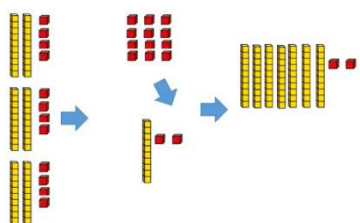
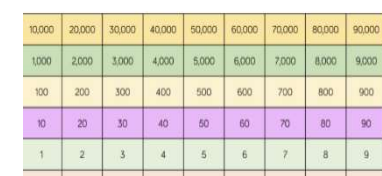
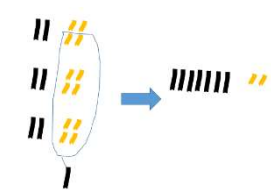
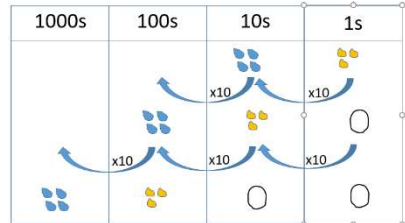
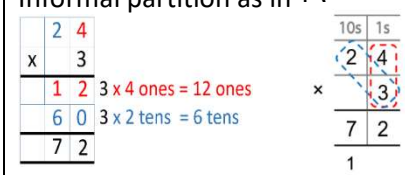
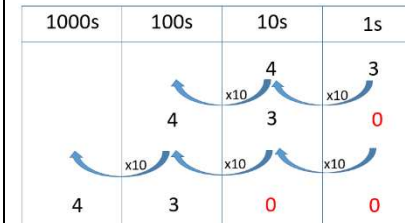


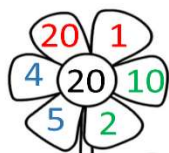
Primary Calculation Policy

Year 4 Multiplication

	Mental Strategies	Concrete	Pictorial	Abstract	Vocabulary	Models, Images and resources
Year 4	Recall and practise multiplication facts for tables up to 12×12 to aid fluency. Use place value, known and derived facts to multiply mentally, including multiplying by 0 and 1 TO by 4 or 8, eg. 26×4 by doubling three numbers together two digit by a unit eg. 17×3 numbers to 1000 by 10 and 100 (whole-number answers) eg. 325×10, 42×100 Extend mental methods to HTO to derive facts e.g. $200 \times 3 = 600$ into $600 \div 3 = 200$	<u>Consolidate 3, 4, 8 times table</u> See Y3 guidance - same principle <u>Learn the remaining tables to x 12</u> See Y3 guidance - same principle <u>Multiply 2 digit by one digit</u> 24×3 – Use Dienes or counters  <u>Make connections x10 x 100</u> 4×3, 4×30, 4×300 – use counters  Also use the Gattegno Chart to help 	<u>Consolidate 3, 4, 8 times table</u> See Y3 guidance - same principle <u>Learn the remaining tables to x 12</u> See Y3 guidance - same principle <u>Multiply 2 digit by one digit</u> 24×3 – Draw it  <u>Make connections x10 x 100</u> The counters can be drawn also 	<u>Consolidate 3, 4, 8 times table</u> See Y3 guidance - same principle <u>Learn the remaining tables to x 12</u> See Y3 guidance - same principle <u>Multiply 2 digit by one digit</u> Informal partition as in $\sqrt{2}$  Formal short multiplication <u>Make connections x10 x 100</u> $43 \times 100 = 43 \times 10 \times 10$ Use Place Value charts 	Lots of Groups of Times Repeated addition Double Sets Groups, Pairs Array symbol x times as big ...as wide ...as long factor product multiple	100 square Number lines Number tracks Bead strings (for children) Bead bar Tens Frame Numicon Place Value Disks Cuisenaire Base hundreds tens and ones Arrow Cards Gattegno chart Place Value Grid

Recognise and use factor pairs e.g. give the factor pair associated with a multiplication fact, (if $2 \times 3 = 6$ then 6 has the factor pair 2 and 3)

Factor flower for 20



Know the vocabulary below:
Factor multiplied by factor equals product

factor product
 $6 \times 4 = 24$
factor

factor times factor is equal to product
 $22 \times 7 = 154$

Use divisibility tests to identify multiples of 2, 4, 10 and 5

Useful IWB links for manipulatives

Multiply using partitioning

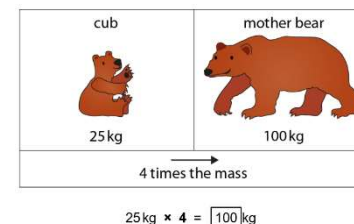
Develop fluency in efficient written method of short multiplication

Write statements using the distributive law $39 \times 7 = 30 \times 7 + 9 \times 7$ and associative law $(2 \times 3) \times 4 = 2 \times (3 \times 4)$

Solve two step problems with increasingly harder numbers and in which n objects are connected to m objects eg. finding all possibilities '6 hats and 5 coats, how many different outfits?'

The wardrobe is 3 times the width of the cabinet. How wide is the wardrobe?

$40 \text{ cm} \times 3 = 120 \text{ cm}$



Understand multiplication as scaling, not just repeated addition.

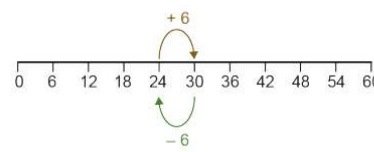
E.g. "23, made 100 times the size, is 2,300."

Then they can solve simple equations

$\square \times 100 = 600$ $1,500 = \square \times 10$
 $\square \div 100 = 8$ $1,200 = \square \div 10$

Understand that adjacent multiples of a times table have a difference of the multiplication table.

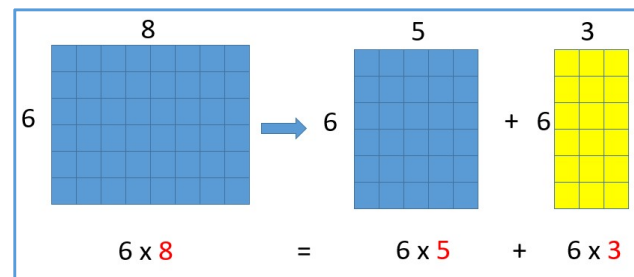
E.g. adjacent multiples of 6, have a difference of 6.



x	1	2	3	4	5	6
1	6	12	18	24	30	36
2	12	24	36	48	60	72
3	18	36	54	72	90	108
4	24	48	72	96	120	144
5	30	60	90	120	150	180

Understand the distributive law. Where a factor can be partitioned and multiplied out.

$a \times (b + c) = a \times b + a \times c$ and $a \times (b - c) = a \times b - a \times c$



ten times the size

hundred times the size

a tenth the size

a hundredth the size

scaling

adjacent multiples

<https://www.coolmath4kids.com/manipulatives/base-ten-blocks>

<https://mathsbot.com/manipulatives/placeValueCounters>

<https://mathsbot.com/manipulatives/bar>

<https://classroomsecrets.co.uk/free-year-1-part-whole-model-iwb-addition-and-subtraction-activity/>

<https://www.nctm.org/Classroom-Resources/Illuminations/Interactives/Ten-Frame/>

<http://www.ictgames.com/mobilePage/tenFrame/index.html>