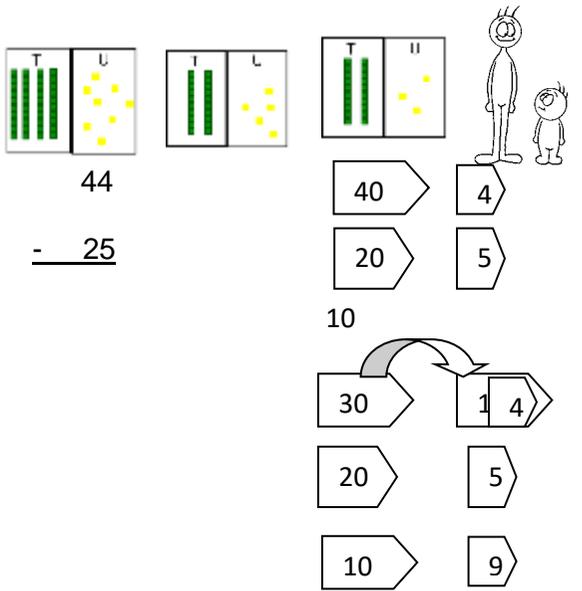
Base 10/Dienes, place value ITP, Number lines

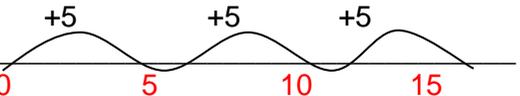
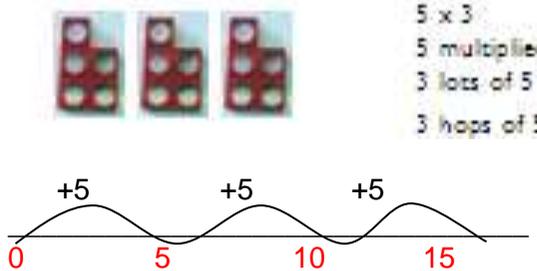
Arrow cards

Straws/objects grouped in tens

	<p>(Summer)</p> <p> Children record : <math display="block">\begin{array}{r} 67 \\ + 24 \\ \hline 91 \\ \hline \end{array}</math></p> <p>Stage 1 of column method - digits are carried under the line.</p>	<p>11     +     =    </p> <p><u>80</u>            </p> <p>80     +    </p> <p>        </p>	
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Subtraction: Phase 3			
Mental methods	Written methods	Visual images and models	Vocabulary
<p>Count back in steps of 2, 3, 4, 5, 8, 10, 50 and 100 from any given number.</p> <p>Say what is 10 or 100 less than a given number.</p> <p>Derive number facts to 1000 for subtraction.</p> <p>Solve word</p>	<p><b>Develop and use written methods to record, support or explain subtraction of 2 or 3 digit numbers.</b></p> <p> Use a number line to count up from the smaller number (complementary addition). Children record: <math>83 - 56</math></p> <p></p> <p><math>56 + 4 + 20 + 3 = 83</math></p>	<p>Finding the difference by counting up on a number line. Support with contexts such as difference in height / length etc.</p> <p>Use base ten and place value arrow cards to model subtraction which does and does not involve exchanging e.g. <math>48 - 25 = 23</math></p>	<p>Subtract Take away Minus Halve Borrowing Units Tens Hundreds Difference between How much less than...? How much more is...? How many more make?</p> <p><b>Resources:</b></p>

<p>problems including missing number problems using number facts, place value and addition/subtraction.</p> <p>Subtract mentally: A 3 digit number and ones A 3 digit number and tens Two 3 digit numbers</p>	<p> Progress to 3 digit numbers. Children record: <math>783 - 356</math></p>  <p><math>356 \quad 360 \quad 400 \quad 700 \quad 783</math></p> <p><math>300 + 83 + 40 + 4 = 427</math> <math>783 - 356 = 427</math></p> <p> Children begin recording subtraction vertically. Take away a two digit number from another two digit number not exchanging &amp; exchanging</p> $\begin{array}{r} 48 \\ -25 \\ \hline 40 + 8 \\ \underline{20 + 5} \\ = 20 + 3 \end{array}$ $\begin{array}{r} 44 \\ -25 \\ \hline 40 + 4 \rightarrow 40 \cancel{4} 14 \\ -20 + 5 \rightarrow \underline{20 + 5} \\ = 10 + 9 = 19 \end{array}$	 <p><math>44</math> <math>- 25</math></p> <p>40 20 10</p> <p>4 5 9</p>	<p>100 squares, number games, number lines, arrow cards, base 10/dienes</p>
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Multiplication: Phase 3			
Mental methods	Written methods	Visual Images and Models	Vocabulary
<p>To learn 4, 6, 8 &amp; 9 times tables.</p> <p>To consolidate 2, 3, 5, 10, 11 times tables.</p> <p>Use understanding of place value to multiply whole numbers by 10 or 100.</p>	<p><b>Use practical and informal methods to multiply.</b></p> <p>Horizontal</p> <p> <math>5 \times 3 = 15</math> on a number line.</p>  <p> Grid method</p>	 <p><math>5 \times 3</math> 5 multiplied by 3 3 lots of 5 3 hops of 5</p>	<p>lots of, groups of <math>\square</math>, times, multiply, multiplication, multiplied by multiple of, product once, twice, three times... ten times... times as repeated addition array row, column double, halve share, share</p>

Understand that with positive whole numbers, multiplying makes a number larger.

Use knowledge that in exact multiples of

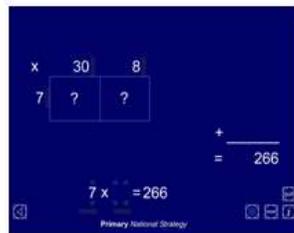
- 4 the last two digits are divisible by 4;
- 6 the number is even **and** divisible by 3;
- 8 the last 3 digits are divisible by 8;
- 9 the sum of the digits is divisible by 9

Children record:  
 $4 \times 12 = 48$

$$4 \begin{array}{|c|c|} \hline 10 & 2 \\ \hline 40 & 8 \\ \hline \end{array} = 48$$

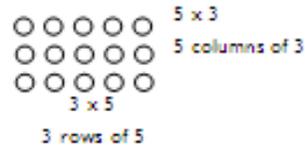
Children should be taught to recognise special case strategies, eg:

$13 \times 9$   
 $13 \times 10$  } adjust  
 $\times 4$  ( $\times 2$ )



Multiplication Grid ITP

Multiplication as an array



$$\begin{array}{|c|} \hline 4 \\ \hline \end{array} \times \begin{array}{|c|c|} \hline 10 & 2 \\ \hline \end{array} = \begin{array}{|c|c|} \hline 40 & 8 \\ \hline \end{array}$$



Place value cards still used to support partitioning, to ensure the process is explicit.

Use scaling to support understanding of proportion.



equally one each, two each, three each... arrow cards

**Resources**

- Moveable objects
- Numicon
- Hundred grid
- Number lines
- Multilink
- Coins
- Dienes
- Counters
- Washing line
- Counting stick
- Bead strings
- Pegs on hangers
- Containers
- Arrow cards
- Place value sliders

**Division: Phase 3**

Mental	Written	Visual Images and Models	Vocab
Estimate, Calculate, Check (ECC)	Use practical and informal written methods to divide 2 digit numbers		lots of, groups of □, times, multiply,

Use knowledge of division as the inverse of multiplication to solve problems.

$$\begin{array}{r} 12 \\ 3 \quad 4 \end{array}$$

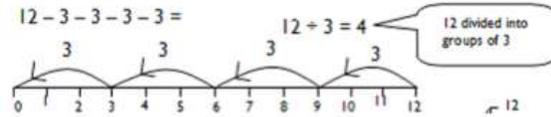
e.g. use of 'Factor families'

Recall multiplication facts for the 2, 3, 5 and 10 multiplication tables (up to x12).

Estimate, Calculate, Check (ECC)

e.g.  $12 \div 3 = 4$

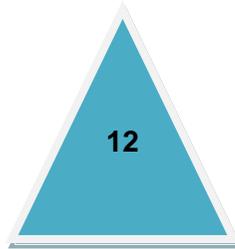
 Children consolidate recording using a number line for repeated subtraction.



Understand division is inverse (undoing) of multiplication and vice versa; use this to derive and record related x and ÷ number sentences.

 Factor

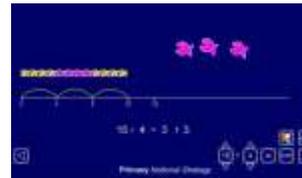
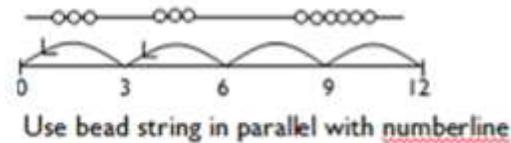
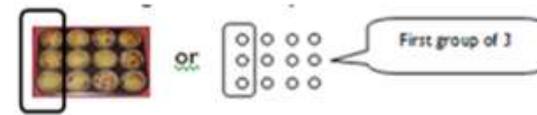
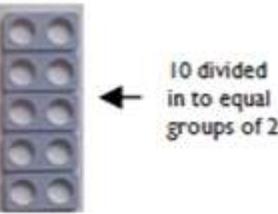
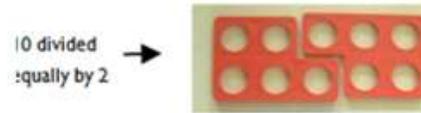
Families/  
triangles



 Write and calculate statements for division.

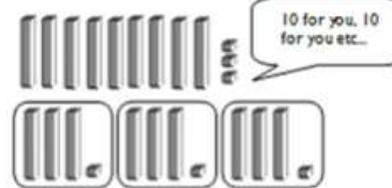
Round remainders up or down depending on context.

$$11 \div 2 = 5 \text{ r}1$$



Division as sharing

$$93 \div 3 = 31$$



multiplication,  
multiplied by,  
multiple of, product,  
once, twice, three  
times... ten times...  
times as (big, long,  
wide... and so on),  
repeated addition,  
array,  
row, column,  
double, halve,  
share, share  
equally,  
one each, two  
each, three each...

