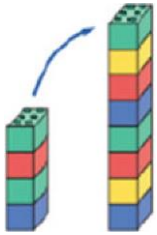
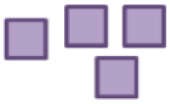
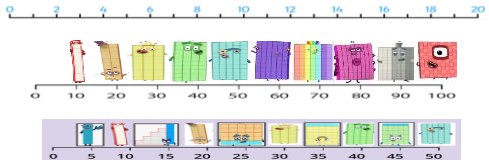
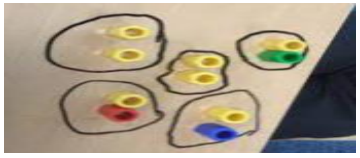
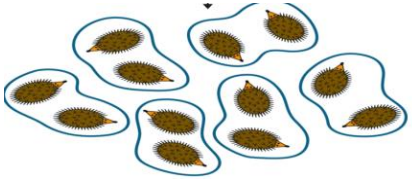
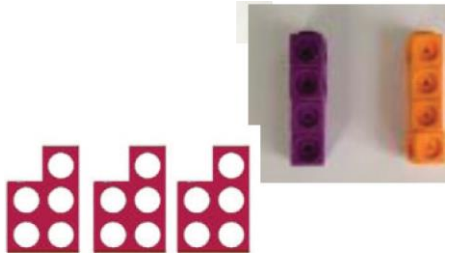
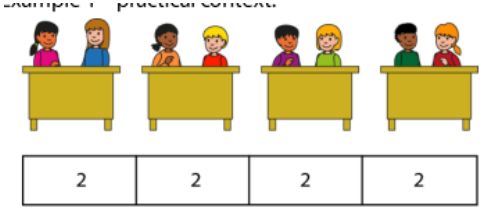
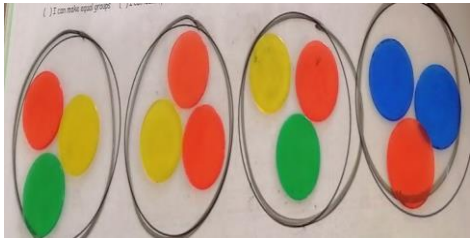
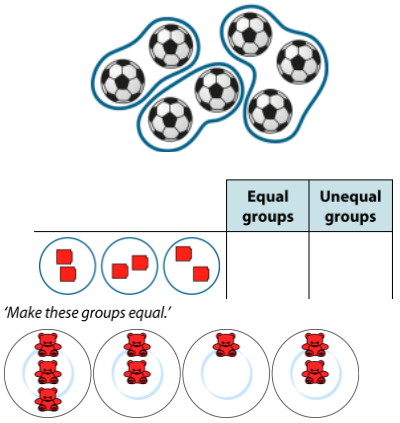
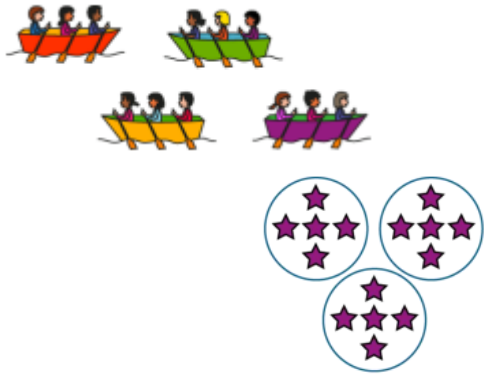
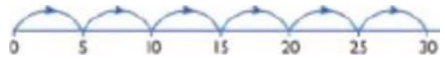
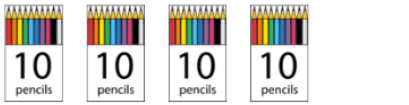
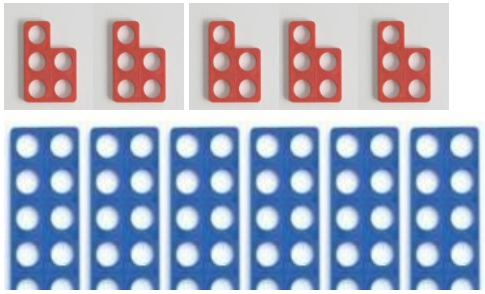
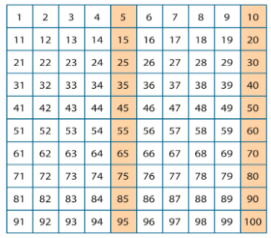
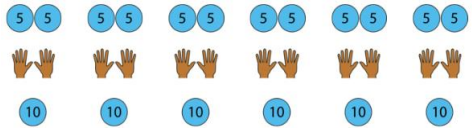
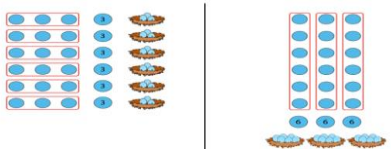
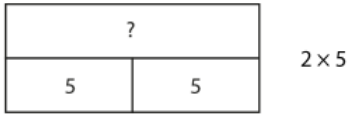
Y1 Multiplication

Objective and Strategy	Concrete	Pictorial	Abstract
Doubling	Use practical activities with manipulatives including cubes and Numicon to demonstrate doubling 	Draw pictures to show how to double numbers    	Write addition equations using the same addend to equal the total. When doubling you always get an even number. Missing boxes for challenge. Double 4 is 8 4 + 4 = 8 8 = 4 + 4 4 + __ = 8
Counting in multiples of 2s, 5s and 10s. 2s up to 20 5s up to 50 10s up to 100	Count objects already grouped in 2s, 5s, 10s. 	 	Count in multiples of a number aloud. Write down missing numbers in a sequence. Forwards/backwards. 2 4 8 12 10 20 50 80
Making equal groups and counting the total	Make equal groups from a given amount (2s, 5s, 10s separately) Count in sequence to find the total. 	Children group objects pictorially to find out how many altogether by counting in sequences of 2, 5 and 10. 	Recording numerals as written words and numbers when gathering the total number. e.g sixteen / 16 fifty/ 50 thirty five/ 35

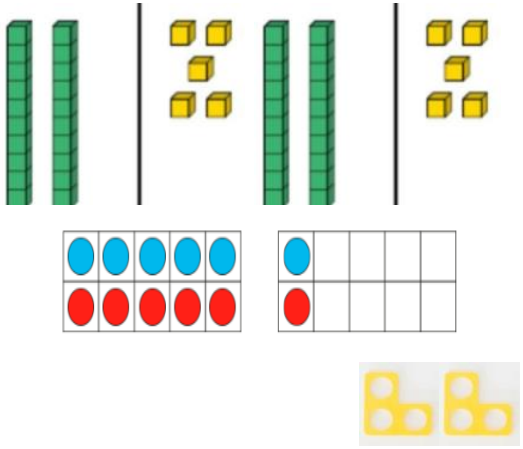
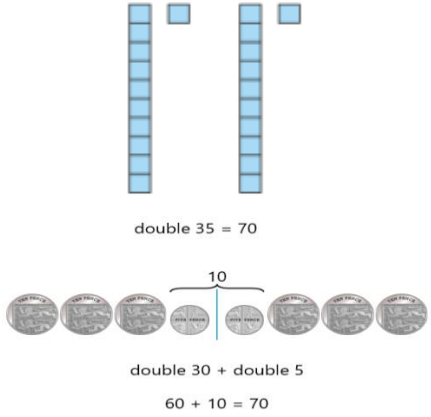
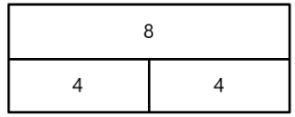
Y2 Multiplication

Objective and Strategy	Concrete	Pictorial	Abstract
Represent equal groups as repeated addition			writing expressions 3 + 3 + 3 + 3 + 3 + 3 eg. 2 + 2 + 2 + 2 □ + □ + □
Equal groups/ redistributing	sharing objects into equal groups and recognising unequal groups. 		Introducing x symbol. 2 groups of 3. (3x 2) (2 x 3) There are ___ equal groups of eggs. There are ___ eggs in each group. There are ___ groups of ___.
Represent equal groups as Multiplication			3 + 3 = 2 × 3 3 + 3 + 3 = ___ ___ = 4 × 3 4 × 3 = □ × 3

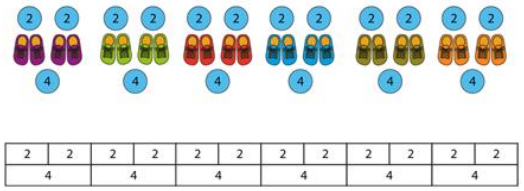
Y2 Multiplication

Objective and strategy	Concrete	Pictorial	Abstract
Two times table Adjacent multiples of 2 factor pairs written in any order. **Repeated for 10s and 5s times tables.**	  	   	$1 \times 2 = 2$ $2 \times 2 = 4$ $3 \times 2 = 6$ $\square \times \square = \square$ $8 \times 2 = \square$ $7 \times \square = 14$ × 10 2 20 3 30 ↓ + 10
The relationship between the 5 and 10 times table.		 	0 × 5 = 0 | 0 × 10 = 0 1 × 5 = 5 | 1 × 10 = 10 2 × 5 = 10 | 2 × 10 = 20 3 × 5 = 15 | 3 × 10 = 30 4 × 5 = 20 | 4 × 10 = 40 5 × 5 = 25 | 5 × 10 = 50 6 × 5 = 30 | 6 × 10 = 60 7 × 5 = 35 | 7 × 10 = 70 8 × 5 = 40 | 8 × 10 = 80 9 × 5 = 45 | 9 × 10 = 90 10 × 5 = 50 | 10 × 10 = 100 11 × 5 = 55 | 11 × 10 = 110 12 × 5 = 60 | 12 × 10 = 120
Multiplication is commutative (arrays)	 	  2 × 5	7 x 2 = 14 2 x 7 = 14

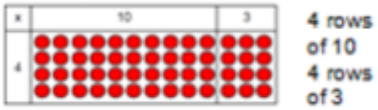
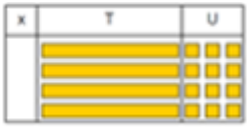
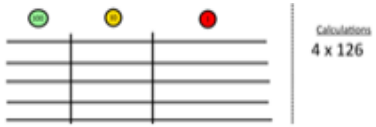
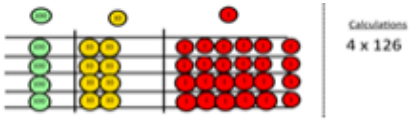
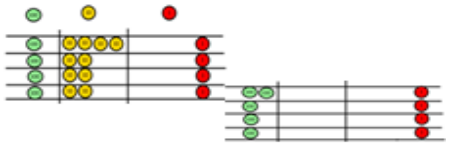
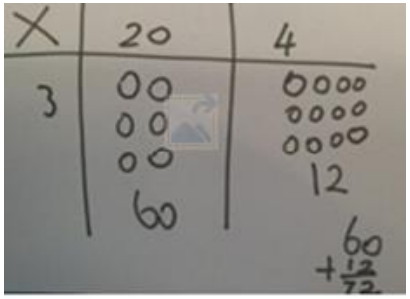
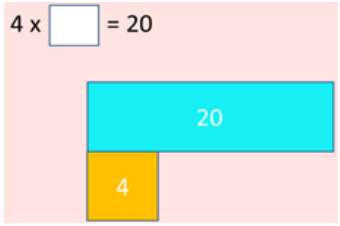
Y2 Multiplication

Objective and Strategy	Concrete	Pictorial	Abstract
Doubling numbers Double two digit numbers Doubling - (x2)			 Double 10 Double 1 10 + 10 = 20 1 + 2 = 2 Double 11 = 22

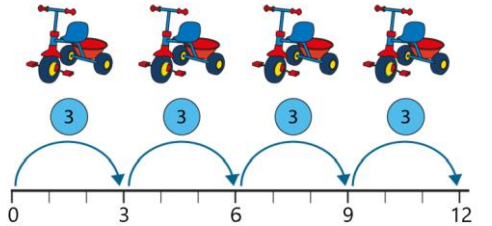
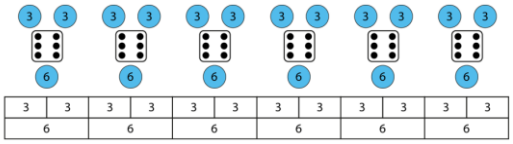
Y3 Multiplication

Objective and strategy	Concrete	Pictorial	Abstract
Recall multiplication facts, and corresponding division facts, in the 10, 5, 2 times table from the previous year. Learn the 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number.	See Y2		4 × 0 = 0 | 8 × 0 = 0 4 × 1 = 4 | 8 × 1 = 8 4 × 2 = 8 | 8 × 2 = 16 4 × 3 = 12 | 8 × 3 = 24 4 × 4 = 16 | 8 × 4 = 32 4 × 5 = 20 | 8 × 5 = 40 4 × 6 = 24 | 8 × 6 = 48 4 × 7 = 28 | 8 × 7 = 56 4 × 8 = 32 | 8 × 8 = 64 4 × 9 = 36 | 8 × 9 = 72 4 × 10 = 40 | 8 × 10 = 80 4 × 11 = 44 | 8 × 11 = 88 4 × 12 = 48 | 8 × 12 = 96

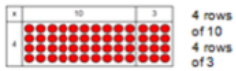
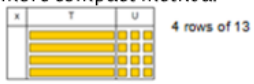
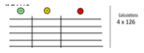
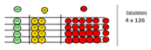
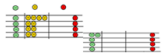
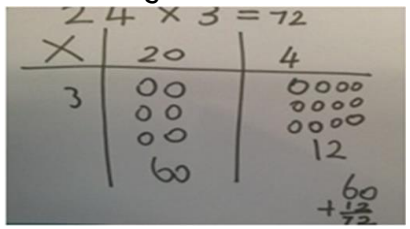
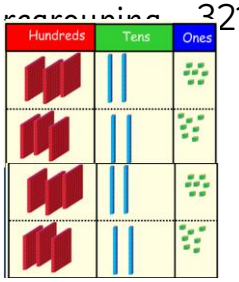
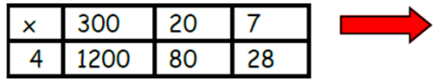
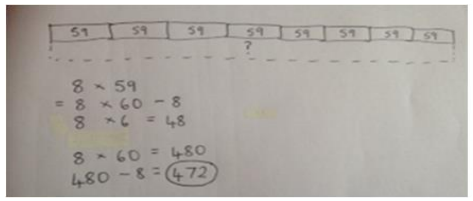
Y3 Multiplication

Objective and strategy	Concrete	Pictorial	Abstract
Grid method	Show the links with arrays to first introduce the grid method. 4 rows of 10 4 rows of 3  Move onto base ten to move towards a more compact method.  Move on to place value counters to show how we are finding groups of a number. We are multiplying by 4 so we need 4 rows.  Fill each row with 126.  Add up each column starting with the ones making any exchanges needed. 	Children can represent their work with place value counters in a way that they understand. They can draw the counters using colours to show different amounts or just use the circles in the different columns to show their thinking as shown below. 24 x 3 = 72  Use bar models to explore missing numbers.  	Start with multiplying by one digit numbers and showing the clear addition alongside the grid. x | 20 | 5 8 | 160 | 40 160 + 40 = 200

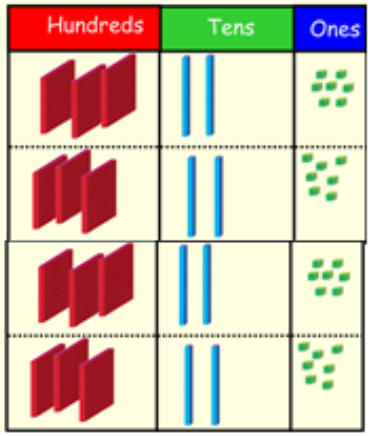
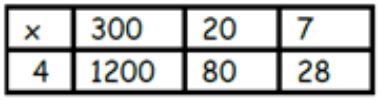
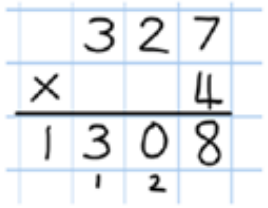
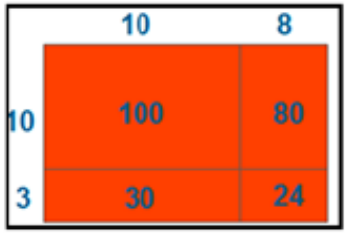
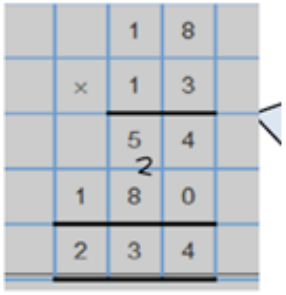
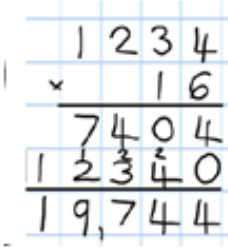
Y4 Multiplication

Objective and strategy	Concrete	Pictorial	Abstract
3, 6 and 9, and the relationship between them Recall all times tables up to 12 x 12	 There are 12 wheels. 4 × 3 = 12 3 × 4 = 12 	Draw a picture like this to show 7 × 3 = 21. 	6 x 3 = 18 3 x 2 = 6 X 2 So X 2 6 x 2 = 12

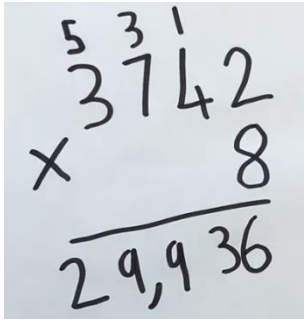
Y4 Multiplication

Objective & Strategy	Concrete	Pictorial	Abstract
Grid method recap from year 3 for 2 digits x 1digit Move to multiplying 3 digit numbers by 1digit. (Year 4 expectation)	Show the links with arrays to first introduce the grid method. 4 rows of 10 4 rows of 3  Move onto base ten to move towards a more compact method.  Move on to place value counters to show how we are finding groups of a number. We are multiplying by 4 so we need 4  Fill each row with 126.  Add up each column starting with the ones making any exchanges needed. 	Children can represent their work with place value counters in a way that they understand. They can draw the counters using colours to show different amounts or just use the circles in the different columns to show their thinking as shown below.  	Start with multiplying by one digit numbers and showing the clear addition alongside the grid. | x	30	5
---	---	---
7	210	35	 210 + 35 = 245
Column Multiplication Begin by multiplying a 2 digit number by a 1 digit number and progress to a 3 digit number b	Children can continue to be supported by place value counters at the stage of multiplication. This initially done where there is no regrouping. 321 x 2 = 642  It is important at this stage that they always multiply the ones first. The corresponding multiplication is modelled alongside.	 The grid method may be used to show how this relates to a formal written method.  Bar modelling and number lines can support learners when solving problems with multiplication alongside the formal written methods.	327 x 4 28 80 1200 1308 3 2 7 x 4 1 3 0 8 1 2 This may lead to a compact method.

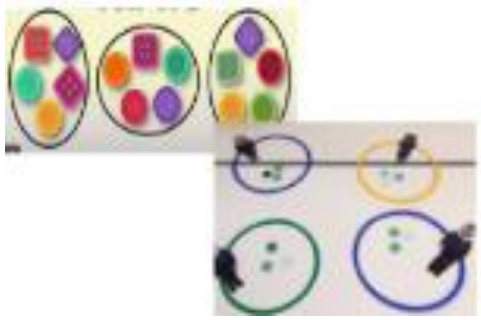
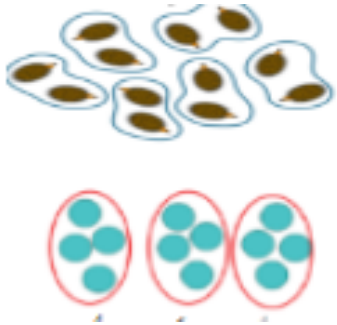
Y5 Multiplication

Objective & Strategy	Concrete	Pictorial	Abstract
Column Multiplication for up to 4 digits x 1 or 2 digit.	 It is important at this stage that they always multiply the ones first. Children can continue to be supported by place value counters at the stage of multiplication. This initially done where there is no regrouping. 321 x 2 = 642		327 x 4 28 80 1200 1308  This will lead to a compact method.
Column multiplication	Manipulatives may still be used with the corresponding long multiplication modelled alongside.	 Continue to use bar modelling to support problem solving	 18 x 3 on the first row (8 x 3 =24, carrying the 2 for 20, then 1 x 3) 18 x 10 on the 2nd row. Show multiplying by 10 by putting zero in ones first. 

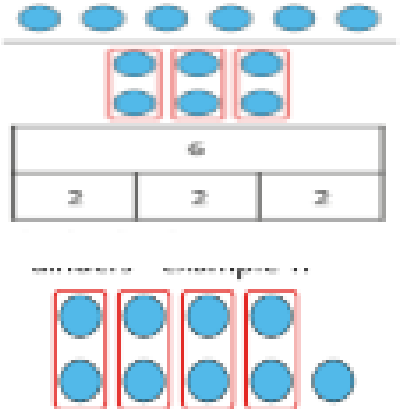
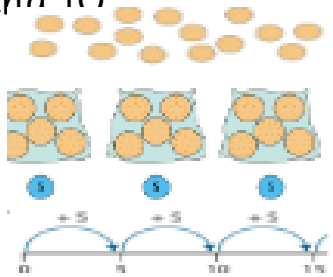
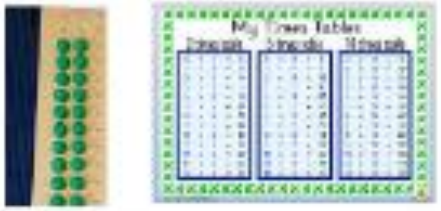
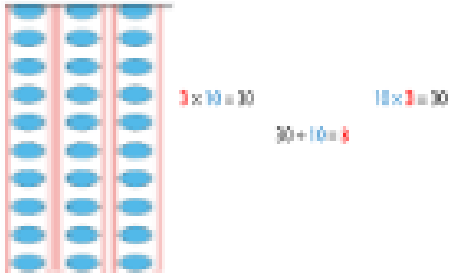
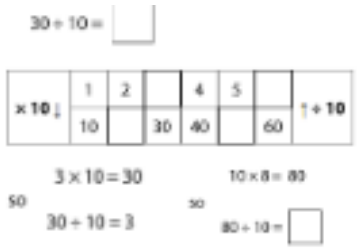
Y6 Multiplication

Objective & Strategy	Concrete	Pictorial	Abstract
Multiply numbers up to 4d x 1d using short multiplication . Multiply numbers up to 4d x 2d using long multiplication Multiplying decimals up to 2 decimal places by a single digit.			 Ensure children remember to carry tens across to the next column and add them onto their answer Remind children to utilize a place holder to represent the 10s in the multiplier Remind children that the single digit belongs in the units column. Line up the decimal points in the question and the answer.

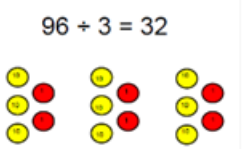
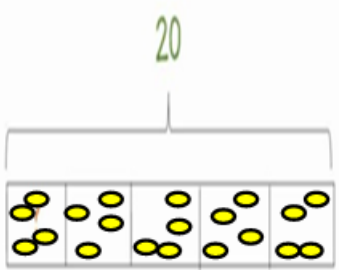
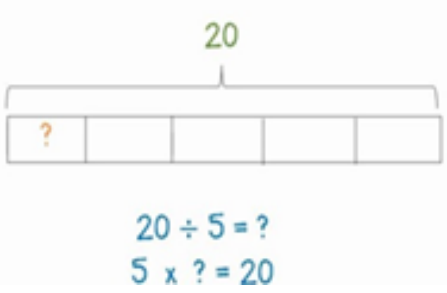
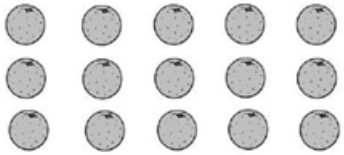
Y1 Division

Objective and strategy	Concrete	Pictorial	Abstract
sharing into equal groups (links to multiplication) using amounts that link to 2, 5 and 10 amounts. **Recognising unequal groups**	Provide a variety of objects to share into equal groups 		"6 groups of 2" "12 shared between 6 is 2" Children not to use X OR ÷ symbol.
Halving sharing a number into groups of 2	 Share objects eg. cubes/ counters into groups of 2 	Begin with shapes to recognise 2 equal parts.  Children may also draw hoops to record pictorially. 	Children not to use ½ fraction in Year 1. Half of 8 is _____ Half of 12 is _____ 
Quarters sharing a number into groups of 4	 Share objects eg. cubes/ counters into groups of 4. 		Children not to use ¼ fraction in Year 1. A quarter of 8 is ____ A quarter of 12 is ____

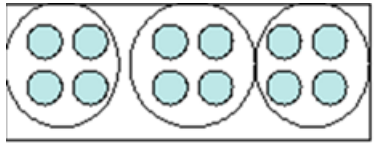
Y2 Division

Objective and strategy	Concrete	Pictorial	Abstract
sharing objects **sometimes with a remainder** **Keep groups of numbers within 2, 5 and 10.**	Use real objects 		Knowledge of repeated addition and multiplication link $6 = 2 + 2 + 2$ $6 = 3 \times 2$ $\quad$ $6 = 2 \times 3$
Representing quotitive division Introduction of division symbol Division equations groups of 2, 5 and 1		Sharing into groups and then begin to skip count in 2, 5 and 10 	$3 \times 5 = 15$ $15 \div 5$ $15 \div 5 = 3$ $\square \div \square$ $\square \times 10 = 30$ $\quad$ $30 \div 10 = \square$
Division using known facts rather than skip counting Example inc 10s. **Repeat with 5 and 2**	**2, 5 and 10 times table charts available** 		

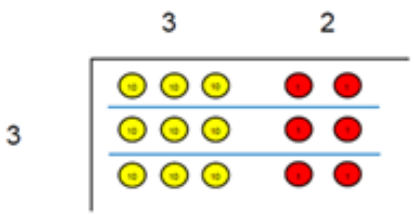
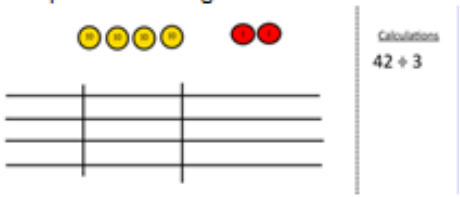
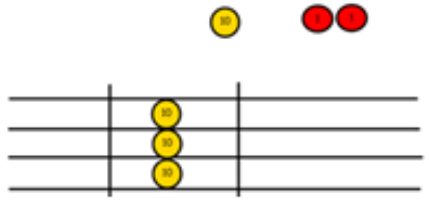
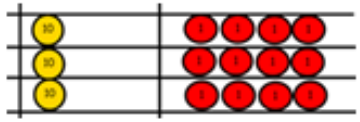
Y3 Division

Objective and strategy	Concrete	Pictorial	Abstract
Division as grouping	Use cubes, counters, objects or place value counters to aid understanding.  24 divided into groups of 6 = 4 	Continue to use bar modelling to aid solving division problems. 	How many groups of 6 are in 24? 
Division with arrays	 Link division to multiplication by creating an array and thinking of the calculations that can be created. Eg 15 ÷ 3 = 5 5 x 3 = 15 15 ÷ 5 = 3 3 x 5 = 15	Draw an array and use lines to split the array into groups to make multiplication and division sentences 	Find the inverse of multiplication and division sentences by creating eight linking number sentences. 7 x 4 = 28 4 x 7 = 28 28 ÷ 7 = 4 28 ÷ 4 = 7 28 = 7 x 4 28 = 4 x 7 4 = 28 ÷ 7 7 = 28 ÷ 4

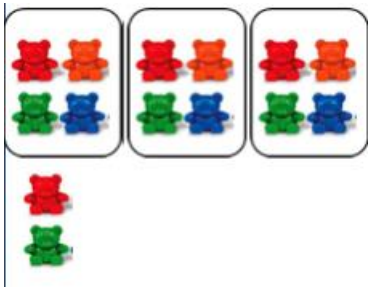
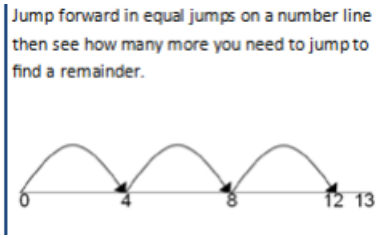
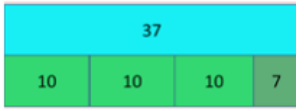
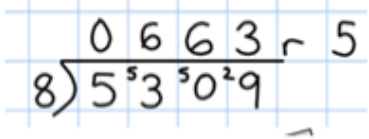
Y4 Division

Objective and strategy	Concrete	Pictorial	Abstract
Children use known and derived facts to divide a 2 digit number by a 1 digit number (eg I know 30 ÷ 3 = 10		Children can continue to use diagrams to help them divide numbers into equal parts. 12 ÷ 3 = 4 	Children use short division to divide a 3 digit number by a single digit with no exchanging. 121 3 ▌ 363
Children divide a 4 digit number by a 1 digit number using short division and whole numbers (no exchanging or remainders)			

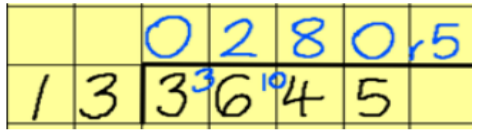
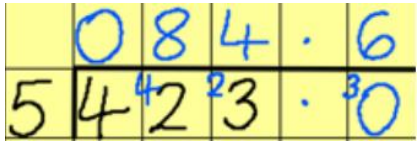
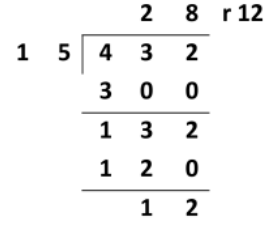
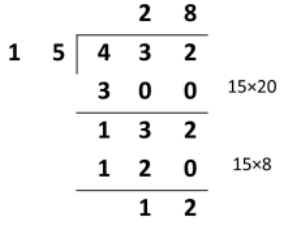
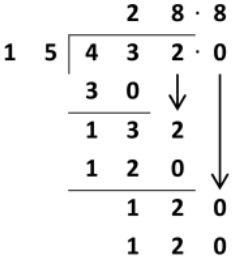
Y5 Division

Objective and strategy	Concrete	Pictorial	Abstract
Divide numbers up to 4 digits by a one-digit number using the formal written method of short division	96 ÷ 3 Tens Units 3 2 3  Use place value counters to divide using the bus stop method alongside  42 ÷ 3= Start with the biggest place value, we are sharing 40 into three groups. We can put 1 ten in each group and we have 1 ten left over.  We exchange this ten for ten ones and then share the ones equally among the groups.  We look how much in 1 group so the answer is 14.	Students can continue to use drawn diagrams with dots or circles to help them divide numbers into equal groups. Children can also use bar models to represent division. Encourage them to move towards counting in multiples to divide more efficiently.	Begin with divisions that divide equally with no remainder. 2 1 8 3 4 8 7 2

Y5 Division

Objective and strategy	Concrete	Pictorial	Abstract
Division with remainders	Use known facts to teach division with remainders 14 ÷ 3 = I know 12 ÷ 3 = 4 and then I have a remainder of 2 	Jump forward in equal jumps on a number line then see how many more you need to jump to find a remainder.  Draw dots and group them to divide an amount and clearly show a remainder. 	Complete the divisions using R to show a remainder. 28 ÷ 8 = 3 R 3  Use bar models to show division 37 ÷ 3 = 3 R 7  Move onto divisions with a remainder. 

Y6 Division

Objective and strategy	Concrete	Pictorial	Abstract
Divide numbers up to 4 digits by a two-digit number using the formal written method of short division, where the answer has up to 2dp.			 Fact box  Progress to expressing remainders as fractions/decimals 
Divide numbers up to 4 digits by a two-digit number using the formal written method of long division, where the answer has up to 2dp.		432 ÷ 15 becomes  Answer: 28 remainder 12	432 ÷ 15 becomes  $\frac{12}{15} = \frac{4}{5}$ Answer: $28\frac{4}{5}$	432 ÷ 15 becomes  Answer: 28·8