

Calculation Policy 2018/2019:

How Maths is taught in KS2
at

West Lodge
Primary School



Maths at West Lodge – Our Vision

All children at West Lodge enjoy Mathematics and are able to see the beauty in it. The spark is lit within them through the use of enriching learning opportunities. Children explore concepts through concrete apparatus, pictorial imagery and link this to abstract ideas and calculations. We believe that all children are capable of understanding and succeeding in Mathematics. Learning best happens when children's misconceptions are understood, addressed and supported through challenging work. Mistakes are expected, reflected upon and treated as a learning opportunity.

The national curriculum for mathematics aims to ensure that all pupils:

- become **fluent in the fundamentals of mathematics**, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can solve problems by **applying their mathematics** to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions

- Our calculation policy is aimed to help children become more fluent in maths while also allowing them to gain the understanding and knowledge they need to reason mathematically



Do these represent an understanding of
place value?

$$\begin{array}{r} 29r2 \\ 6 \overline{)1256} \end{array}$$

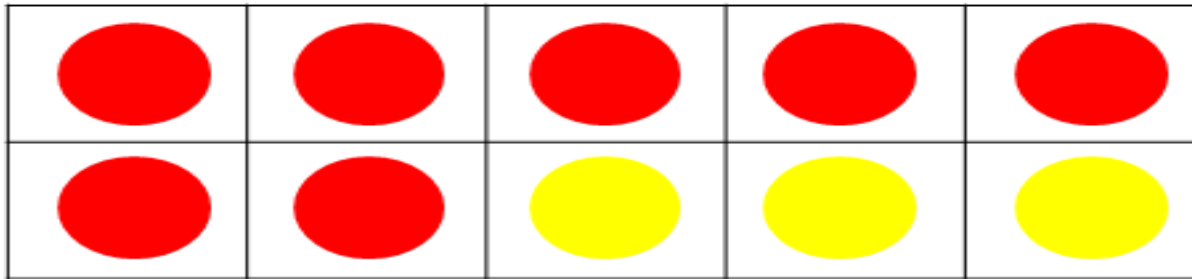
JULIA ANGHILERI¹, MEINDERT BEISHUIZEN² and KEES
VAN PUTTEN (2001)
FROM INFORMAL STRATEGIES TO STRUCTURED
PROCEDURES: MIND THE GAP! *Educational Studies in
Mathematics* 49: 149-170, 2002.

$$54 + 29 =$$

$$\begin{array}{r} 154 \\ 29 \\ \hline 713 \end{array}$$



How has the Calculation Policy changed?

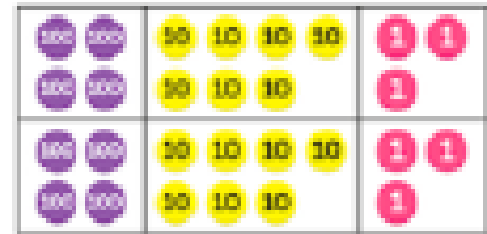


100 000	10 000	1000	100	10	1	.	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$

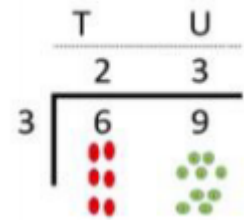
0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
1	2	3	4	5	6	7	8	9
10	20	30	40	50	60	70	80	90
100	200	300	400	500	600	700	800	900
1 000	2 000	3 000	4 000	5 000	6 000	7 000	8 000	9 000



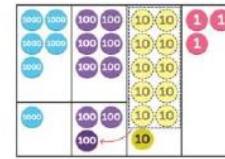
Year 3



- Transition from visual representations to formal methods
- The expanded form of addition and subtraction are taught alongside place value counters and place value mats
- Short division and the grid method are taught alongside place value counters
- Focus on understanding and development of mental calculation, and knowledge of place value



Year 4

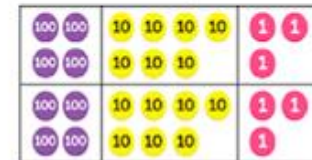


HTU

$$\begin{array}{r} 467 \\ + 215 \\ \hline 682 \\ \hline 1 \end{array}$$
 Remember to line up the HTU. Because $7+5=12$ we have to carry the 10.

- Formal methods for addition and subtraction are taught with place value counters to develop mastery
- The ladder method (with place value counters) is used for multiplication
- Short division is taught alongside place value counters
- Focus is on understanding and development of mental calculation
- Bar modelling will be taught along side the formal methods to develop reasoning skills
 - children are provided with real life problems to help them understand the operations through visual representations

$$\begin{array}{r} 314 \\ \times 3 \\ \hline 12 \quad (3 \times 4) \\ 30 \quad (3 \times 10) \\ + 900 \quad (3 \times 300) \\ \hline 942 \end{array}$$



$$\begin{array}{r} 473 \\ \times 2 \\ \hline \end{array}$$



Year 5



- Children continue to use formal methods for addition and subtraction
- The formal method of multiplication and long division are taught in the autumn term (using place value counters if required)
- Focus on understanding and development of mental calculation
- Bar modelling will be taught along side the formal methods to develop reasoning skills
 - children are provided with real life problems to help them understand the operations through visual representations

Year 6

- Children should know all formal methods of arithmetic before entering Year 6
- Focus on understanding and development of mental calculation
- Bar modelling will be taught along side the formal methods to develop reasoning skills
 - children are provided with real life problems to help them understand the operations through visual representations



Over to our pupils.....



Helpful Resources

- My Maths
- White Rose Maths
- Barvember
- Khan Academy

