Calculation Policy

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National Curriculum Aims:

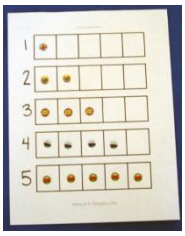
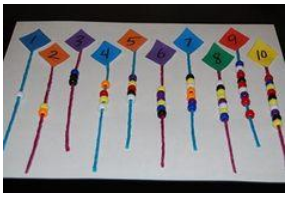
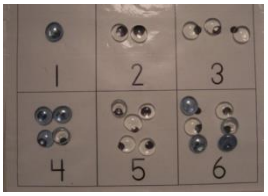
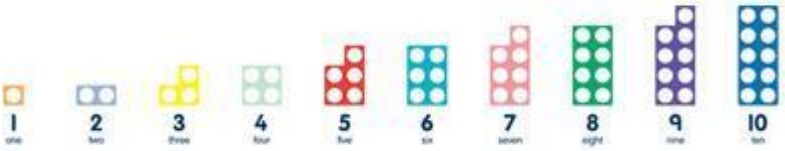
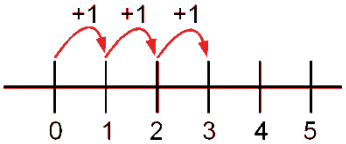
The national curriculum for mathematics aims to ensure that all pupils:

* 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.

New Mathematics Calculation Policy: Early Years Foundation Stage

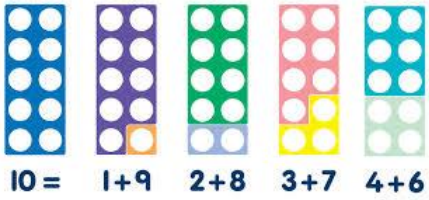
Maths Number	Maths Number
30-50 Months: *Use some number names and number language spontaneously. *Recites numbers in order to 10. * Knows that numbers identify how many objects are in a set. *Beginning to represent numbers using fingers, marks on paper or pictures. * Sometimes matches numeral and quantity correctly. * Shows curiosity about numbers by offering comments or asking questions. * Compares two groups of objects, saying when they have the same number. * Shows an interest in number problem. *Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same. * Shows an interest in numerals in the environment. *Shows an interest in representing numbers. *Realises not only objects, but anything can be counted, including steps, claps, jumps. **40-60 Months:** *Recognise some numerals of personal significance. *Recognises numerals 1-5. * Counts up to three or four objects by saying one number name after them. *Counts actions or objects which cannot be moved. *Counts objects to 10 and beginning to count beyond 10. *Counts out up to six objects from a larger group. *Selects the correct numeral to represent 1 to 5, then 1 to 10 objects. * Counts an irregular arrangement of up to 10 objects. *Estimates how many objects they can see and checks by counting them. * Uses the language of 'more' or 'fewer' to compare two sets of objects. *Finds the total number of items in two groups by counting all of them. *Says the number that is one more than a given number. *Finds one more or one less from a group of up to five objects and then ten objects. *In practical activities and discussion, begin to use	**Counting and Place Value: 1:1 Correspondence**     **Teens Numbers: 10s and units:** 13 = 10 + 3 14 = 10 + 4 15 = 10 + 5  **Ordinal Numbers:**  **Addition: Addition with physical objects, moving to Numberline – one MORE.**  

the vocabulary involved in adding and subtracting.
*Records, using marks they can interpret and explain.
*Begins to identify own mathematical problems based on own interests and fascinations.

Early Learning Goals:
Children count reliably with numbers from one to 20, place them in order and say which number in one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.

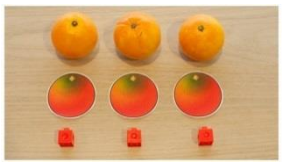
Numberbonds to 10, including Missing Number calculations.

10 = 9 + ? 8 + ? = 10

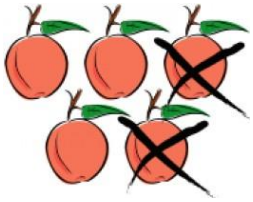


Subtraction: Take away with physical objects, scoring and counting back.

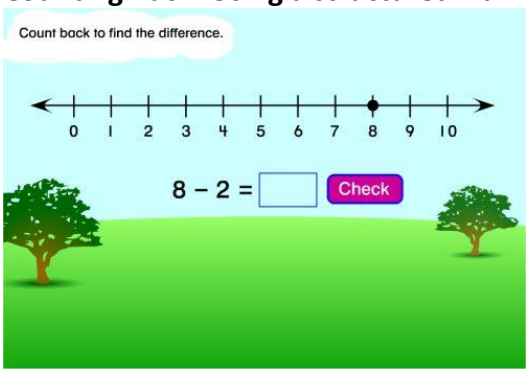
Using Physical Objects:
3 – 2 =



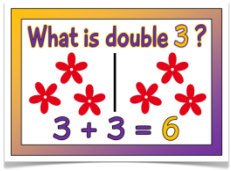
Scoring:
5-2 =

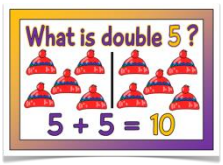


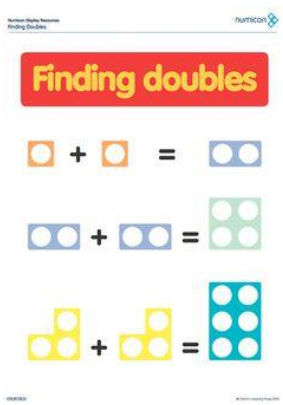
Counting Back: Using a structured Numberline – One LESS



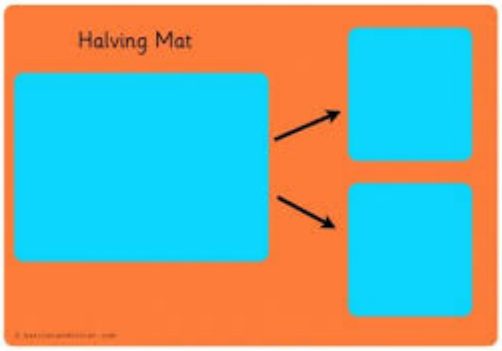
Multiplication: Doubling: Same amount again.



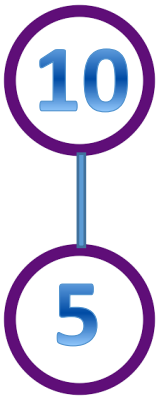




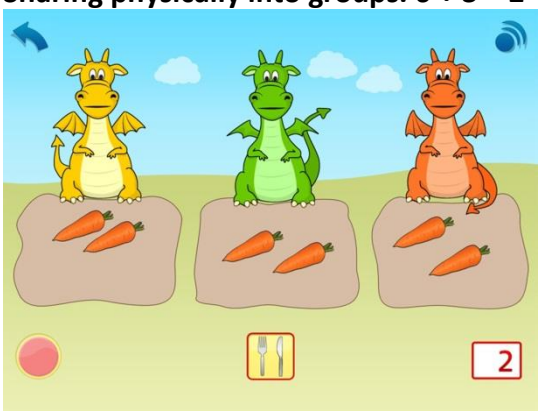
Division and Fractions: Halving and sharing.
Halving as TWO EQUAL groups.



Halving: Bubble Method:

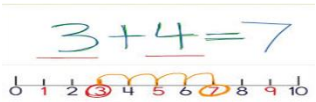
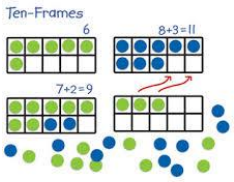
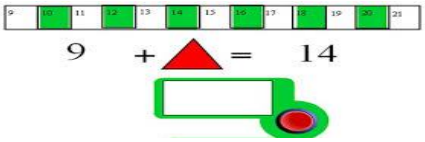
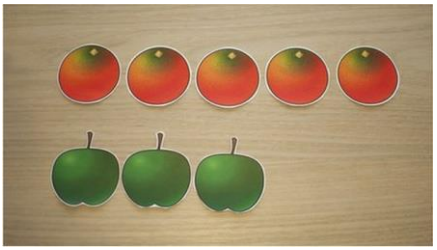


Sharing physically into groups. 6 ÷ 3 = 2

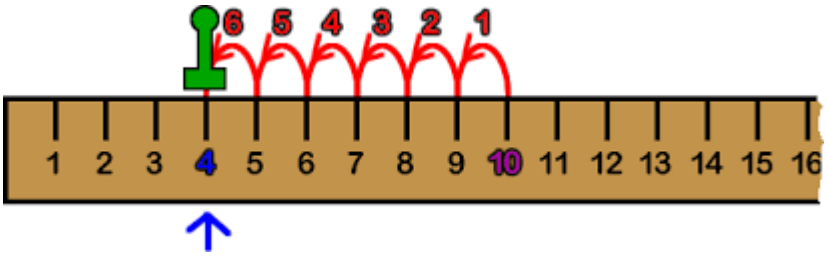
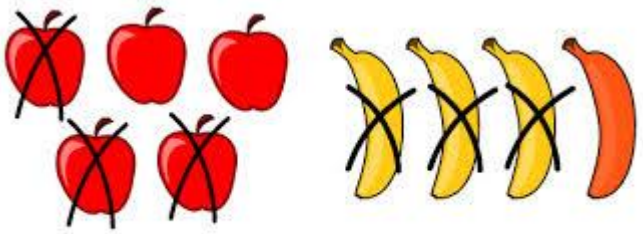
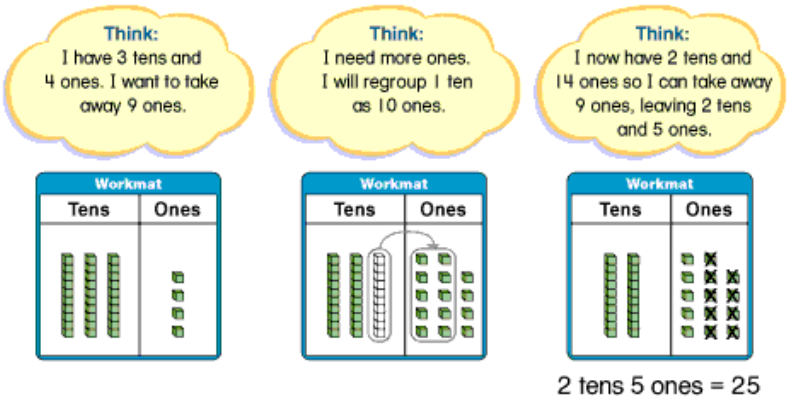


Problem Solving:

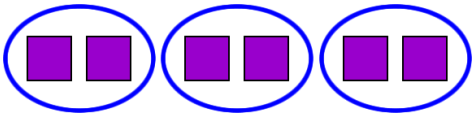
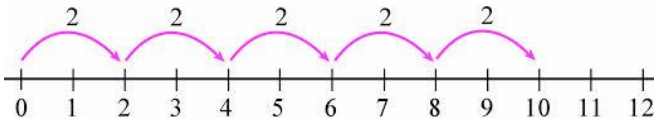
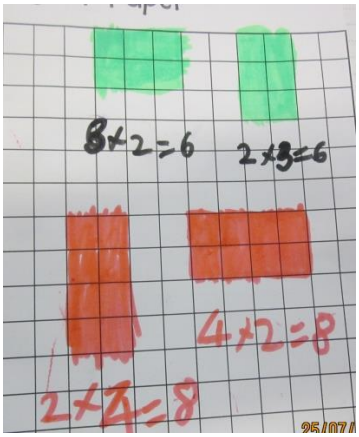
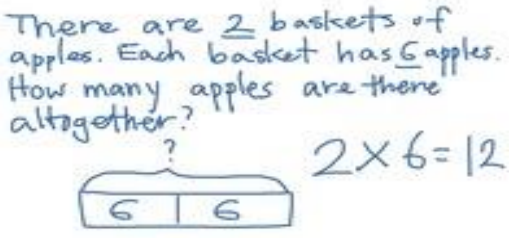
3 bears are going for a picnic. How many plates do they need? How many pieces of cutlery will they need? If they each have 2 sandwiches, how many sandwiches do they need to make? If I buy 9 biscuits and share them equally, how many biscuits do the bears end up with?

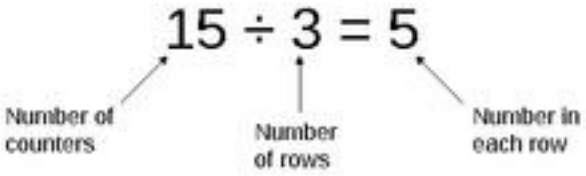
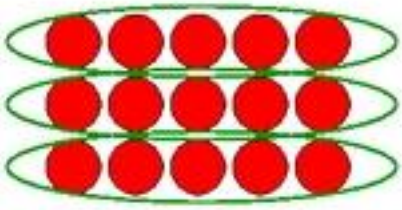
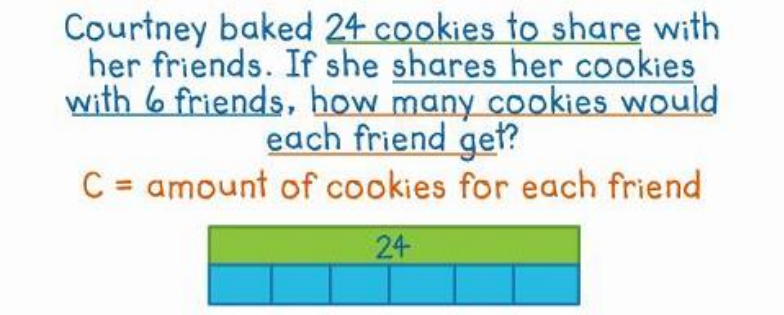
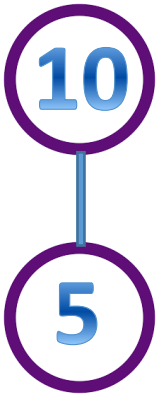
New Mathematics Calculation Policy: Year 1	
Addition	**Addition**
Pupils should be taught to: * read, write and interpret mathematical statements involving addition (+) and equals (=) signs * represent and use number bonds within 20 and number bonds to 100, 10+90, 20+80. * add one-digit and two-digit numbers to 20, including zero * solve one-step problems that involve addition using concrete objects and pictorial representations, and missing number problems such as 7 = 4 + ? * Problems should include the terms: put together, add, altogether, total, more than, so that pupils develop the concept of addition and are enabled to use these operations flexibly.	**Numberlines: Knowing addition can be done in any order.**  **Ten Frames, for crossing 10s boundary.**  **Missing number calculations:**  **Number bonds to 20 and 100:** Using knowledge of Number bonds to 10.   **Bar Model: Problem Solving:**  **Use of physical objects + pictures. Problem; I have 5 oranges and 3 apples. (Line them up in a line) How many pieces of fruit have I got altogether?**

New Mathematics Calculation Policy: Year 1

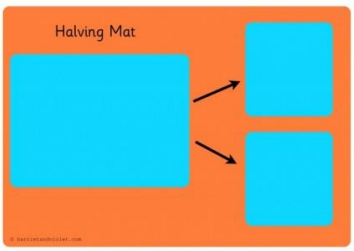
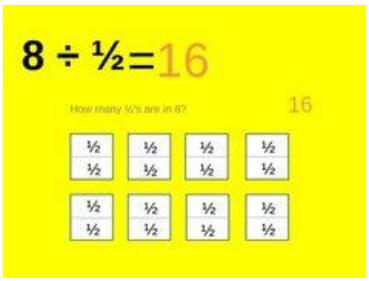
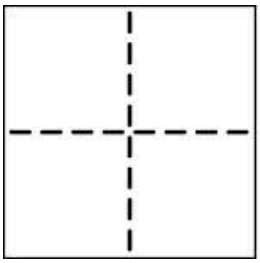
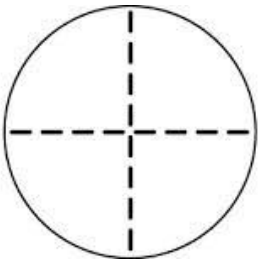
Subtraction	Subtraction
Pupils should be taught to: * read, write and interpret mathematical statements involving subtraction (–) and equals (=) signs * represent and use number bonds and related subtraction facts within 20 and number bonds to 100, 100-90, 100-80. * subtract one-digit and two-digit numbers to 20, including zero eg: 18 - 9 * solve one-step problems that involve subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ? – 9. * They discuss and solve problems in familiar practical contexts, including using quantities. Problems should include the terms: take away, distance between, and less than, so that pupils develop the concept of subtraction and are enabled to use this operation flexibly.	**Numberlines: Concept of subtraction resulting in less. 10-6=4**  **Subtraction using concrete objects:**  5 - 3 = 2 3 - 4 = -1 **Difference + Bar model Problem Solving:**  Problem; I have 9 apples I eat and 6 apples. (Line them up in a line) How many pieces of fruit have I got left? **Subtraction using base-ten equipment:** **34 – 9 =**  2 tens 5 ones = 25

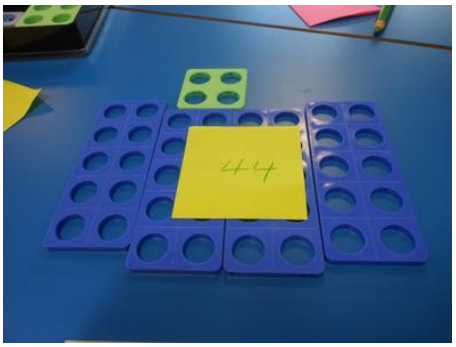
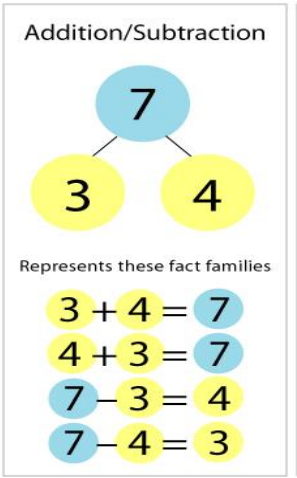
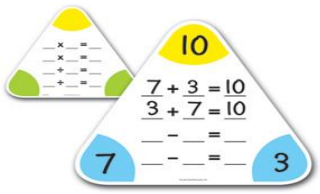
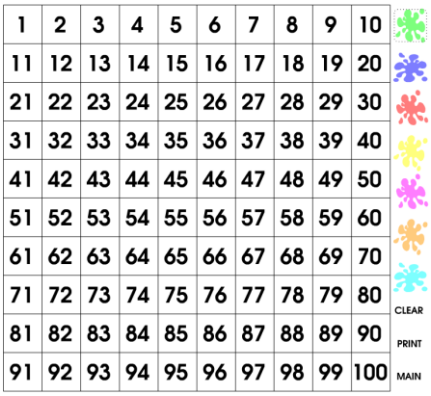
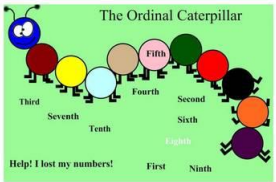
New Mathematics Calculation Policy: Year 1

Multiplication	Multiplication
Pupils should be taught to: * count in multiples of twos, fives and tens * double and halve numbers to 20 e.g. double 3 is 6, half of 10 is 5 * They make connections between arrays and number patterns * solve simple one-step problems involving multiplication calculating the answer using concrete objects, pictorial representations and arrays e.g. 8 children have 2 sweets each, how many in total?	**Multiplication**: 2x3 = 2+2+2 = 6  **Multiplication on Numberlines:**  **Arrays:** **6 x 3 = 18 (across first)**  **3 x 6 = 18 (across first)**   **Bar Model: Multiplication:** 

New Mathematics Calculation Policy: Year 1	
Division	**Division**
Pupils should be taught to: * solve one-step problems involving division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher. * double and halve numbers to 20 e.g. double 8 is 16, half of 20 is 10 * They make connections between arrays, number patterns, and counting backwards in twos, fives and tens.	**Division by sharing:**  **Division using Arrays:**   **Bar Model: Division:**  **Halving: Bubble Method:** 

New Mathematics Calculation Policy: Year 1

Fractions	Fractions
Pupils should be taught to: * recognise, find and name a half as one of two equal parts of an object, shape or quantity * recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	**Halving and quartering: Bubble Method:**  **Halving Mat: For use with concrete objects:**   **Quartering: Use of circles/squares + quantities:**  

New Mathematics Calculation Policy: Year 1	
Number and Place Value: Oral and Mental Starters + Counting sessions.	**Number and Place Value: Oral and Mental Starters + Counting sessions.**
Pupils should be taught to: *count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number * count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens * given a number, identify one more and one less * identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least * read and write numbers from 1 to 20 in numerals and words. * practise counting (1, 2, 3…), ordering (for example, first, second, third…), and to indicate a quantity (for example, 3 apples, 2 centimetres), including solving simple concrete problems, until they are fluent. *recognise place value in numbers beyond 20 by reading, writing, counting and comparing numbers up to 100, supported by objects and pictorial representations. *practise counting in twos, fives and tens from different multiples to develop their recognition of patterns in the number system	**Place Value: Representing Numbers pictorially using dienes, place value counters, Numicon.**  **Partitioning Numbers in different ways:**   **Counting:**  **Ordinal Numbers:** 

New Mathematics Calculation Policy: Year 2

Addition	Addition

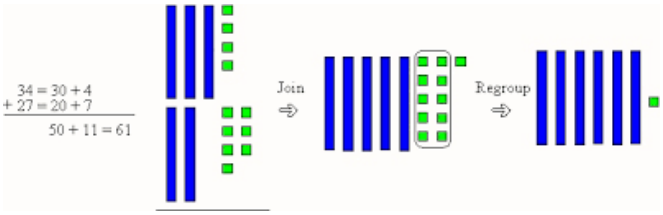
Pupils should be taught to:

* solve problems with addition using concrete objects and pictorial representations, including those involving numbers, quantities and measures
* apply their increasing knowledge of mental and written methods
* recall and use addition facts to 20 fluently, and derive and use related facts up to 100
* add numbers using concrete objects, pictorial representations, and mentally, including:
 a two-digit number and ones
 a two-digit number and tens
 two two-digit numbers
 adding three one-digit numbers e.g. 6 + 7 + 4
* show that addition of two numbers can be done in any order (commutative)
* recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

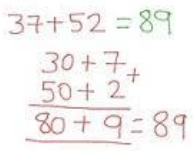
* Pupils extend their understanding of the language of addition to include: sum

* Record addition in expanded columns supports place value and prepares for formal written methods with larger numbers

Addition with Base-Ten + Regrouping:

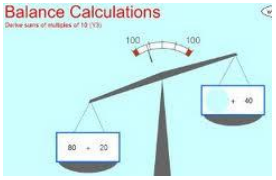


Expanded Columns:



Equals signs and missing numbers :

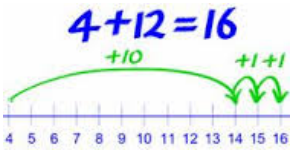
14 + 5 = 10 + □

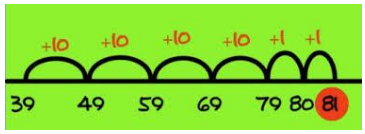


Adding three numbers :

32 + □ + □ = 100 35 = 1 + □ + 5

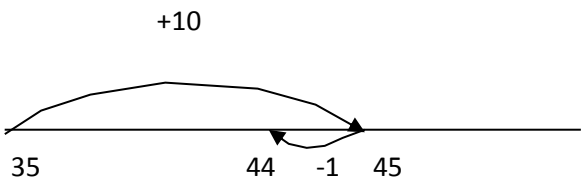
Numberlines:



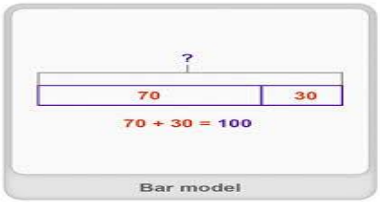


Add 9 or 11 by adding 10 and adjusting by I

35 + 9 = 44



Bar Model: Problem Solving: 70 children attend a Dance workshop from Brandon and 30 from Thetford. How many children attend altogether?



New Mathematics Calculation Policy: Year 2

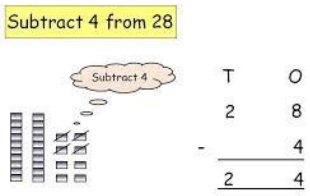
Subtraction

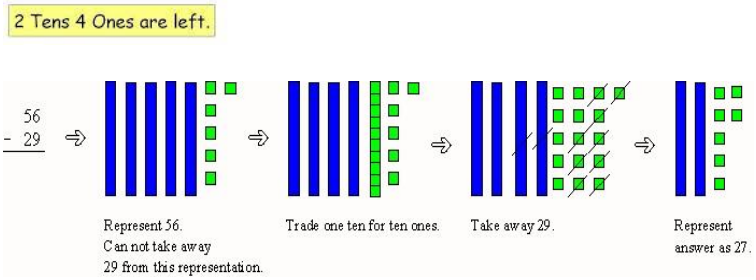
Pupils should be taught to:

* solve problems with subtraction: using concrete objects and pictorial representations, including those involving numbers, quantities and measures
* applying their increasing knowledge of mental and written methods
* recall and use subtraction facts to 20 fluently, and derive and use related facts up to 100
* subtract numbers using concrete objects, pictorial representations, and mentally, including:
 a two-digit number and ones
 a two-digit number and tens 87 – 30 = 57
 two two-digit numbers
 subtracting three one-digit numbers
* Understanding subtraction of one number from another cannot be done in any order.
* recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.
* Pupils extend their understanding of the language of subtraction to include sum and difference
* Record subtraction in expanded columns supports place value and prepares for formal written methods with larger numbers

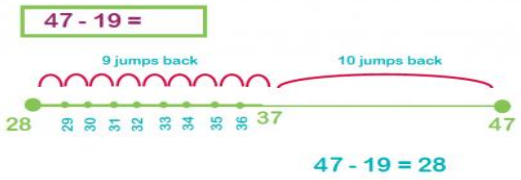
Subtraction

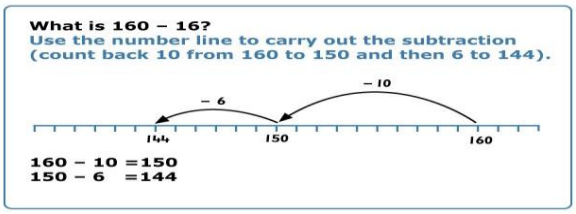
Subtraction with Base-Ten + Regrouping:



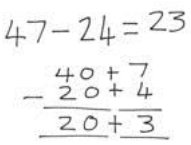


Numberlines: Concept of subtraction resulting in less:



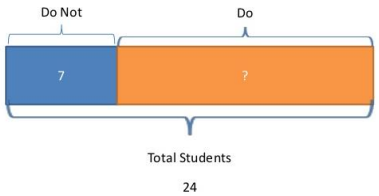


Subtraction: Expanded column: (Without regrouping)



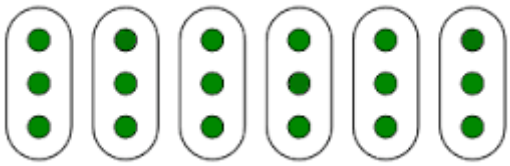
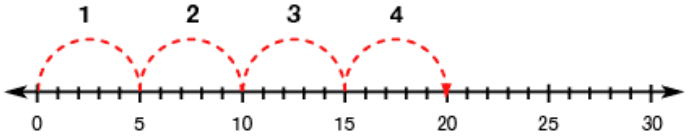
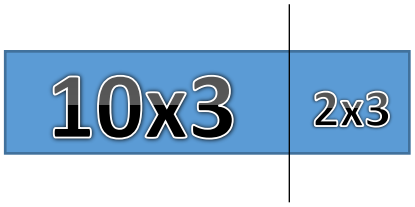
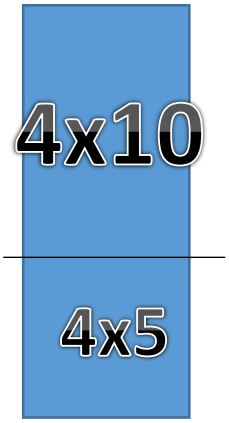
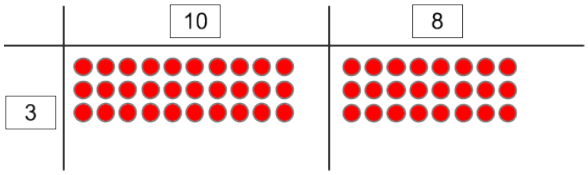
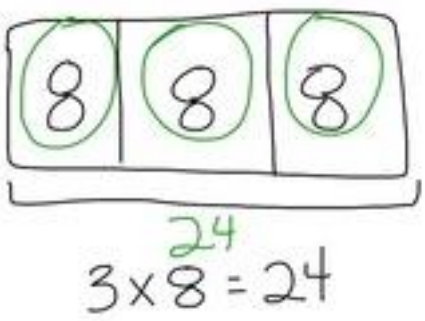
Difference + Bar model Problem Solving:

There are 24 students in the class. 7 students do not bring in their homework! How many students bring it in?

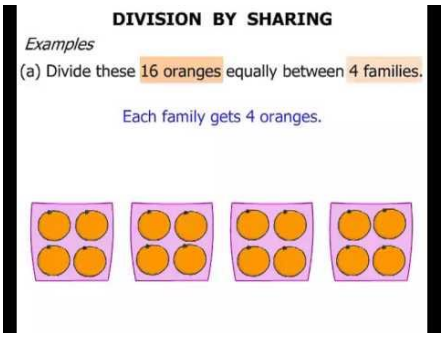
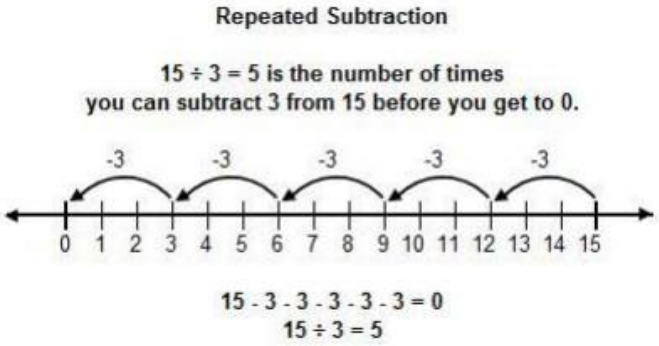
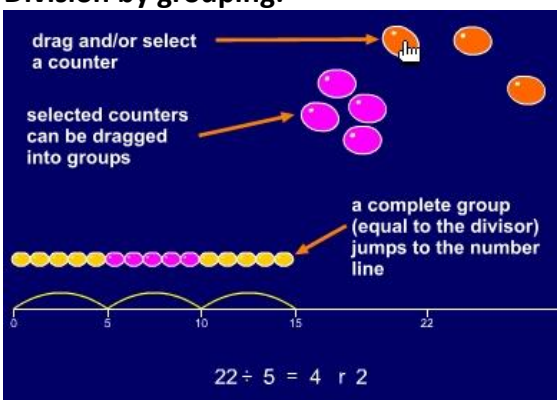


So..

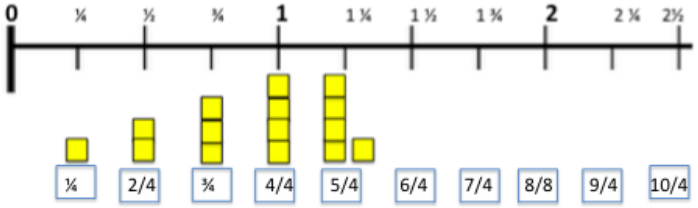
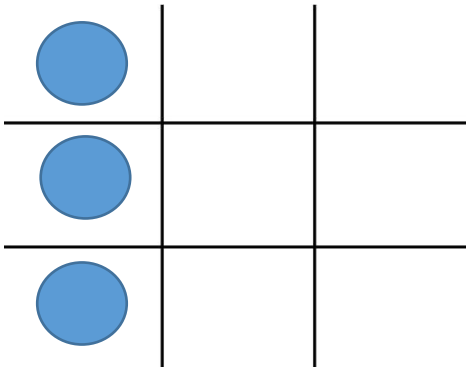
New Mathematics Calculation Policy: Year 2

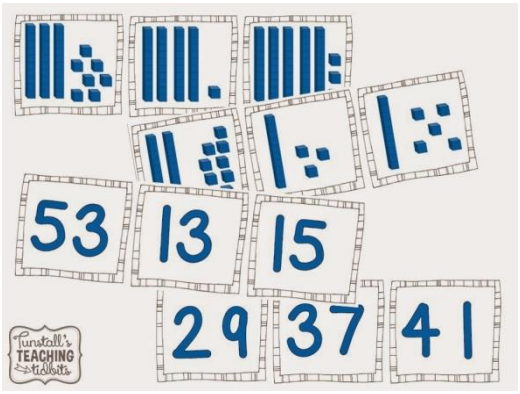
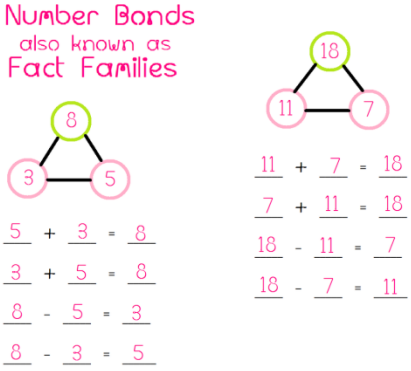
Multiplication	Multiplication
Pupils should be taught to: * count in multiples of twos, threes, fives and tens + recite these multiplication tables. * calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication (×) and equals (=) signs * show that multiplication of two numbers can be done in any order (commutative) e.g 3x4 = 4x3 * solve problems involving multiplication and using materials, arrays, repeated addition, mental methods, and multiplication facts, including problems in contexts. E.g. I have 3 bags of apples. Each bag contains 8 apples, how many apples altogether?	**Multiplication**: 3x6 = 3+3+3+3+3+3 = 18  **Multiplication on Numberlines:**  **Arrays: 12 x 3 = 36**    **Bar Model: Multiplication:** Doughnuts come in packets of 8. I buy three packets. How many doughnuts do I have? 

New Mathematics Calculation Policy: Year 2

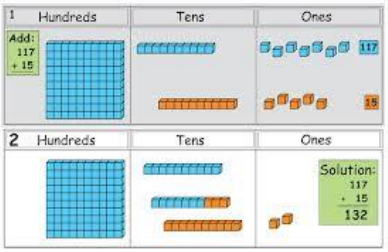
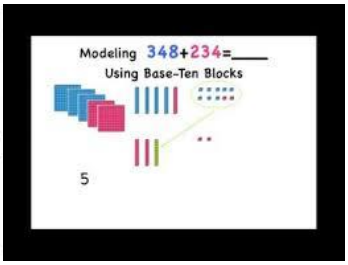
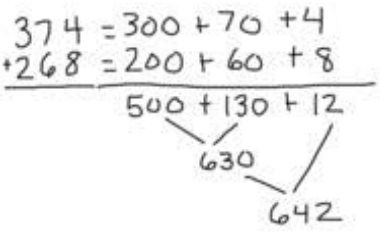
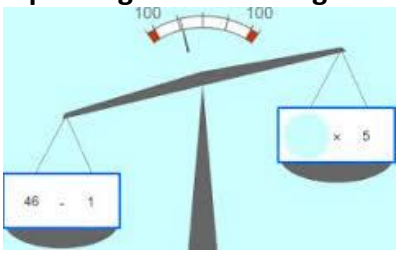
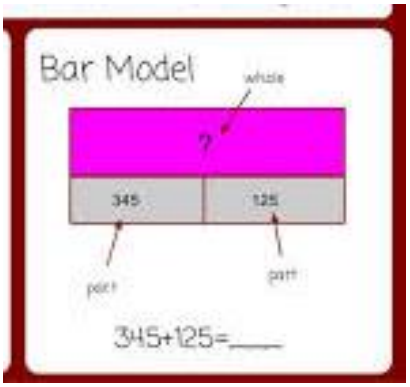
Division	Division
Pupils should be taught to: * recall and use division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers * calculate division statements and write them using the division (÷) and equals (=) signs * show that division of one number by another is NOT commutative. * solve problems involving division, using materials, arrays, repeated subtraction mental methods, and division facts, including problems in contexts * Pupils work with a range of materials and contexts in which division relates to grouping and sharing discrete and continuous quantities. They begin to relate these to fractions and measures (for example, 40 ÷ 2 = 20, 20 is a half of 40). * They use commutativity and inverse relations to develop multiplicative reasoning (for example, 4 × 5 = 20 and 20 ÷ 5 = 4)	**Division by sharing:**  **Division as repeated subtraction:**  **Division by grouping:**  **Bar Model: Division:** 

New Mathematics Calculation Policy: Year 2

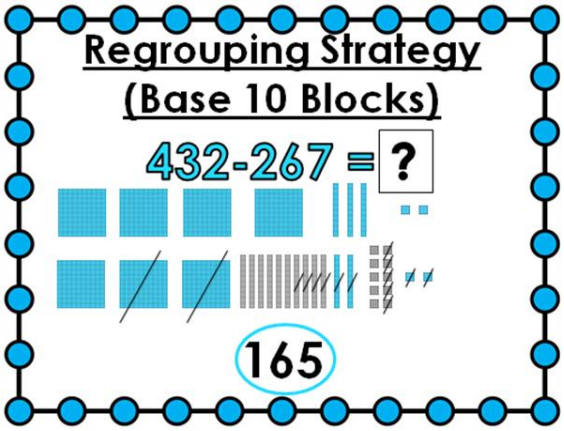
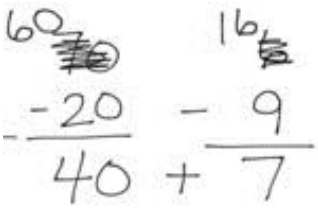
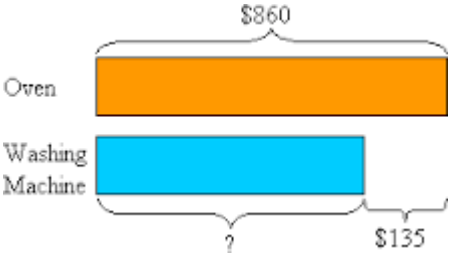
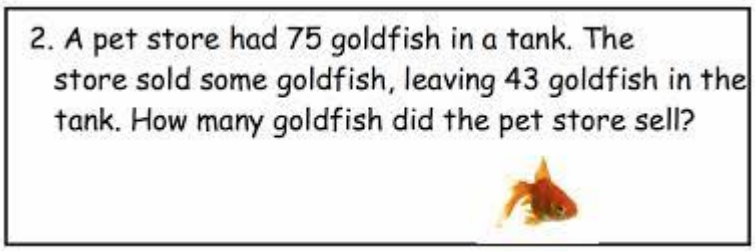
Fractions	Fractions
Pupils should be taught to: ▪ recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity ▪ write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.	**Halving and quartering: Bubble Method:**  Using the above method, which is halving and quartering, the children should then be taught to find 2/4 by looking at ¼ (in this case 5) and multiplying that by 2, giving 2/4 which would be 10. **Fractions on Numberlines:**  The importance here is recognising that 6/4 is the same as 1 and ½. **Thirds:**  Important to represent thirds as something being divided into 3 equal pieces but ALSO that it is One OUT OF every three.

New Mathematics Calculation Policy: Year 2	
Number and Place Value: Oral and Mental Starters + Counting sessions.	**Number and Place Value: Oral and Mental Starters + Counting sessions.**
Pupils should be taught to: * count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward * recognise the place value of each digit in a two-digit number (tens, ones) * identify, represent and estimate numbers using different representations, including the number line * compare and order numbers from 0 up to 100; use <, > and = signs * read and write numbers to at least 100 in numerals and in words * use place value and number facts to solve problems. * count in multiples of three to support their later understanding of a third. * partition numbers in different ways (for example, 23 = 20 + 3 and 23 = 10 + 13) to support subtraction.	**Place Value: Representing Numbers pictorially using dienes, place value counters, Numicon.**  **Partitioning of Numbers, different ways for the same number:** **23 = 20+3** **=10 + 13** **= 5+5+13** **Solving problems using Number Facts:**  **Counting in 3s:** |									
---	---	---	---	---	---	---	---	---	---
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100	 **Counting in 5s:**

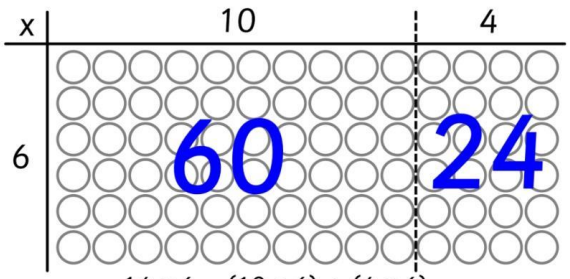
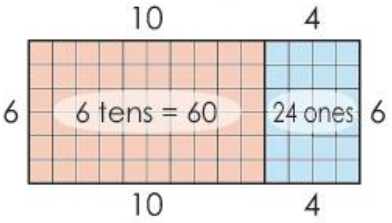
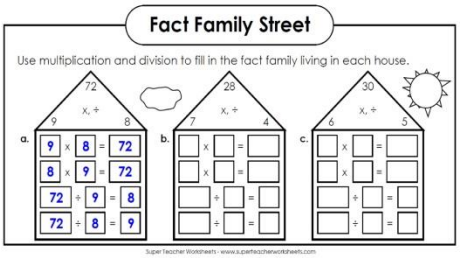
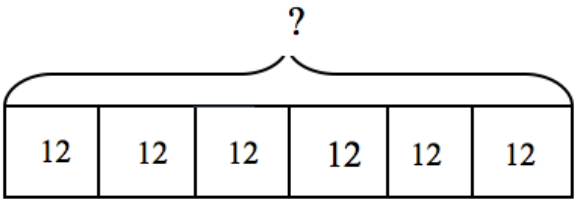
New Mathematics Calculation Policy: Year 3

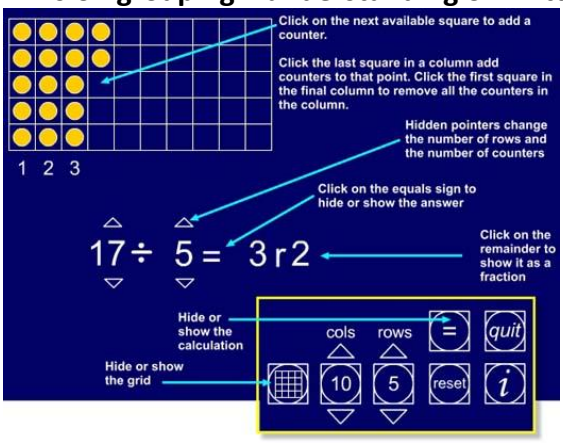
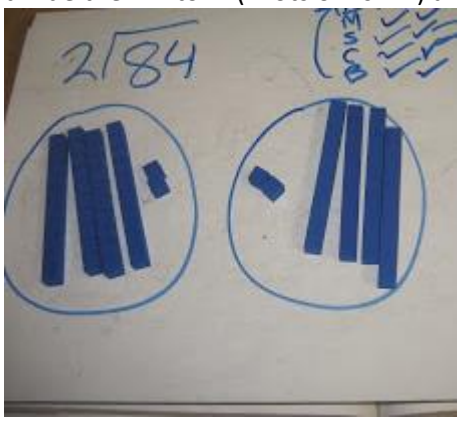
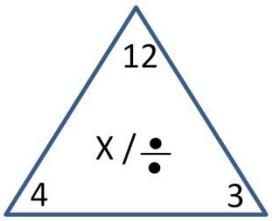
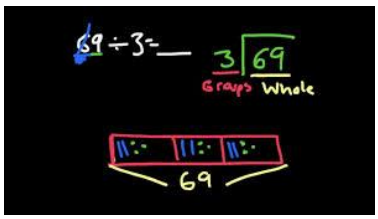
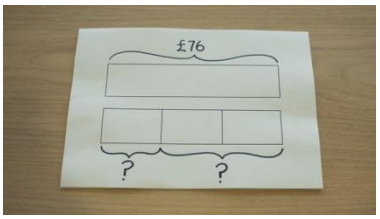
Addition	Addition
Pupils should be taught to: * add numbers mentally, including: two-digit numbers, where answers could exceed 100 e.g. 63 + 59 a three-digit number and ones a three-digit number and tens a three-digit number and hundreds * add numbers with up to three digits, using formal written methods of (expanded) columnar * estimate the answer to a calculation and use inverse operations to check answers * solve problems, including missing number problems, using number facts, place value, and more complex addition	**Addition with Base-Ten + Regrouping:**   **Expanded Columns:**  **Equals signs and missing numbers :**  **Bar Model: Problem Solving:**  345 children from Forest School attend a Sports Festival. 125 from schools in Mildenhall attend. How many people attend altogether?

New Mathematics Calculation Policy: Year 3

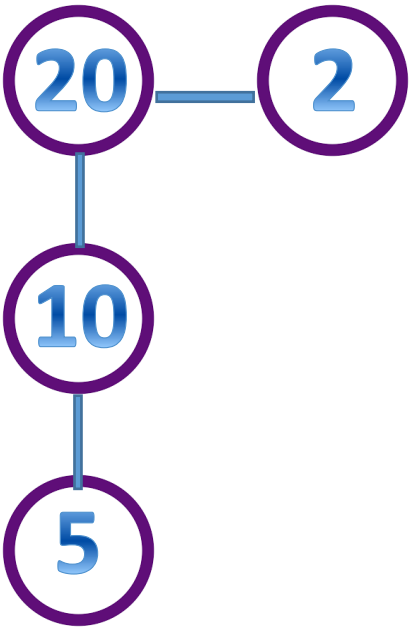
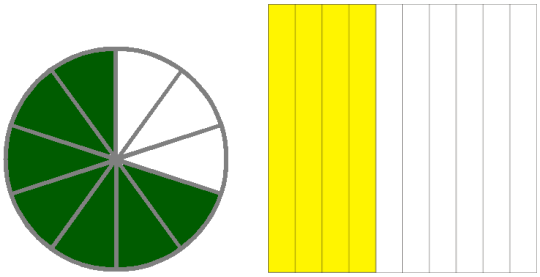
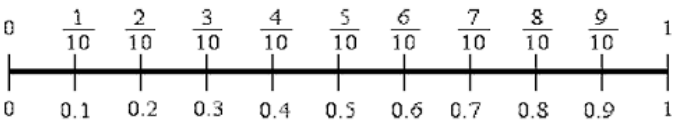
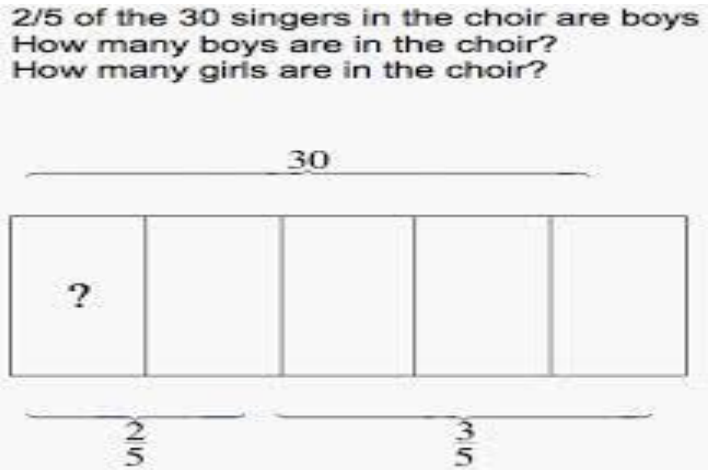
Subtraction	Subtraction
Pupils should be taught to: * subtract numbers mentally, including: a three-digit number and ones a three-digit number and tens a three-digit number and hundreds *eg. 858 - 300* * subtract numbers with up to three digits, using formal written methods of expanded columnar subtraction * estimate the answer to a calculation and use inverse operations to check answers e.g. 702 – 249 is approximately700 – 250 = 450 * solve problems, including missing number problems, using number facts, place value, and more complex and subtraction.	**Subtraction with Base-Ten + Regrouping:** Loads of regrouping practice needed.  **Subtraction: Expanded column: (With regrouping)** 76-29 = (Have children do this practically with counters and dienes materials) This is how they would record to give an answer of 47.  **Difference + Bar model Problem Solving:**  An oven cost £860 pounds. The washing machine was £135 pounds less. How much was the washing machine? **Missing Number and inversion Problems:**  75-? = 43 solved by 75-43 = 32

New Mathematics Calculation Policy: Year 3

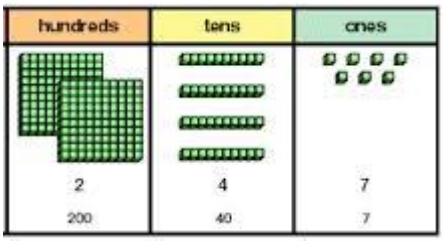
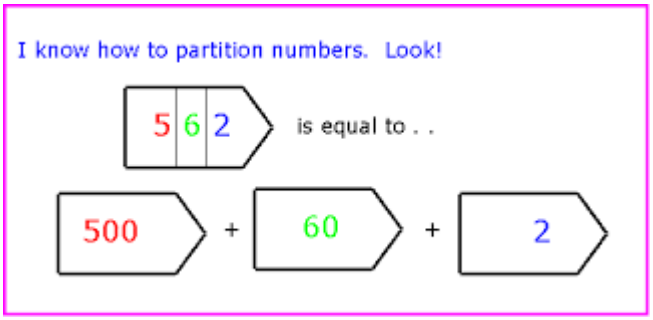
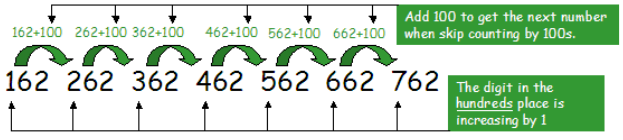
Multiplication	Multiplication
Pupils should be taught to: * count from 0 in multiples of 4, 8, 50 and 100. * recall and use multiplication facts for the 3, 4 and 8 multiplication tables. Through doubling, they connect the 2, 4 and 8 multiplication tables. * write and calculate mathematical statements for multiplication using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods (grid) * using commutativity and associativity (for example, 4 × 12 × 5 = 4 × 5 × 12 = 20 × 12 = 240) * solve problems, including missing number problems, involving multiplication and including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	**Multiplication arrays – towards grid method.**  14 x 6 = (10 x 6) + (4 x 6) = 60 + 24 = 84  10 + 4 x 6 24 + 60 84 **Lots of work here on place value. If we know 3x7 = 21, we know 3 x70 = 210 and 30x7 = 210.**  **210 + 35 = 245** **Commutativity:**  **Bar Model: Multiplication:**  At the shop I buy 6 packets of doughnuts. Inside each packet is 12 doughnuts. How many do I have altogether? Draw a Bar Model to represent this.

New Mathematics Calculation Policy: Year 3	
Division	**Division**
Pupils should be taught to: * recall and use division facts for the 3, 4 and 8 multiplication tables * write and calculate mathematical statements for division using the multiplication tables that they know, using efficient mental methods eg using 12 x 4=4x 12 4 × 12 × 5 = 4 × 5 × 12 = 20 × 12 = 240 and multiplication and division facts e.g.using 3 × 2 = 6, 6 ÷ 3 = 2 and 2 = 6 ÷ 3 to derive related facts 30 × 2 = 60, 60 ÷ 3 = 20 and 20 = 60 ÷ 3 and progressing to formal written methods. * solve problems, including missing number problems, involving division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	**Division grouping – understanding of written method:**  First: Have children make 80 with dienes – and divide them into 2 (making 4 lots of 10s. 4x10 = 40) now collect 4 ones/units and divide them into 2. (2 lots of 1s = 2) answering 42.  **Division Facts:**  **Bar Model: Division:**   I have saved £69.00 for 3 games. The games are the same price. How much did each game cost?

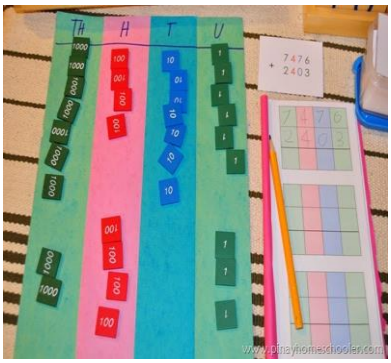
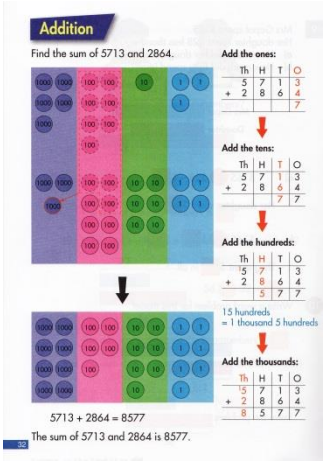
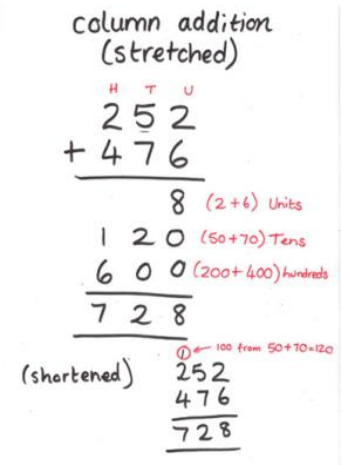
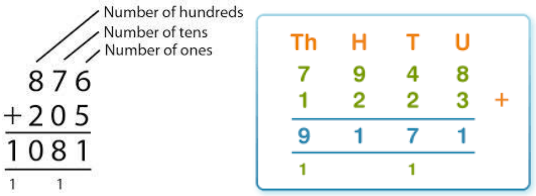
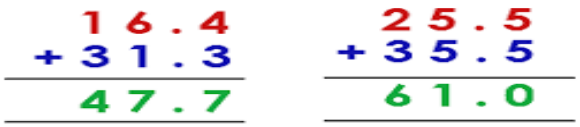
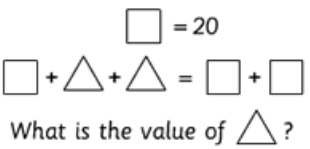
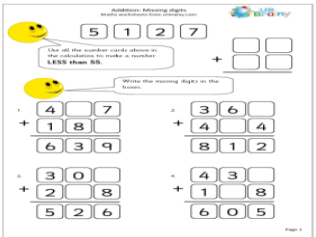
New Mathematics Calculation Policy: Year 3

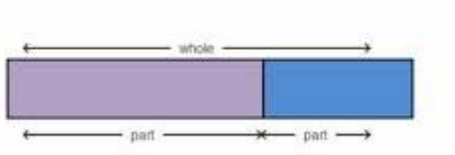
Fractions	Fractions
Pupils should be taught to: * count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 * recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators * recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators * recognise and show, using diagrams, equivalent fractions with small denominators * add and subtract fractions with the same denominator within one whole (for example, 5/7 + 1/7 = 6/7) * compare and order unit fractions, and fractions with the same denominators. * solve problems that involve all of the above.	**Tenths: Bubble Method & Visual Representation:**  Division of the whole number 20 by 10 makes 10 EQUAL parts, giving 2. 1/10th of 20 is 2.  **Fractions on Numberlines:**  **Bar Model Fractions Problems:** 

New Mathematics Calculation Policy: Year 3

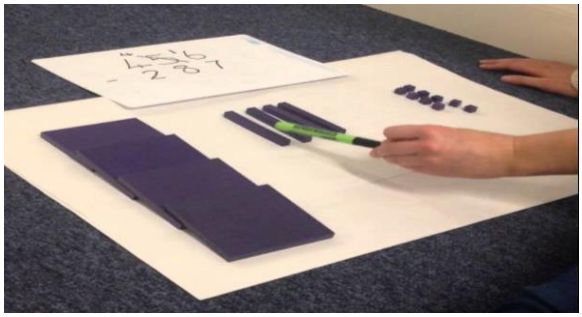
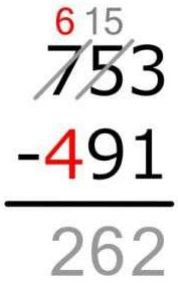
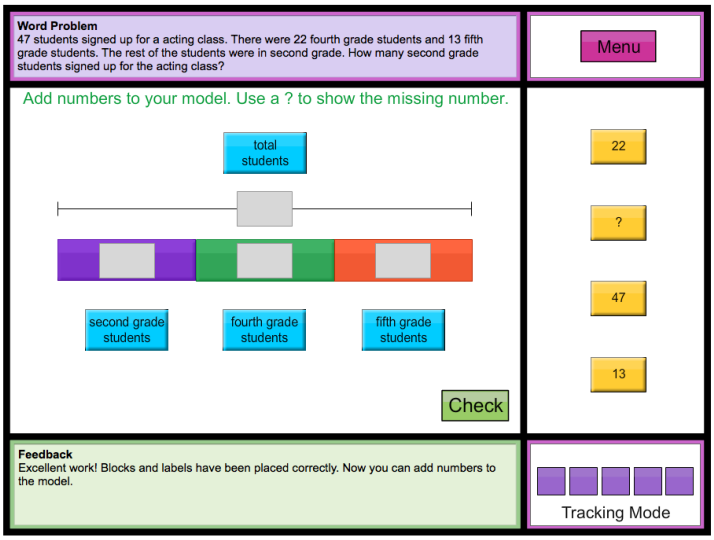
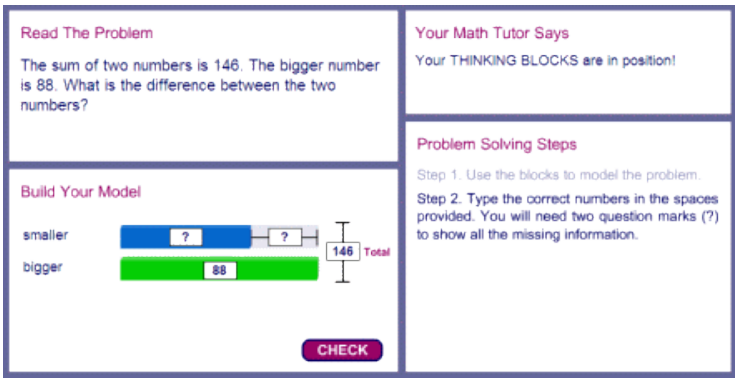
Number and Place Value: Oral and Mental Starters + Counting sessions.	Number and Place Value: Oral and Mental Starters + Counting sessions.
Pupils should be taught to: * count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number * recognise the place value of each digit in a three-digit number (hundreds, tens, ones) * compare and order numbers up to 1000 * identify, represent and estimate numbers using different representations * read and write numbers up to 1000 in numerals and in words * solve number problems and practical problems involving these ideas. * use multiples of 2, 3, 4, 5, 8, 10, 50 and 100. * use larger numbers to at least 1000, applying partitioning related to place value using varied and increasingly complex problems, building on work in year 2 (for example, 146 = 100 + 40 and 6, 146 = 130 + 16).	**Place Value: Representing Numbers pictorially using dienes, place value counters, Numicon.**   **Partitioning of Numbers, different ways for the same number:** 47 40 + 7 = 47 30 + 17 = 47 20 + 27 = 47 10 + 37 = 47 0 + 47 = 47 83 80 + 3 = 83 70 + 13 = 83 60 + 23 = 83 50 + 33 = 83 40 + 43 = 83 30 + 53 = 83 20 + 63 = 83 10 + 73 = 83 0 + 83 = 83 61 60 + 1 = 61 50 + 11 = 61 40 + 21 = 61 30 + 31 = 61 20 + 41 = 61 10 + 51 = 61 0 + 61 = 61  **But also:** 500 + 50 + 12 = 562 500 + 40 + 22 = 562 500 + 30 + 32 = 562 **Counting:** 

New Mathematics Calculation Policy: Year 4

Addition	Addition
Pupils should be taught to: * add numbers with **up to 4 digits** using the formal written methods of columnar addition (expanded) * estimate and use inverse operations to check answers to a calculation eg: estimate 8203 + 499 = 8200 +500 = 8700. Check: 8702 * solve addition two-step problems in contexts, deciding which operations and methods to use and why.	**Addition with Base-Ten + Regrouping:**   **Expanded Columns:**  **Column addition: With correct placement of digits:**   **Equals signs and missing numbers :**  

	Bar Model: Problem Solving:  On a shopping trip I spent £398.98 on some clothes and £234.45 on some shoes. How much did I spend overall.

New Mathematics Calculation Policy: Year 4

Subtraction	Subtraction
Pupils should be taught to: * subtract numbers with **up to 4 digits** using the formal written methods of columnar subtraction (expanded) * estimate and use inverse operations to check answers to a calculation eg: estimate e.g. 8702 – 499 is approximately 9000 – 500 = 8500; * solve subtraction two-step problems in contexts, deciding which operations and methods to use and why.	**Subtraction with Base-Ten + Regrouping:** Loads of regrouping practice needed – with apparatus counters/dienes.  **Subtraction: Expanded column: (With regrouping)**  **Difference + Bar model Problem Solving:**  

New Mathematics Calculation Policy: Year 4

Multiplication	Multiplication

Pupils should be taught to:

*count in multiples of 6, 7, 9, 25 and 1000

*recall multiplication and division facts for multiplication tables up to 12 × 12

*use place value, known and derived facts to multiply mentally, including: multiplying by 0 and 1; multiplying together three numbers

*recognise and use factor pairs and commutativity in mental calculations e.g. factor pairs of 20 are 1 and 20, 2 and 10, 4 and 5, multiplication are commutative e.g. 4 × 6 = 6 × 4

*multiply two-digit and three-digit numbers by a one-digit number using formal written layout (grid method)

*solve problems involving multiplying using the distributive law
including using the distributive law
e.g.34 × 6 = (30 ×6) + (4 × 6)
to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

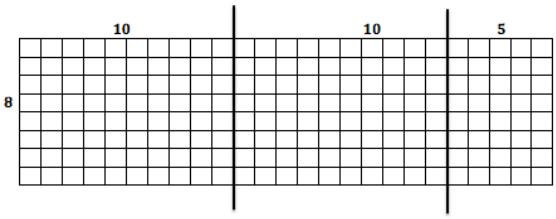
Multiplication arrays – towards grid method

Lots of work here on place value. If we know 3x7 = 21, we know 3 x70 = 210 and 30x7 = 210.

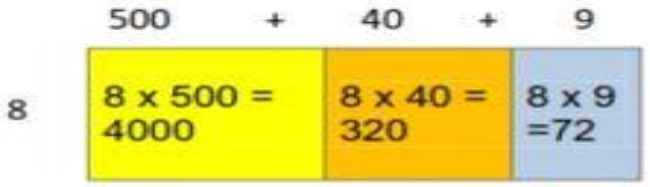
×	30	5
7	210	35

210 + 35 = 245

25x8 = 80+80+40 = 200

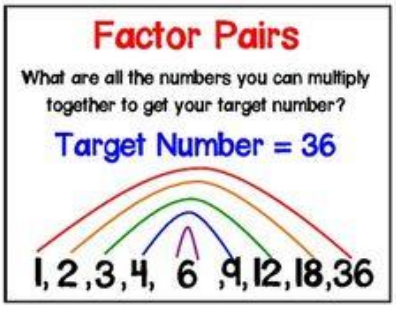


8 x 549 =



8 x 549 = 8 x (500 + 40 + 9)
= 4000 + 320 + 72 = 4392

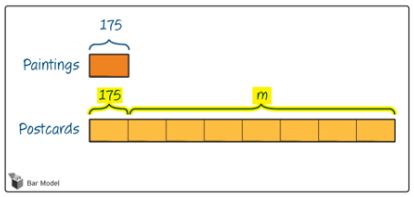
Factor Pairs:



Bar Model: Multiplication:

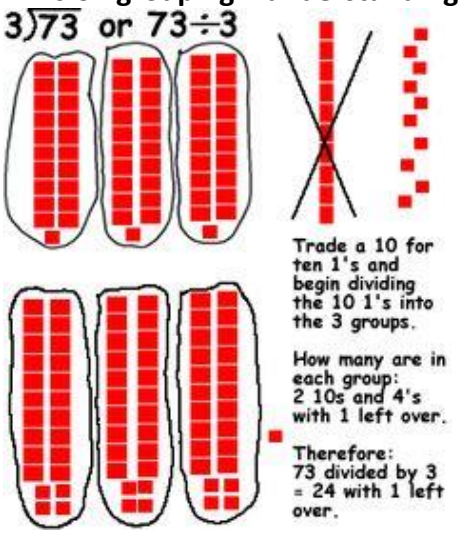
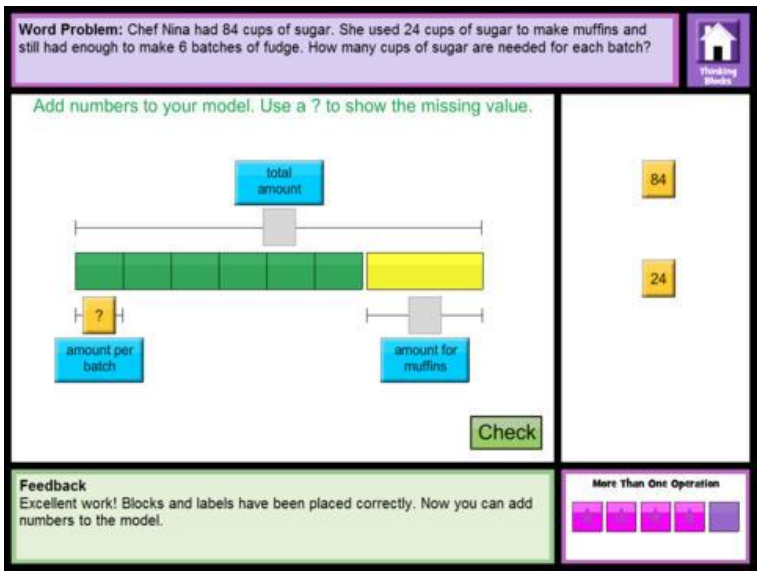
Dylan sold 175 paintings. He sold 8 times as many postcards. How many more postcards than paintings did he sell?

PROBLEM TYPE Compare Problem

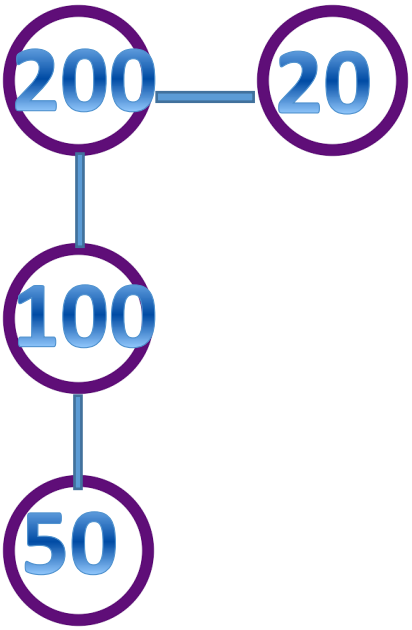
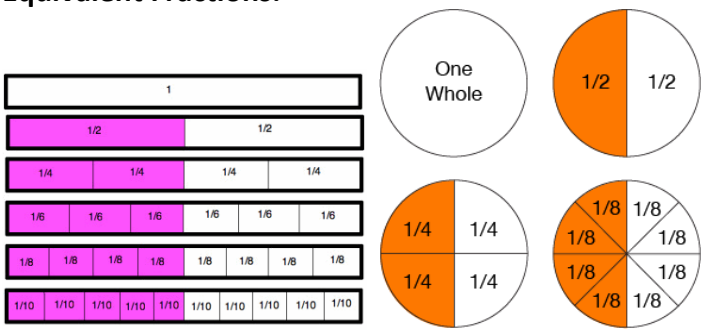
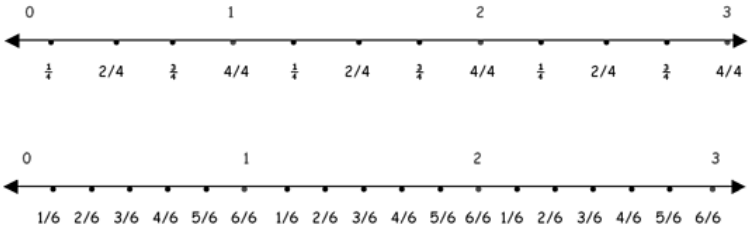
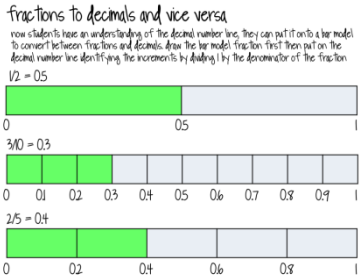


m = 7 x 175
= 1225

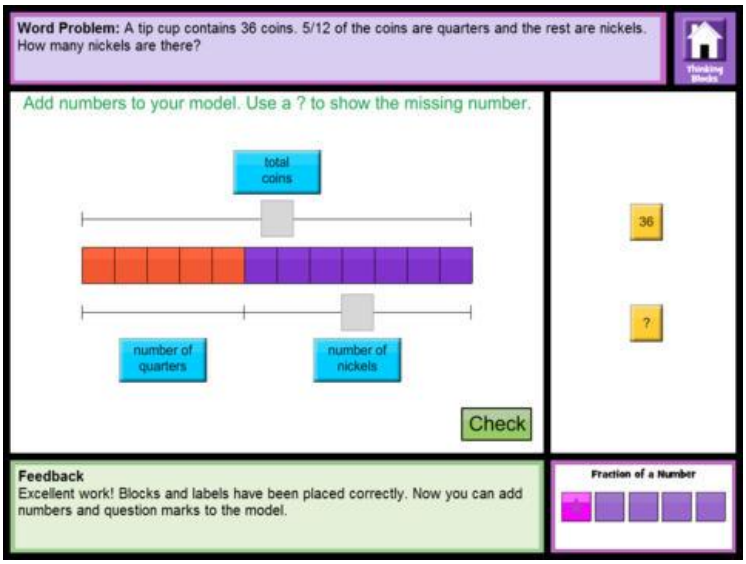
New Mathematics Calculation Policy: Year 4

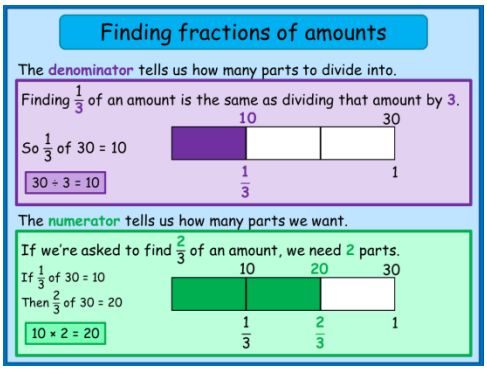
Division	Division
Pupils should be taught to: * recall division facts for multiplication tables up to 12 × 12 * use place value, known and derived facts to divide mentally, including: dividing by 1; * recognise and use factor pairs and commutativity in mental calculations *Pupils practise mental methods and extend this to three-digit numbers to derive facts, (for example 600 ÷ 3 = 200 can be derived from 2 x 3 = 6). * Use efficient written method for division with exact answers when dividing by a one-digit number	**Division grouping – understanding of written method:**  **Division Facts: Learn the patterns.** **600 ÷ 3 = 200** **600 ÷ 30 = 20** **600 ÷ 300 =2** **800 ÷ 2 = 400** **800 ÷ 20 = 40** **800 ÷ 200 = 4** **Bar Model: Division:** 

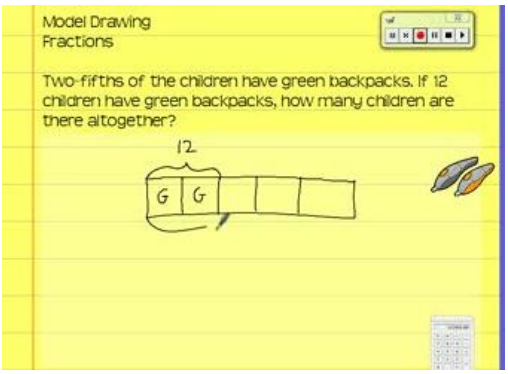
New Mathematics Calculation Policy: Year 4

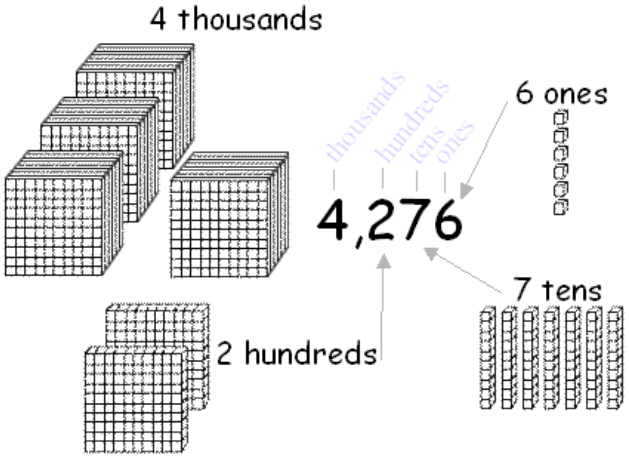
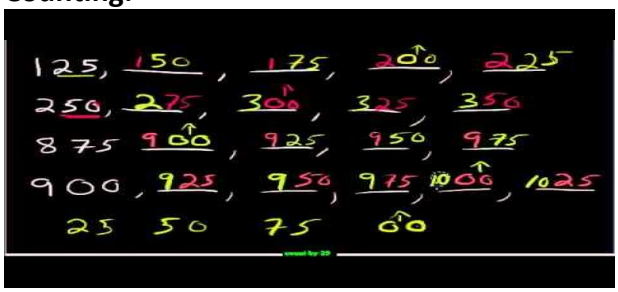
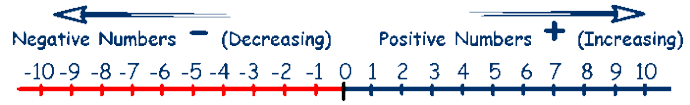
Fractions	Fractions
Pupils should be taught to: * recognise and show, using diagrams, families of common equivalent fractions * solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number * add and subtract fractions with the same denominator * recognise and write decimal equivalents to ¼, ½, 3/4 * solve simple measure and money problems involving fractions. * extend the use of the number line to connect fractions, numbers and measures * practise adding and subtracting fractions with the same denominator, to become fluent through a variety of increasingly complex problems beyond one whole. * practise counting using simple fractions both forwards and backwards.	**Tenths: Bubble Method & Visual Representation:**  **Equivalent Fractions:**  **Fractions on Numberlines:**  **Fractions to decimals:** 

Bar Model Fractions Problems:

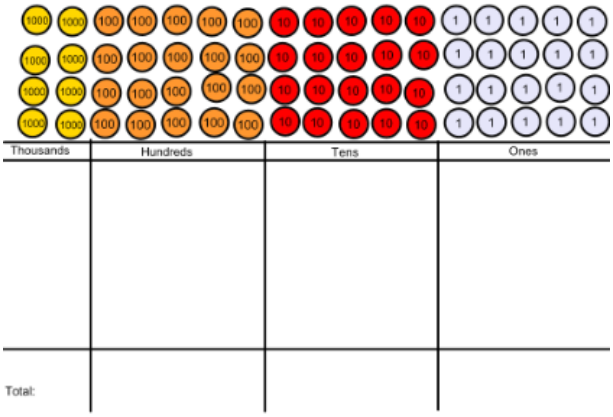
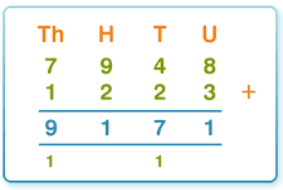
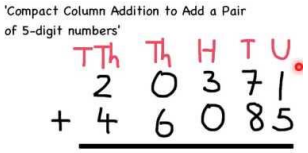
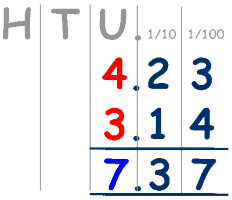
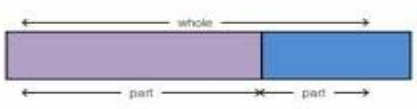




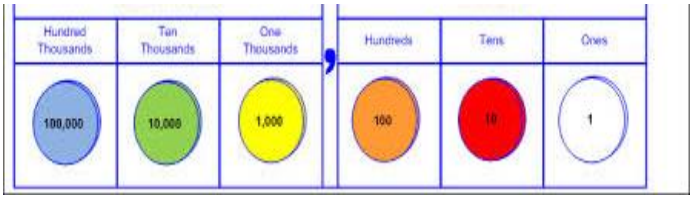
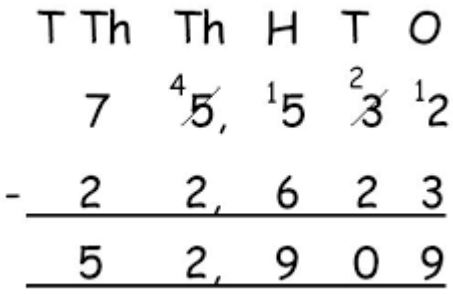
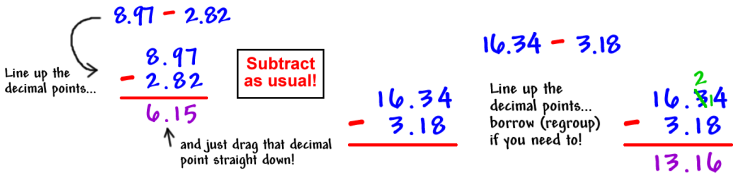
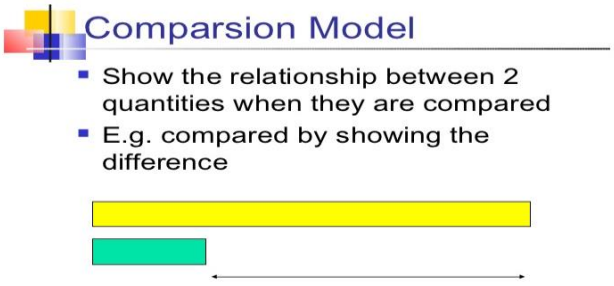


Number and Place Value: Oral and Mental Starters + Counting sessions.	Number and Place Value: Oral and Mental Starters + Counting sessions.
Pupils should be taught to: * count in multiples of 6, 7, 9, 25 and 1000 * find 1000 more or less than a given number * count backwards through zero to include negative numbers * recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) * order and compare numbers beyond 1000 * identify, represent and estimate numbers using different representations * round any number to the nearest 10, 100 or 1000 * solve number and practical problems that involve all of the above and with increasingly large positive numbers * read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	**Place Value: Representing Numbers pictorially using dienes and place value counters.**  **Counting:**  **Negative Numbers:**   **Roman Numerals:** I = 1 V = 5 X = 10 L =50 C=100 M=1000 |									
---	---	---	---	---	---	---	---	---	---
1 I	2 II	3 III	4 IV	5 V	6 VI	7 VII	8 VIII	9 IX	10 X
11 XI	12 XII	13 XIII	14 XIV	15 XV	16 XVI	17 XVII	18 XVIII	19 XIX	20 XX
21 XXI	22 XXII	23 XXIII	24 XXIV	25 XXV	26 XXVI	27 XXVII	28 XXVIII	29 XXIX	30 XXX
31 XXXI	32 XXXII	33 XXXIII	34 XXXIV	35 XXXV	36 XXXVI	37 XXXVII	38 XXXVIII	39 XXXIX	40 XL
41 XLI	42 XLII	43 XLIII	44 XLIV	45 XLIV	46 XLVI	47 XLVII	48 XLVIII	49 XLIX	50 L
51 LI	52 LII	53 LIII	54 LIV	55 LV	56 LVI	57 LVII	58 LVIII	59 LIX	60 LX
61 LXI	62 LXII	63 LXIII	64 LXIV	65 LXV	66 LXVI	67 LXVII	68 LXVIII	69 LXIX	70 LXX
71 LXXI	72 LXXII	73 LXXIII	74 LXXIV	75 LXXV	76 LXXVI	77 LXXVII	78 LXXVIII	79 LXXIX	80 LXXX
81 LXXXI	82 LXXXII	83 LXXXIII	84 LXXXIV	85 LXXXV	86 LXXXVI	87 LXXXVII	88 LXXXVIII	89 LXXXIX	90 XC
91 XCI	92 XCII	93 XCIII	94 XCIV	95 XCV	96 XCVI	97 XCVII	98 XCVIII	99 XCIX	100 C

New Mathematics Calculation Policy: Year 5

Addition	Addition
Pupils should be taught to: * add whole numbers with **more than 4 digits,** including using formal written methods (columnar addition) * add numbers mentally with increasingly large numbers * use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy * solve addition multi-step problems in contexts, deciding which operations and methods to use and why.	**Addition with Base-Ten + Regrouping:**  **Column addition: With correct placement of digits:**   20,371 + 46,085  **Equals signs and missing numbers :** (☐ x 6) + 5 = 35 7 x 4 = 5 – (☐ x 3) 21 ÷ (☐ – 2) = 7 12 = 20 – (☐ ÷ 2) (☐ + 15) – 7 = 2 + (7 x 3) (4 x ☐) + 5 = (9 x 5) – 8 (24 – 17) x 2 = (4 x 6) – ☐ 8 + (6 x 5) = (☐ + 14) x 2 **Bar Model: Problem Solving:**  Last year I bought a house. It cost £127,456 and then my car broke, so I bought a new car, that cost £12,569 – how much did I spend altogether?

New Mathematics Calculation Policy: Year 5

Subtraction	Subtraction
Pupils should be taught to: * subtract whole numbers with **more than 4 digits,** including using formal written methods (columnar subtraction) * subtract numbers mentally with increasingly large numbers e.g. 12 462 – 2 300 = 10 162 * use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy * solve subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	**Subtraction with Place Value Counters + Regrouping:** Loads of regrouping practice needed – with apparatus counters/dienes.  **Subtraction: Compact Column: (With regrouping)**   **Difference + Bar model Problem Solving:**  The total amount I had in the Bank was £34,567. I spent £7,992 on a new car. How much did I have left?

New Mathematics Calculation Policy: Year 5

Multiplication	Multiplication

Pupils should be taught to:

*continue to use all the multiplication tables to 12 × 12 in order to maintain their fluency

* identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers

* know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers e.g. prime factors of 60=5×3×2×2

* establish whether a number up to 100 is prime and recall prime numbers up to 19

* multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.

* multiply numbers mentally drawing upon known facts of all tables.

* multiply whole numbers and those involving decimals by 10, 100 and 1000

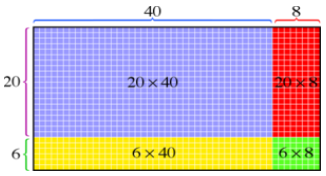
* recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)

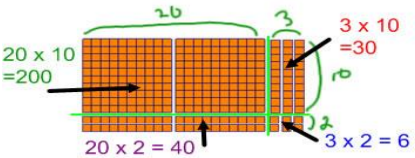
* solve problems involving multiplication using their knowledge of factors and multiples, squares and cubes (for example, 4 x 35 = 2 x 2 x 35;).

* solve problems involving multiplication including scaling by simple fractions and problems involving simple rates.

Multiplication Arrays to Grid Method to Long multiplication.

2 digit multiplied by 2 digit number.





75 x 429 =

x	400	20	9
70	28,000	1400	630
5	2000	100	45

75 x 429 = 28,000 + 1400 + 630

75 x 429 = 32,175

Long Multiplication: Formal Written Method.

Multiply the ones first.

$$\begin{array}{r} 34 \\ \times\ 5 \\ \hline 20 \end{array}$$

5 × 4 = 20

Then multiply the tens and place the result underneath. Remember, the 3 in 34 is signifying 30.

$$\begin{array}{r} 34 \\ \times\ 5 \\ \hline 20 \\ 150 \end{array}$$

5 × 30 = 150

Then add.

$$\begin{array}{r} 34 \\ \times\ 5 \\ \hline 20 \\ +\ 150 \\ \hline 170 \end{array}$$

Stack the numbers on top of each other

$$\begin{array}{r} 27 \\ \times\ 16 \\ \hline ???? \end{array}$$

Multiply the top number by the ones place in the bottom number (7x6=42, carry the 4. 6x2+4=16)

$$\begin{array}{r} {\scriptstyle 4} \\ 27 \\ \times\ 16 \\ \hline 162 \end{array}$$

Put a 0 in the ones place on the next line. Multiply the top number by the tens place in the bottom number. 27x1=27

$$\begin{array}{r} 27 \\ \times\ 16 \\ \hline 162 \\ 270 \end{array}$$

To get your answer, add the two lines of multiplication together.
162 + 270 = 432

$$\begin{array}{r} 27 \\ \times\ 16 \\ \hline 162 \\ +\ 270 \\ \hline 432 \end{array}$$

Multiplying by 10,100,1000:

Multiplying and Dividing by 10, 100 and 1000

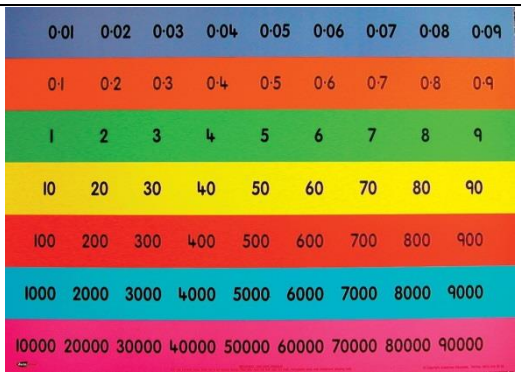
10 000	1000	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$

Multiplying

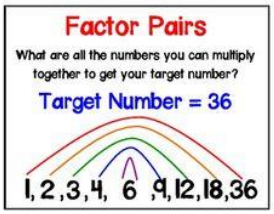
X 10	digits move LEFT **1** space
X 100	digits move LEFT **2** spaces
X 1000	digits move LEFT **3** spaces

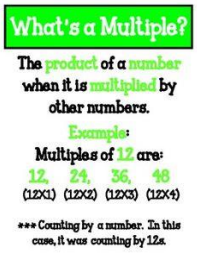
Dividing

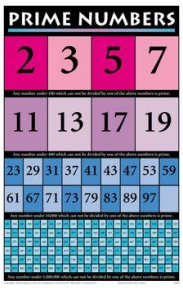
÷ 10	digits move RIGHT **1** space
÷ 100	digits move RIGHT **2** spaces
÷ 1000	digits move RIGHT **3** spaces



Factor Pairs and Multiples, Prime Numbers:

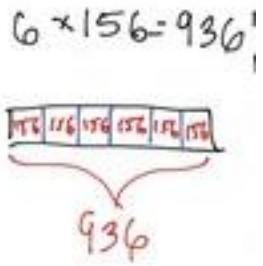






Bar Model: Multiplication:

For 6 weeks, I saved £!56.00. How much did I save in total?



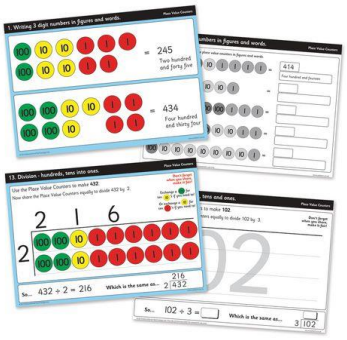
New Mathematics Calculation Policy: Year 5

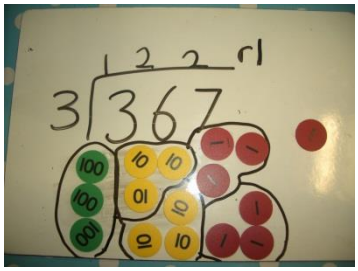
Division	Division

Pupils should be taught to:

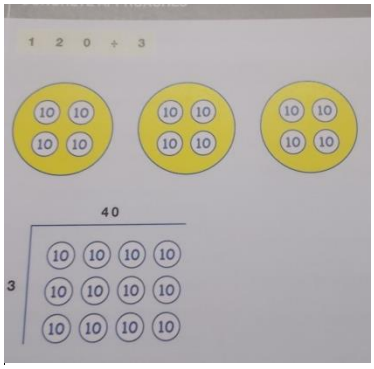
* know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers
* establish whether a number up to 100 is prime and recall prime numbers up to 19
* use a formal written method, including long division for two-digit numbers
* divide numbers mentally drawing upon known facts e.g. 630÷9
* divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context
* divide whole numbers and those involving decimals by 10, 100 and 1000 e.g. 456÷100=4.56
* solve problems involving division including using their knowledge of factors and multiples, squares and cubes
* solve problems involving division, including scaling by simple fractions and problems involving simple rates.
* Pupils interpret non-integer answers to division by expressing results in different ways according to the context, including with remainders, as fractions, as decimals or by rounding (for example, 98 ÷ 4=4/98= 24 r2)

Division grouping – understanding of written method:





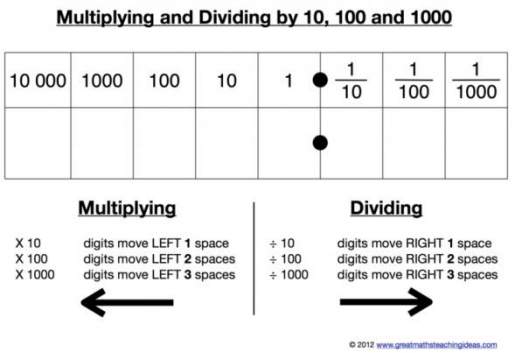
120 ÷ 3 = 40



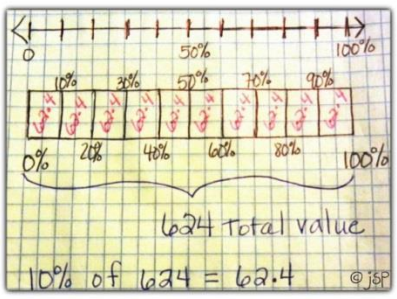
Division Facts: Learn the patterns.

630 ÷ 9 = 70
630 ÷ 90 = 7
630 ÷ 900 =0.7

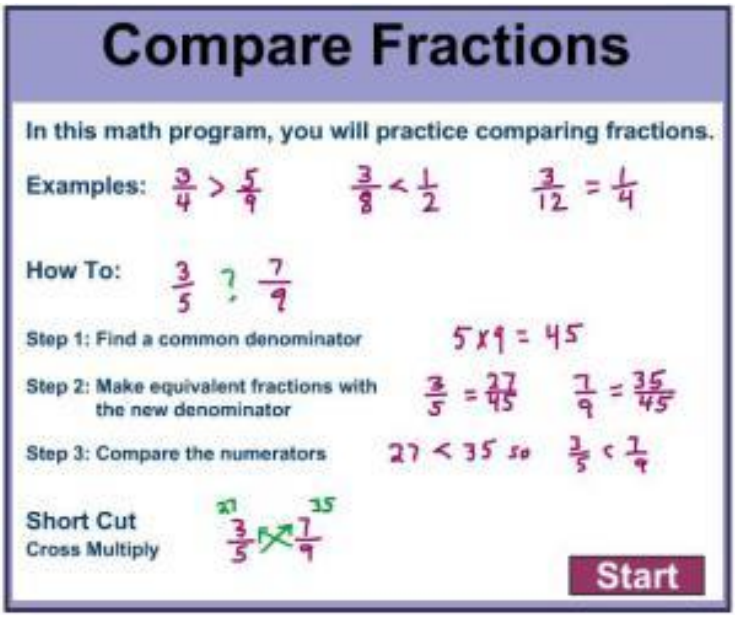
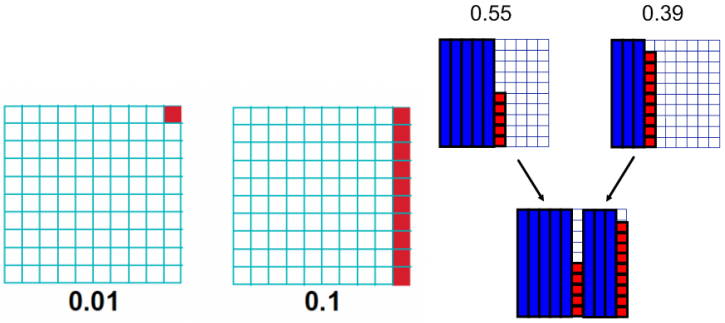
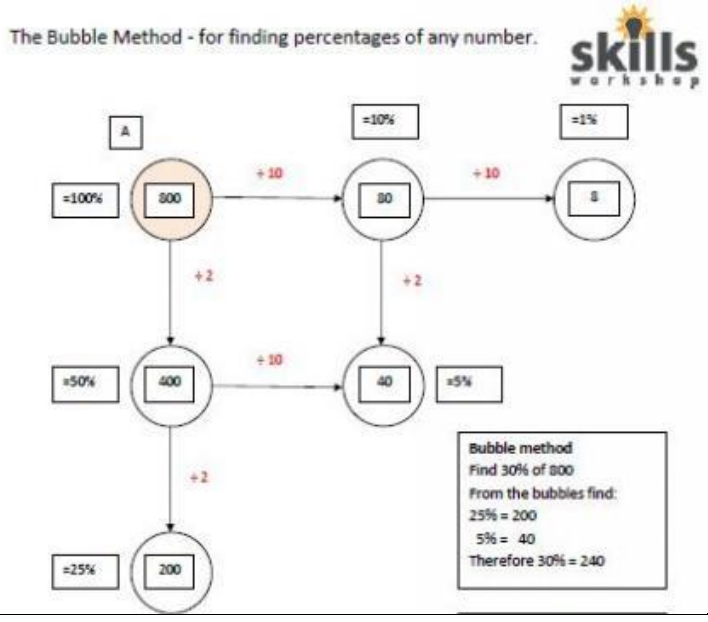
Dividing by 10,100,1000:



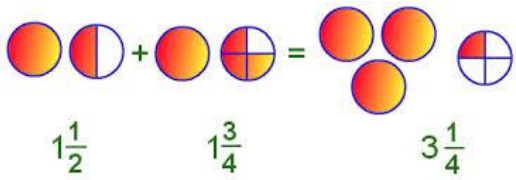
Bar Model Division Problems:

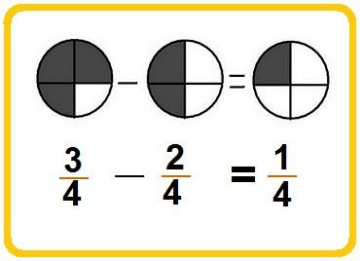


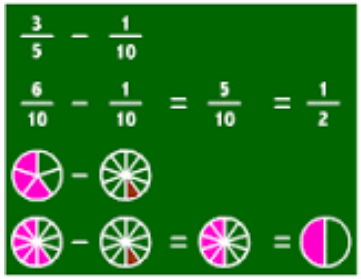
New Mathematics Calculation Policy: Year 5

Fractions	Fractions
Pupils should be taught to: * compare and order fractions whose denominators are all multiples of the same number * identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths * recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 =6/5 = 1+1/5) * add and subtract fractions with the same denominator and denominators that are multiples of the same number * multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams * read and write decimal numbers as fractions [for example, 0.71 = 71/100) * solve problems which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25. * practise adding and subtracting fractions to become fluent through a variety of increasingly complex problems. They extend their understanding of adding and subtracting fractions to calculations that exceed 1 as a mixed number. * practise counting forwards and backwards in simple fractions.	**Comparing Fractions:**  **Tenths and Hundredths – decimals/fractions/percentages**  **1/100 1%** **1/10 10%** **Full Bubble Method:** 

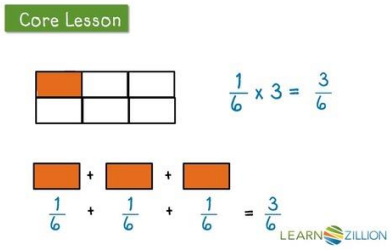
Adding and Subtracting Fractions:

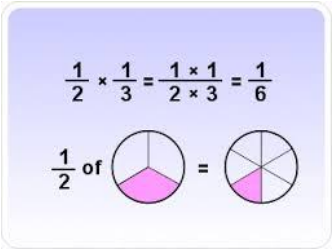




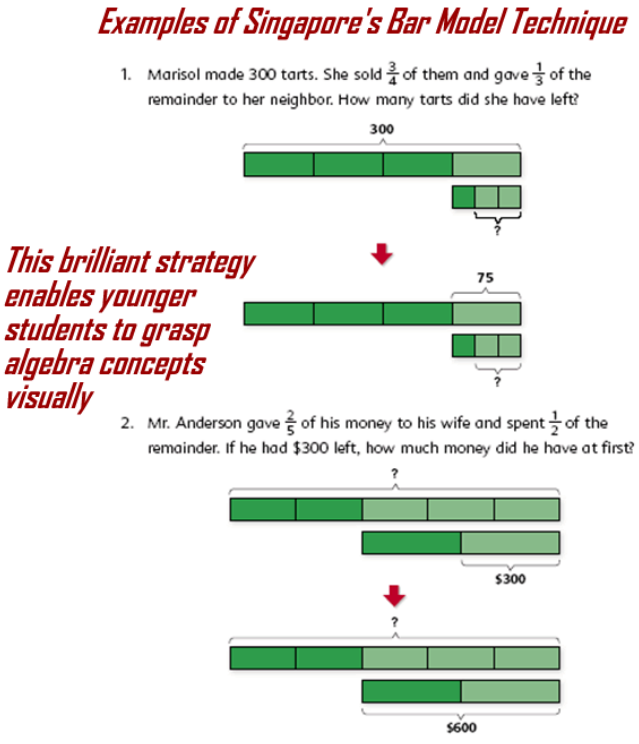


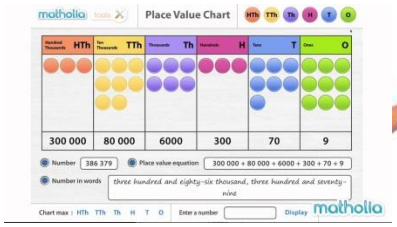
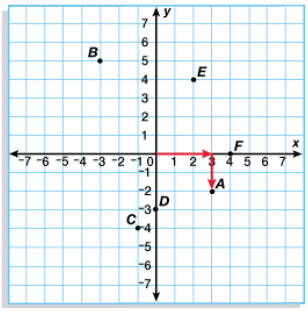
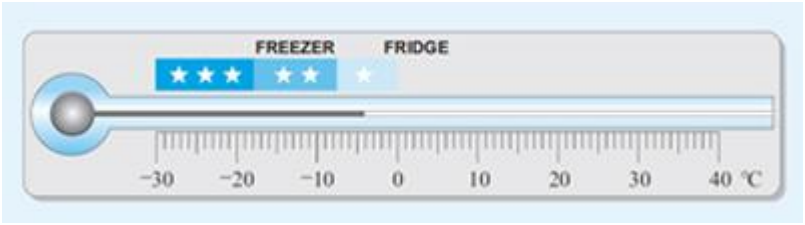
Multiplying Proper Fractions:

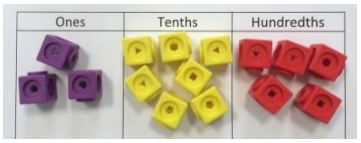
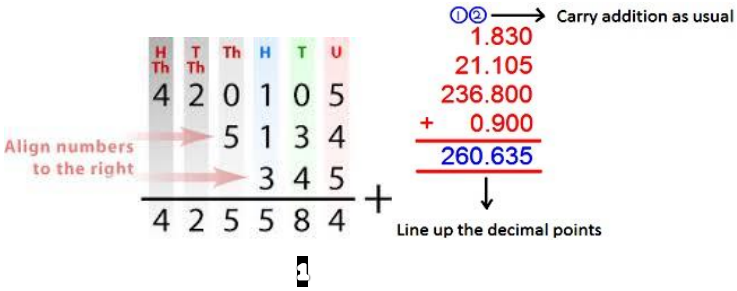
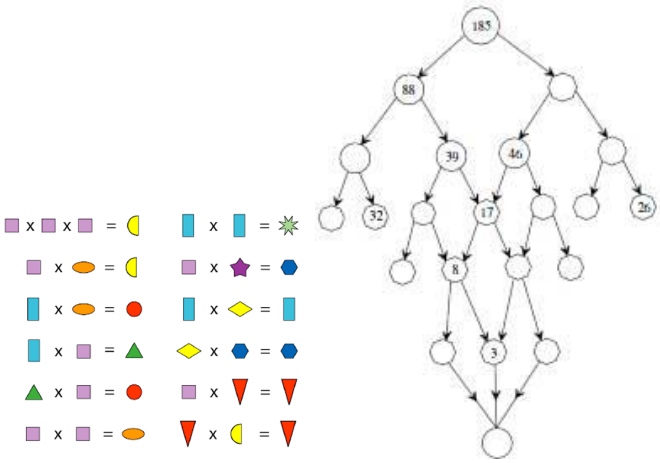
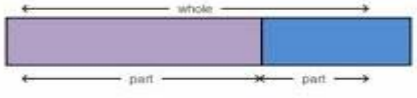


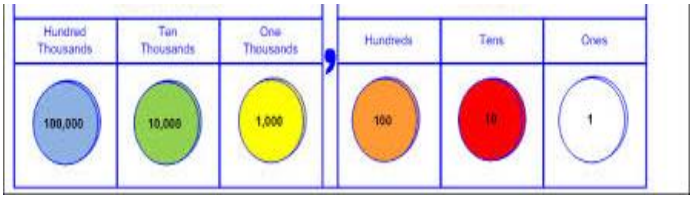
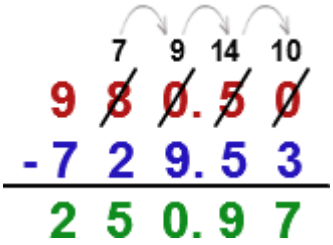
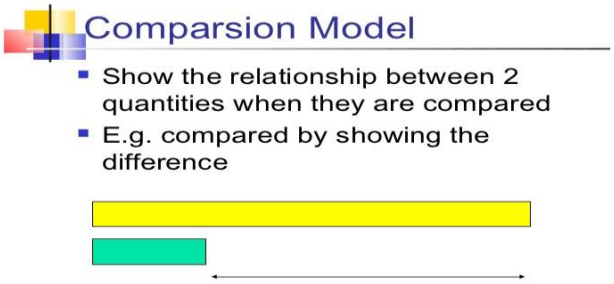


Fractions: Bar Model:



New Mathematics Calculation Policy: Year 5	
Number and Place Value: Oral and Mental Starters + Counting sessions.	**Number and Place Value: Oral and Mental Starters + Counting sessions.**
Pupils should be taught to: * read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit * count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 * interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero * round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 * solve number problems and practical problems that involve all of the above * read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	**Place Value: Representing Numbers pictorially using dienes and place value counters.**   **Negative Numbers:**   **Roman Numerals to 1000:** |		
---	---	---
1 I	14 XIV	90 XC
2 II	15 XV	100 C
3 III	16 XVI	200 CC
4 IV	17 XVII	300 CCC
5 V	18 XVIII	400 CD
6 VI	19 XIX	500 D
7 VII	20 XX	600 DC
8 VIII	30 XXX	700 DCC
9 IX	40 XL	800 DCCC
10 X	50 L	900 CM
11 XI	60 LX	1,000 M
12 XII	70 LXX	2,000 MM
13 XIII	80 LXXX	3,000 MMM

New Mathematics Calculation Policy: Year 6	
Addition	**Addition**
Pupils should be taught to: * add whole numbers with **more than 4 digits,** including using formal written methods (columnar addition) * solve addition multi-step problems in contexts, deciding which operations and methods to use and why.	**Addition with place value Counters: using a counter which represents 100,000 + practically with multilink cubes for addition of decimal numbers.**   **Column addition:**  **Equals signs and missing numbers : Algebra, Addition Trees and**  **Bar Model: Problem Solving:**  Last year I bought a house. It cost £927,456 and then my roof leaked broke, so I bought a new roof, that cost £102,569 – how much did I spend altogether?

New Mathematics Calculation Policy: Year 6	
Subtraction	**Subtraction**
Pupils should be taught to: * subtract whole numbers with **more than 4 digits,** including using formal written methods (columnar subtraction) * solve subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	**Subtraction with Place Value Counters + Regrouping:** Loads of regrouping practice needed – with apparatus counters/dienes. Inclusive of decimal subtraction too!  **Subtraction: Compact Column: (With multiple regrouping)**  **Difference + Bar model Problem Solving:**  The total amount I had in the Bank was £134,567. I spent £17,998 on a new car. How much did I have left?

New Mathematics Calculation Policy: Year 6

Multiplication	Multiplication

Pupils should be taught to:

*continue to use all the multiplication tables to 12 × 12 in order to maintain their fluency

*multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication

* identify common factors, common multiples and prime numbers

* solve problems involving, multiplication

* use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Short multiplication

24 × 6 becomes

$$\begin{array}{r} 2\ 4 \\ \times\quad 6 \\ \hline 1\ 4\ 4 \\ \scriptstyle 2 \end{array}$$

Answer: 144

342 × 7 becomes

$$\begin{array}{r} 3\ 4\ 2 \\ \times\quad 7 \\ \hline 2\ 3\ 9\ 4 \\ \scriptstyle 2\ 1 \end{array}$$

Answer: 2394

2741 × 6 becomes

$$\begin{array}{r} 2\ 7\ 4\ 1 \\ \times\quad 6 \\ \hline 1\ 6\ 4\ 4\ 6 \\ \scriptstyle 4\ 2 \end{array}$$

Answer: 16 446

Long multiplication

24 × 16 becomes

$$\begin{array}{r} \scriptstyle 2 \\ 2\ 4 \\ \times\ 1\ 6 \\ \hline 2\ 4\ 0 \\ 1\ 4\ 4 \\ \hline 3\ 8\ 4 \end{array}$$

Answer: 384

124 × 26 becomes

$$\begin{array}{r} \scriptstyle 1\ 2 \\ 1\ 2\ 4 \\ \times\quad 2\ 6 \\ \hline 2\ 4\ 8\ 0 \\ 7\ 4\ 4 \\ \hline 3\ 2\ 2\ 4 \\ \scriptstyle 1\ 1 \end{array}$$

Answer: 3224

124 × 26 becomes

$$\begin{array}{r} \scriptstyle 1\ 2 \\ 1\ 2\ 4 \\ \times\quad 2\ 6 \\ \hline 7\ 4\ 4 \\ 2\ 4\ 8\ 0 \\ \hline 3\ 2\ 2\ 4 \\ \scriptstyle 1\ 1 \end{array}$$

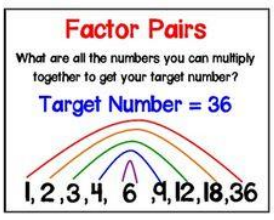
Answer: 3224

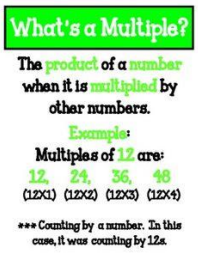
Multiplication:

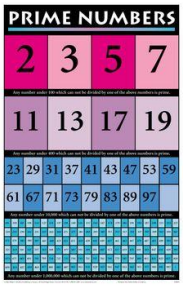
Times Table - 12x12

	1	2	3	4	5	6	7	8	9	10	11	12
1	**1**	2	3	4	5	6	7	8	9	10	11	12
2	2	**4**	6	8	10	12	14	16	18	20	22	24
3	3	6	**9**	12	15	18	21	24	27	30	33	36
4	4	8	12	**16**	20	24	28	32	36	40	44	48
5	5	10	15	20	**25**	30	35	40	45	50	55	60
6	6	12	18	24	30	**36**	42	48	54	60	66	72
7	7	14	21	28	35	42	**49**	56	63	70	77	84
8	8	16	24	32	40	48	56	**64**	72	80	88	96
9	9	18	27	36	45	54	63	72	**81**	90	99	108
10	10	20	30	40	50	60	70	80	90	**100**	110	120
11	11	22	33	44	55	66	77	88	99	110	**121**	132
12	12	24	36	48	60	72	84	96	108	120	132	**144**

Factor Pairs and Multiples, Prime Numbers:







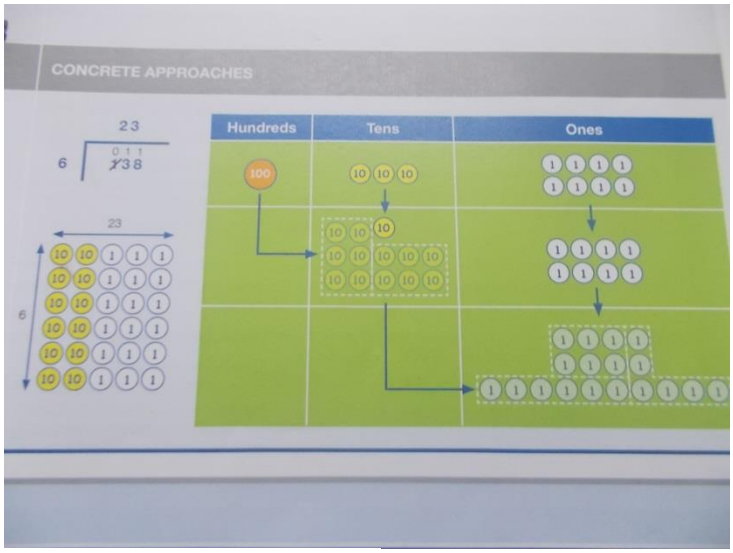
Bar Model Multiplication:

At a dance school there are 4 girls to every 3 boys. There are 63 children altogether. How many girls are there?

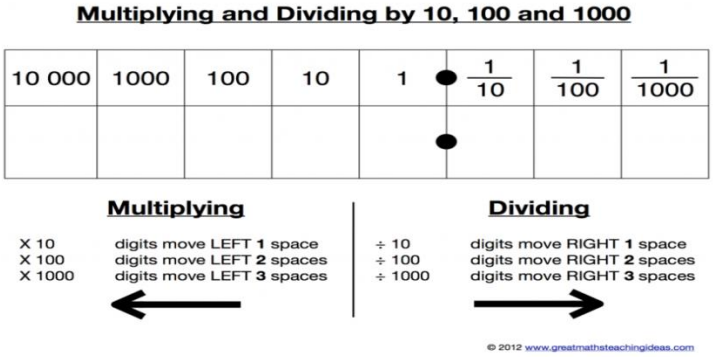
7 (4+3)	7 (4+3)	7 (4+3)	7 (4+3)	7 (4+3)	7 (4+3)	7 (4+3)	7 (4+3)	7 (4+3)

So 9 groups: 3x9 = 27 Boys. 4x9 = 36 girls. 27+36 = 63

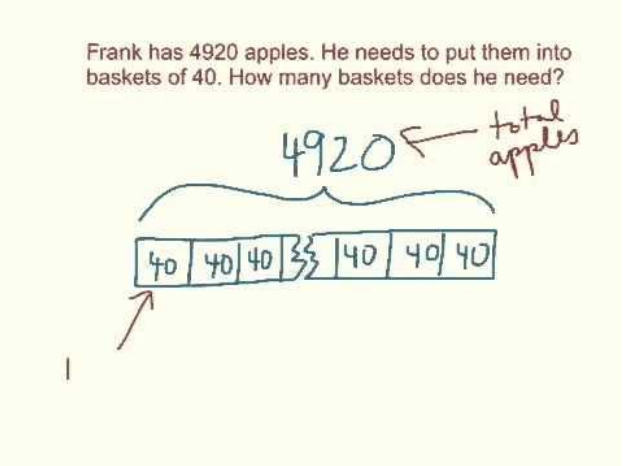
New Mathematics Calculation Policy: Year 6

Division	Division
Pupils should be taught to: * divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context * divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context * solve problems involving division and use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.	**Division grouping – understanding of written method:** **Short Davison:**  496 ÷ 11 becomes 4 5 r 1 5 1 1 | 4 9 6 Answer: $45\frac{1}{11}$ **Long division:** 432 ÷ 15 becomes 2 8 1 5 | 4 3 2 3 0 0 15×20 1 3 2 1 2 0 15×8 1 2 $\frac{12}{15} = \frac{4}{5}$ Answer: $28\frac{4}{5}$ 432 ÷ 15 becomes 2 8 · 8 1 5 | 4 3 2 · 0 3 0 1 3 2 1 2 0 1 2 0 1 2 0 0 Answer: 28·8 **Division Facts: Learn the patterns.** **630 ÷ 9 = 70** **630 ÷ 90 = 7** **630 ÷ 900 =0.7**

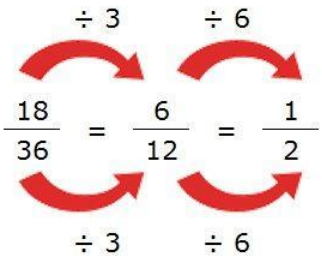
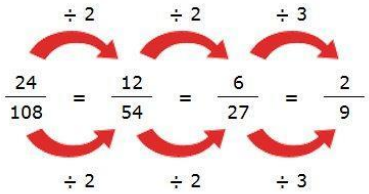
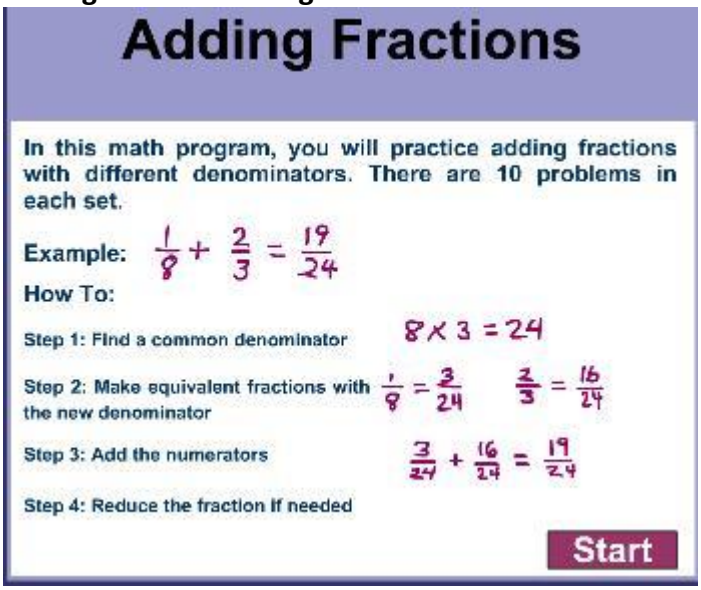
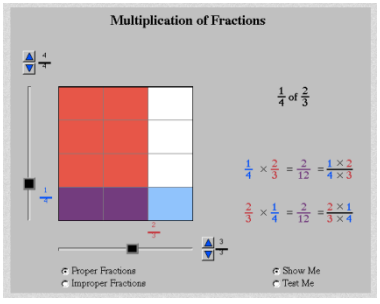
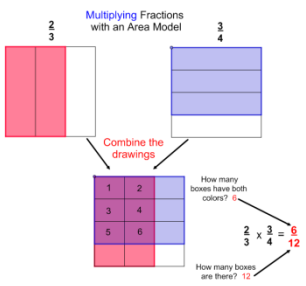
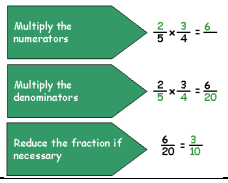
Dividing by 10,100,1000:



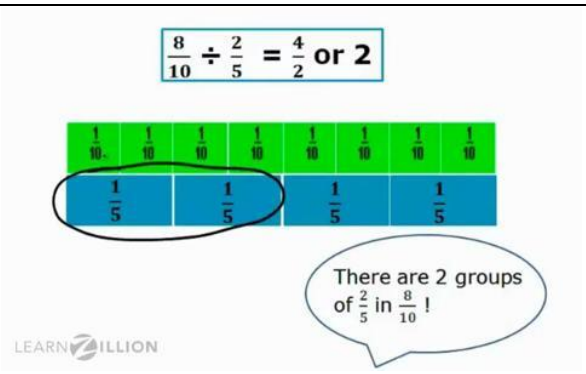
Bar Model Division Problems:



New Mathematics Calculation Policy: Year 6

Fractions	Fractions
Pupils should be taught to: *use common factors to simplify fractions; use common multiples to express fractions in the same denomination * compare and order fractions, including fractions > 1 * add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions * multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, ¼ x ½ = 1/8) * divide proper fractions by whole numbers [for example, 1/3 divided by 2 = 1/6) * associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8) * recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. * practise, use and understand the addition and subtraction of fractions with different denominators by identifying equivalent fractions with the same denominator. They should start with fractions where the denominator of one fraction is a multiple of the other (for example, ½ + 1/8 = 5/8)and progress to varied and increasingly complex problems. *use a variety of images to support their understanding of multiplication with fractions. This follows earlier work about fractions as operators (fractions of), as numbers, and as equal parts of objects, for example as parts of a rectangle. *Pupils use their understanding of the relationship between unit fractions and division to work backwards by multiplying a quantity that represents a unit fraction to find the whole quantity (for example, if 1/4 of a length is 36cm, then the whole length is 36 × 4 = 144cm). *They practise calculations with simple fractions and decimal fraction equivalents to aid fluency, including listing equivalent fractions to identify fractions with common denominators.	**Simplifying Fractions:**   **Adding and Subtracting Fractions:**  $\frac{3}{4} - \frac{1}{3} = \frac{3 \times 3}{4 \times 3} - \frac{1 \times 4}{3 \times 4}$ $= \frac{9}{12} - \frac{4}{12}$ $= \frac{5}{12}$ **Multiplying and dividing Fractions:**   

$\frac{8}{10} \div \frac{2}{5} = \frac{4}{2}$ or 2

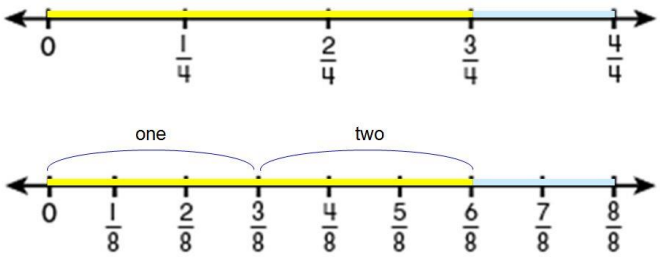


NUMBER LINE – 6.NS.A.1

$\frac{3}{4} \div \frac{3}{8} = 2$

How many $\frac{3}{8}$ parts can be partitioned from $\frac{3}{4}$?

Two $\frac{3}{8}$ parts



Invert the fraction that you are dividing by

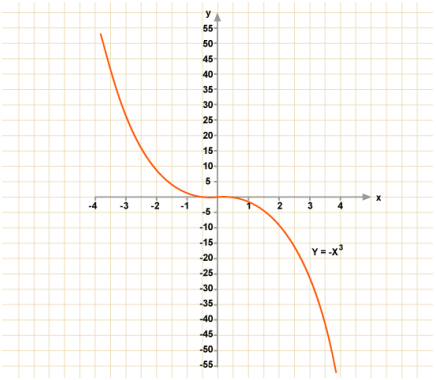
$\frac{4}{5} \div \frac{2}{3} = \frac{4}{5} \times \frac{3}{2}$

Multiply the numerators and denominators

$\frac{4}{5} \times \frac{3}{2} = \frac{12}{10}$

Simplify the fraction if necessary

$\frac{12}{10} = 1\frac{1}{5}$

New Mathematics Calculation Policy: Year 6	
Number and Place Value: Oral and Mental Starters + Counting sessions.	**Number and Place Value: Oral and Mental Starters + Counting sessions.**
Pupils should be taught to: * read, write, order and compare numbers up to 10 000 000 and determine the value of each digit * round any whole number to a required degree of accuracy * use negative numbers in context, and calculate intervals across zero * solve number and practical problems that involve all of the above. * use the whole number system, including saying, reading and writing numbers accurately.	**Place Value: Representing Numbers pictorially using dienes and place value counters.** Place Value Chart Millons: Hundred Million, Ten Million, Million Thousands: Hundred Thousands, Ten Thousands, Thousands Ones: Hundred, Tens, Ones 100,000,000 | 10,000,000 | 1,000,000 | 100,000 | 10,000 | 1,000 | 100 | 10 | 1 **Negative Numbers:**  **Number System:**