MATHEMATICS WORKSHOP

Poulton Lancelyn Primary School

NATIONAL CURRICULUM CHANGES

- New Curriculum introduced from September 2014 for all pupils.
- Children must be mathematically fluent.
- Expectations have changed. Coverage and skills have been “pushed down.”
- No longer using levels. Emerging, Expected, exceeding.

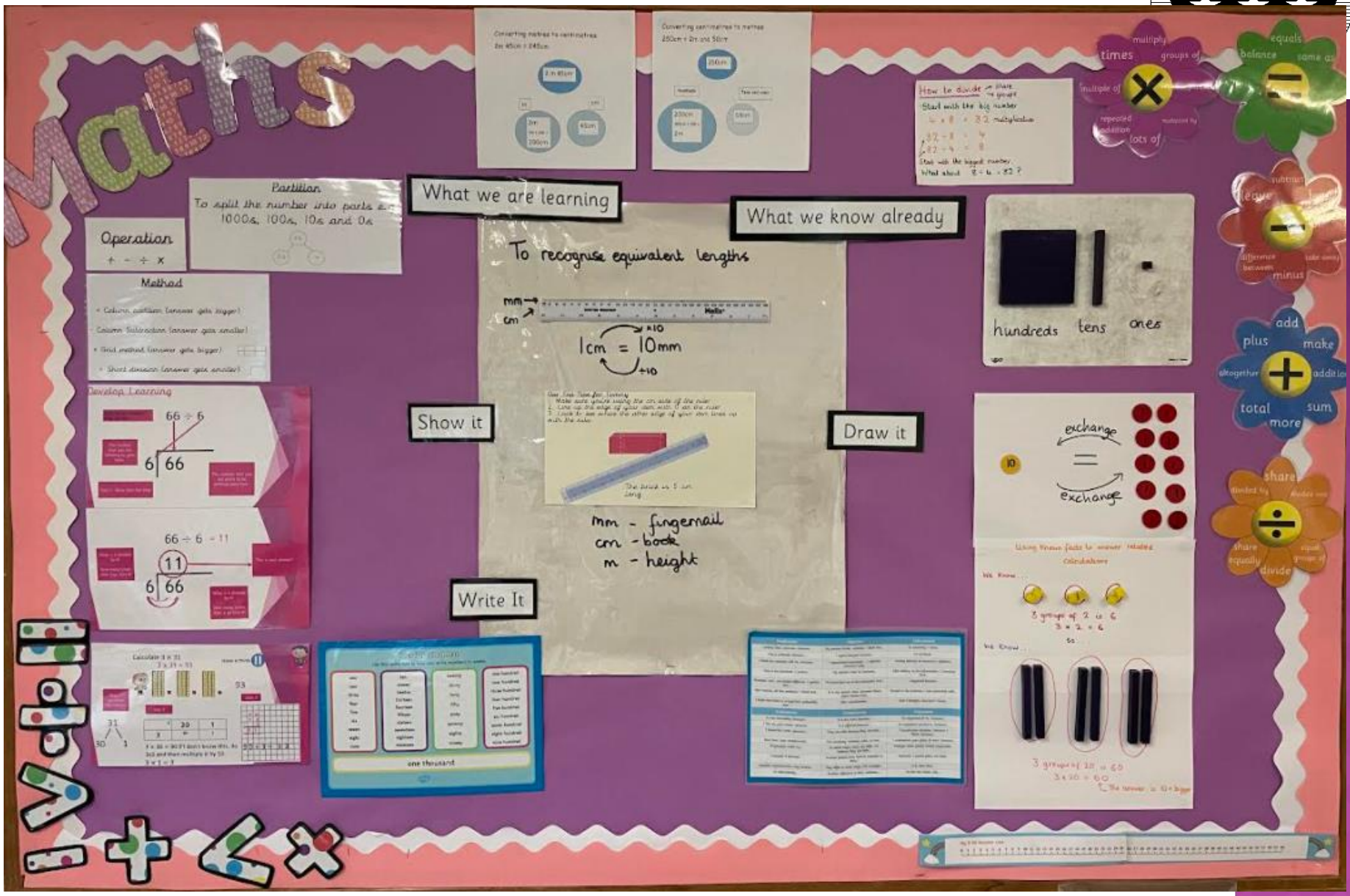
SCHOOL CHANGES

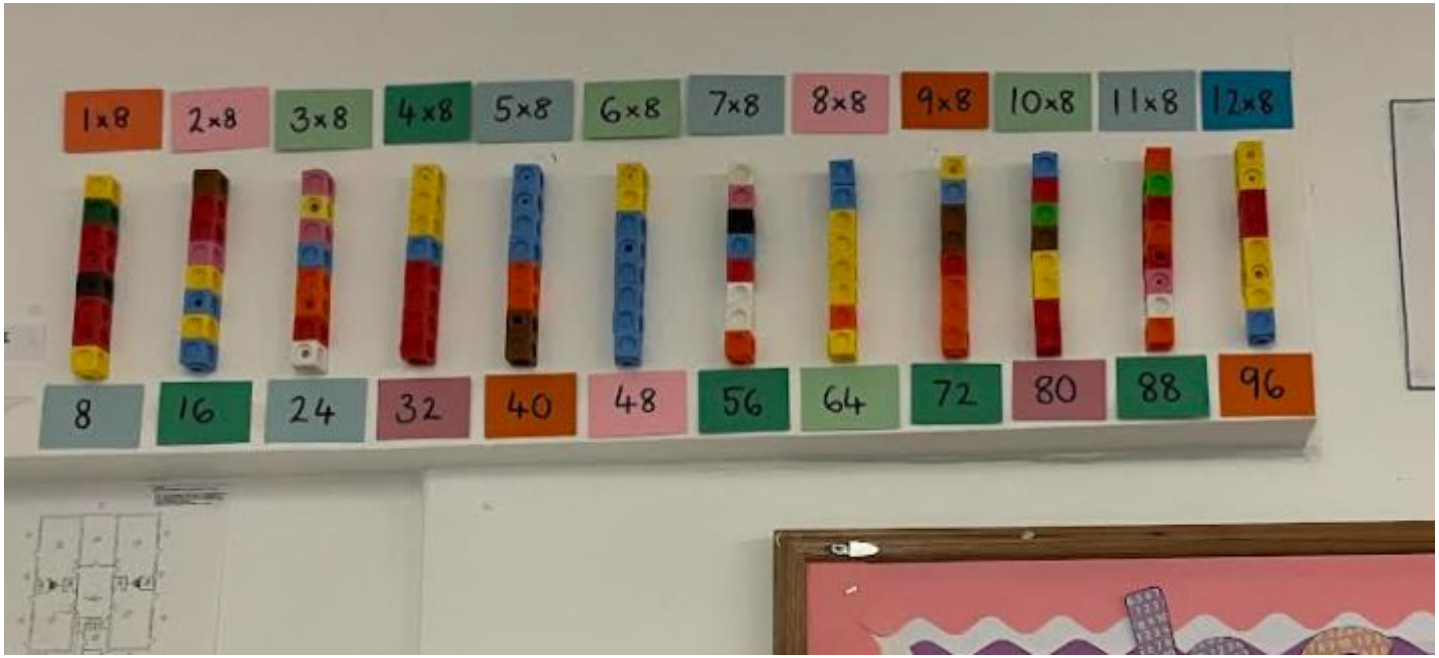
- Maths calculation policy (on the website)
- 2 maths sessions per day – main (45 mins) and fluency (15 mins)
- More focus on number to develop number fluency
- Focus on developing mastery in maths

WRITTEN MATHEMATICS

- Detailed breakdown for each year group in calculation policy (on website)
- Summary document highlights key stages.
- Mathematics session in each year group will outline the calculation methods used within that group.

CLASSROOM ENVIRONMENT

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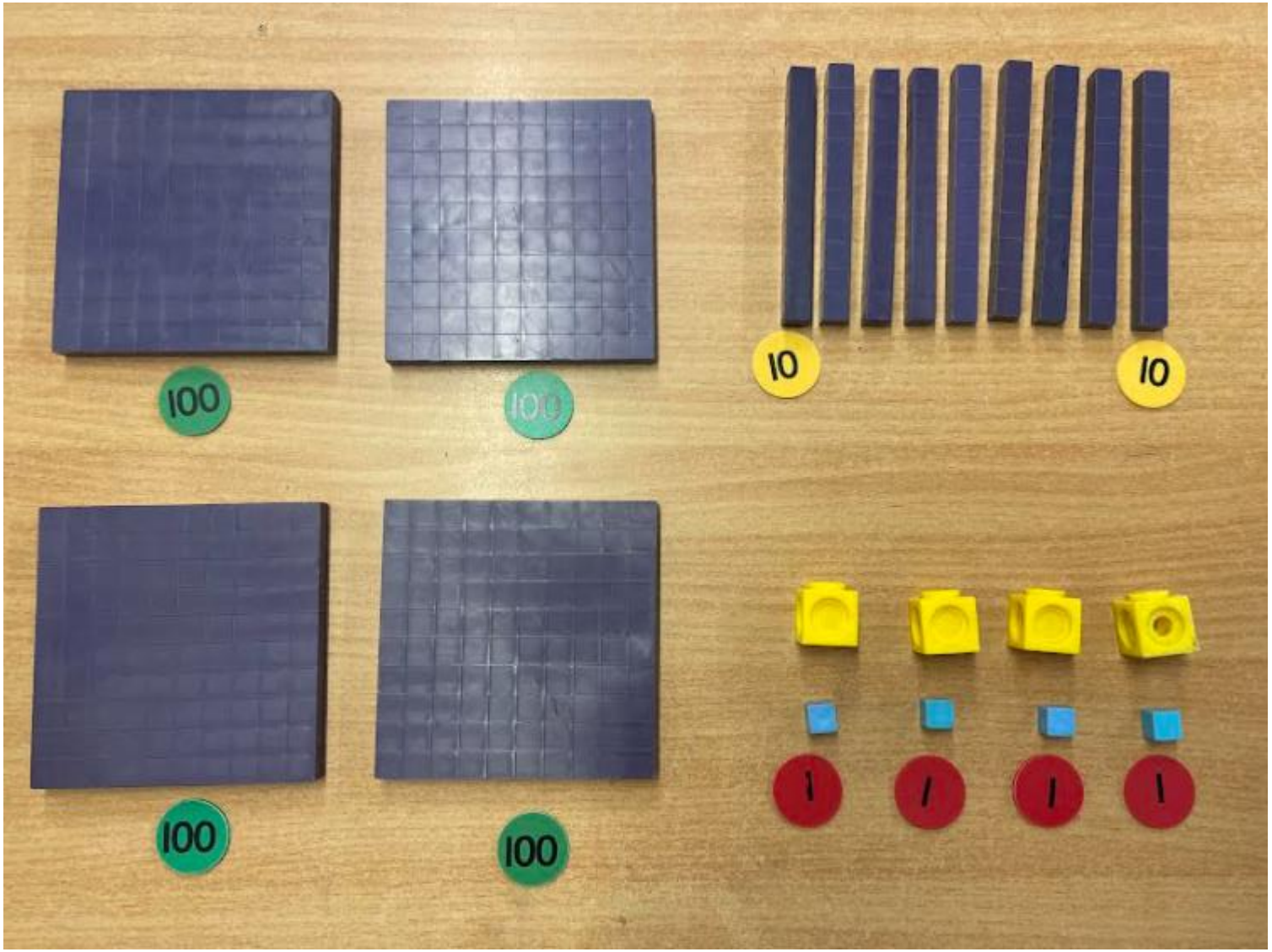
RESOURCES



YEAR 3 - LTP

Spring 2	28.3.21 Measure length (cm), measure length (m), equivalent lengths (m, cm and mm), compare lengths.	7.3.22 Compare lengths, add and subtract lengths, perimeter, measure perimeter	14.3.22 Calculate perimeter, WRM mini assessment Working with wholes and parts, recap (make equal parts)	21.3.22 Recognise a half, find a half, recognise a quarter, find a quarter, recognise a third	28.3.22 Find a third, unit/non unit fractions, equivalence of a half and 2 quarters, count in fractions	4.4.22 Consolidation Week	
Summer 1	25.4.22 Making the whole, tenths, count in tenths, fractions on a number line, fractions of a set of objects	2.5.22 Fractions of a set of objects, equivalent fractions	9.5.22 Compare, order, add and subtract fractions WRM mini assessment	16.5.22 O'clock and half past, quarter past and quarter to, months and years, hours in a day, telling the time to 5 minutes	23.5.21 Consolidation Week		
Summer 2	6.6.22 Telling the time to the minute, using AM and PM, 24 hour clock, finding the duration	13.6.22 Comparing durations, start and end times, measuring time in seconds, problem solving with time WRM mini assessment	20.6.22 Turns and angles, right angles, compare angles, draw accurately, horizontal and vertical	27.6.22 Parallel and perpendicular, recognise and describe 3D and 2D shapes, make 3D shapes, WRM mini assessment	4.7.22 Measure mass, compare mass, measure mass, compare mass	11.7.22 Add and subtract mass, measure capacity, compare volume, measure capacity	18.7.22 Compare capacity, add and subtract capacity, temperature WRM mini assessment
Mathletics	Time Five minute times 24 hour time	Time What is the time? Test	Properties of shape Right angle relation	Properties of shape What line am I?	Length, mass and volume How heavy?	Seesaw Homework	Length, mass and volume Test

TIMES TABLES

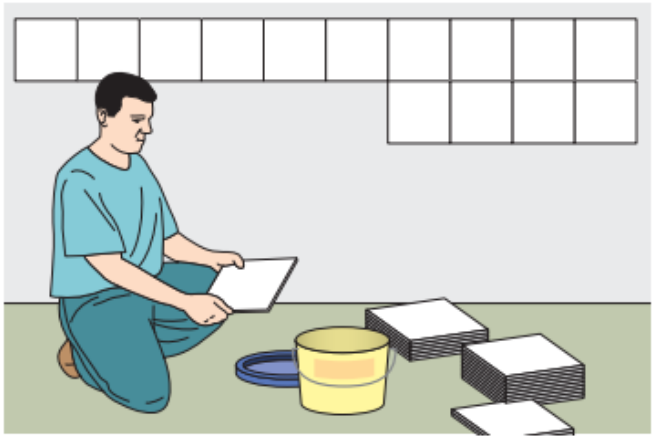
- In Year 3 we continue to practise the 2s, 5s and 10s and have introduced the 3s, 4s and 8s.

- 2019 – new times tables test for Year 4 pupils. Expected to know 12 x 12.

- It focuses on the fluent recall of multiplication facts. This is included in the national curriculum (2014) statutory programme of study for mathematics at key stage 1 (KS1) and KS2.

USING AND APPLYING

- We regularly use reasoning and problem solving questions within lessons to allow children to apply their understanding of the four operations. Children are encouraged to explain and prove their understanding verbally and their beginning to record their thought processes.



Roger is laying tiles.

He has 84 tiles altogether.

How many complete rows of tiles can he make?

HOME HELP

- Technology (Mathletics, Maths Frame, Top Marks)
- Times tables – Hit The Button, TT Rockstars
- Time
- Money
- Number bonds – to 10, 20, 100

IMPORTANCE OF READING

- Real life problems involve being able to read.
- Trend of poor readers = poor mathematicians.

The following problems can be solved by using the calculation 8 ÷ 2. True or false?

- There are 2 bags of bread rolls that have 8 rolls in each bag. How many rolls are there altogether?
- A boat holds 2 people. How many boats are needed for 8 people?
- I have 8 pencils and give 2 pencils to each person. How many people receive pencils?
- I have 8 pencils and give 2 away. How many do I have left?

ADDITION

Year 3 Addition

Steps to success

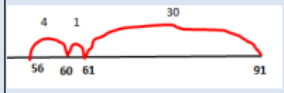
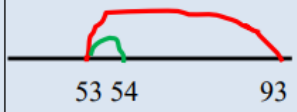
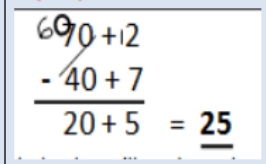
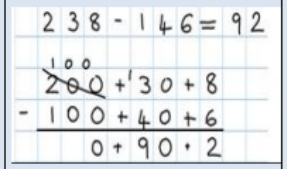
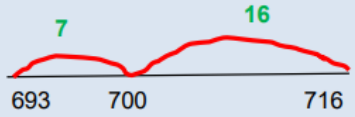
Year 3	Introduce the **expanded column addition** method	**Special cases**	**Partitioning**	**Addition of three digit + 2 digit numbers and 3-digit + 3 digit**	Addition of numbers with decimal places
Add and subtract numbers mentally, including: -a three-digit number and ones -a three-digit number and tens -a three-digit number and hundreds Two 2-digit numbers across 100 (non-statutory guidance) Add and subtract numbers with up to three digits, using formal written methods of column addition and subtraction	**Partitioning** the numbers for TU + TU across 100. Adding the units in preparation for the compact method **55 + 78** 8 + 5 = 13 70 + 50 = 120 133	**66 + 79** 80 +66 – 1 = 145 **Using doubles** **76 + 78** Double 70 + double 6 + 2 Double 70 + double 8 – 2 Recall of facts to 20 and by adding multiples of 10 will support this thinking	Adding ones and tens to a 3digit number **356 + 8** 356 + 4 + 4 = 364 **356 + 70** 350 + 70 + 6 = 420 **356 + 600** 600 + 300 + 56 = 956	268 79 17 130 200 347 268 179 17 130 300 447 Children need to understand the value of the digits without recording the partition. Pupils need to be able to add in columns. Children may begin to use compact column addition with carrying.	**1.5 + 1.5** Double 1 and double 0.5 **1.6 + 1.7** 1.7 + 0.3 + 1.3 = 3.3

There are 429 children waiting to watch a show. 269 people arrive late. How many people are now at the show?

SUBTRACTION

Year 3 Subtraction

Steps to success

Year 3	Partitioning	TU – TU	Expanded column subtraction	Exchanging method	Difference
Add and subtract numbers mentally, including: a three-digit number and ones a three-digit number and tens a three-digit number and hundreds Two 2-digit numbers across 100 (non-statutory guidance) Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	Subtracting ones and tens from a 3digit number 567 – 60 = 507 745 – 700 = 45 832 – 2 = 830 **364 – 8** 364 – 4 – 4 = 356 **356 – 70** 356 – 50 – 20 = 286 **956 – 600** 956 – 600 = 356	**By counting back in tens and ones** **91 – 35** **91 – 30 – 1 – 4**  **Special cases** 93 – 39 as 93 – 40 + 1  	**89 – 35 = 54** 80 + 9 - 30 + 5 50 + 4 Introduce this method with examples where **no exchanging** is required. When learning to 'exchange', explore 'partitioning in different ways' so that pupils understand that when you exchange, the **VALUE** is the same ie **72** = 70+2 = 60+12 = 50+22 etc. Emphasise that the **value hasn't changed**, we have just partitioned it in a different way. **£5.67 – £2.20** £5.67 – £2.00 = £3.67 £3.67 – 20p = £3.47	introduce 'exchanging' through practical subtraction. Make the larger number with Base 10, then subtract 47 from it.   	(see also subtraction up to three digits) **103 – 87 = 16** When numbers are close together, count on from the smallest number through the multiple of ten or count back from the largest to the smallest through the multiple of ten.  **716 – 693= 23** 

Everton are playing a football match. There are 573 people watching. They are losing 5-1 at half time, so 229 people leave! How many are left supporting Everton?

MULTIPLICATION

Year 3 Multiplication

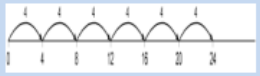
Steps to success

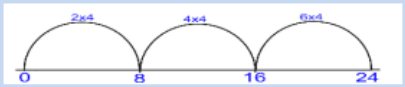
Year 3

Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods

Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables

Multiply single digits by 20,30,40,50 and 80





4 × 6 = 24

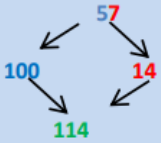
Use arrays and number lines to count in multiples

Using partitioning to multiply

57 × 2 = 114

50 × 2 7 × 2

100 + 14 = 114



48 × 3 = 144

(Partitioning using the grid method)

Eg. 23 × 8 = 184

X	20	3
8	160	24

160
+ 24
184

To do this, children must be able to:

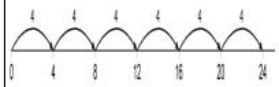
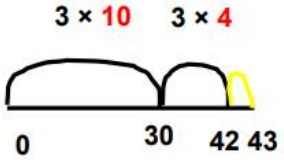
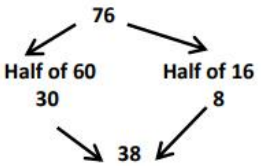
- Partition numbers into tens and ones
- Multiply multiples of ten by a single digit (e.g. 20 x 4) using their knowledge of multiplication facts and place value
- Recall and work out multiplication facts in the **2, 3, 4, 5, 8 and 10** times tables.
- Work out multiplication facts not known by repeated addition or other taught mental strategies (e.g. by commutative law, working out near multiples and adjusting, using doubling etc.)

In Poulton Lancelyn, there are 5 classes of 32 children. How many are there altogether?

DIVISION

Year 3 Division

Steps to success

Year 3 Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers divided one-digit numbers, using mental and progressing to formal written methods	Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables Use facts for numbers up to 10 times the divisor Eg 28 ÷ 3 This is between 27 ÷ 3 = 9 and 30 ÷ 3 = 10 So 9 remainder 1	**Counting** Relate division to counting and multiplication facts. Count in 4s to see that there are 6 4s in 24  Arrays show 6 groups of 4 so 24 ÷ 4 = 6 	**Division as grouping** 43 ÷ 3 Grouping on a number line: 13 ÷ 3 = 4 r 1   **Children continue to work out unknown division facts by grouping on a number line from zero.** They are also now taught the concept of **remainders,** as in the example. This should be introduced practically and with arrays, as well as being translated to a number line. Children should work towards calculating some basic division facts with remainders mentally for the 2s, 3s, 4s, 5s, 8s and 10s, ready for 'carrying' remainders across within the short division method.	**Halving by partitioning** 

There are 51 children and I need to put them into 3 groups. How many children would be in each group?

ACTIVITIES

- Board games involving addition and subtraction
- Word problems and concrete resources
- Number bond snap
- Ipad – website games
- Addition and subtraction using number lines
- Part-whole models