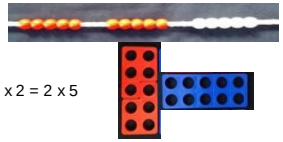
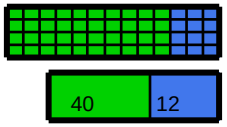
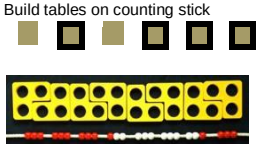
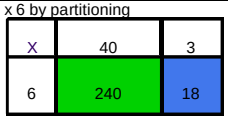
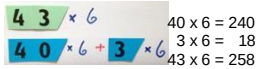
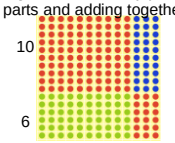
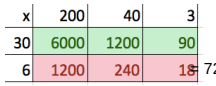
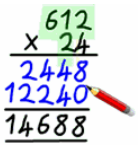
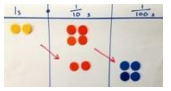
Multiplication Routeway

Written Methods		Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	Write and calculate mathematical statements for x using the x tables they know progressing to formal written methods, still supported by visual representations and practical equipment	Multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout	Multiply numbers up to 4 digits by a 1- or 2-digit number using a formal written method, including long multiplication for 2-digit numbers.	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication 5172 x 38 41376 + 155160 196536
Developing conceptual understanding	2 frogs on each lily pad.  Use concrete objects, such as socks, coins, counter or cubes to make simple arrays 	5 frogs on each lily pad 5 x 3 = 15  5 x 2 = 2 x 5  Build tables on counting stick  Link to repeated addition  Describe a multiplication statement in a variety of ways *e.g.* *5 + 5 + 5 + 5 = 20* *5 × 4 = 20* *5 multiplied by 4 = 20* *4 groups of 5 equal 20*	If I know 10 x 8 = 80 then …  So 13 x 4 = 10 x 4 + 3 x 4  Build tables on counting stick  Other representations and structures can include; bar models, arrays and place value mats Resources can include; Numicon, counters, 100 squares and table squares	43 x 6 by partitioning   40 x 6 = 240 3 x 6 = 18 43 x 6 = 258 If I know 4 x 6 = 24, then 40 x 6 is ten times bigger = 240. Use the Distributive Law to multiply numbers together: 13 x 16 by partitioning, multiplying parts and adding together  100 + 30 + 60 + 18 = 208	Grid method linked to formal written method  = 7290 = 1458 + 8748 Long multiplication:  Combine place value knowledge with known facts to solve problems involving number up to three decimal places: If I know 4 x 6 then 0.4 x 6 is ten times smaller = 2.4 0.4 x 0.6 is ten times smaller again = 0.24  Multiply proper fractions and mixed numbers by whole numbers supported by equipment and diagrams (e.g. 2/3 x 4, 1 ½ x 3)	Solve Multiplication and multi-step problems in contexts, deciding which operations and methods to use and why. Examples: There is space in the car park for 17 rows of 32 cars. How many cars can park? Find the area of a swimming pool which is 25m long and 7.5m wide. Multiply simple pairs of proper fractions, writing the answer in its simplest form (e.g. ¼ × ½ = 1/8)
With jottings **… or in your head ….**	Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher	Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts	Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental methods progressing to formal written methods.	Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; x and ÷ by 10 and by 100; multiplying together three numbers. Recognise and use factor pairs and commutativity in mental calculations	Multiply and divide numbers mentally drawing upon known facts. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000. Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers. Establish whether a number up to 100 is prime	Perform mental calculations, including with mixed operations and large numbers Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy Multiply numbers given to 3 decimal places by 10, 100 and 1000
Just know it!	Count in multiples of twos, fives and tens Begin to recall and use x and ÷ facts for the 10 x tables	Recall and use x and ÷ facts for the 2, 5 and 10 x tables, including recognising odd and even numbers	Recall and use x and ÷ facts for the 3, 4 and 8 times tables	Recall and use x and ÷ facts for the 6, 7, 9, 11 and 12 times tables By the year end, recall x and ÷ facts for ALL x tables up to 12 x 12	Recall prime numbers up to 19. Know and use the vocabulary of prime numbers, prime factors and composite (non---prime) numbers. Recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³)	Identify common factors, common multiples and prime numbers Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts

Year 1 PROGRESSION Year 6