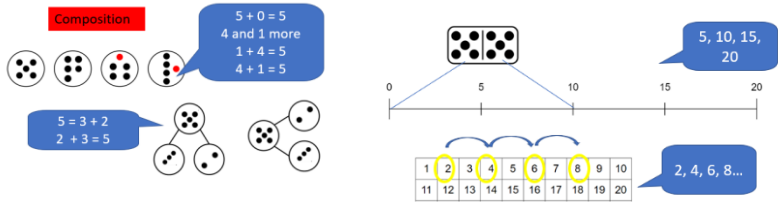
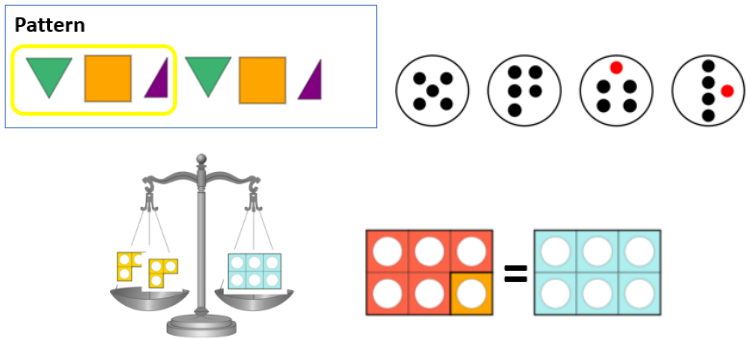
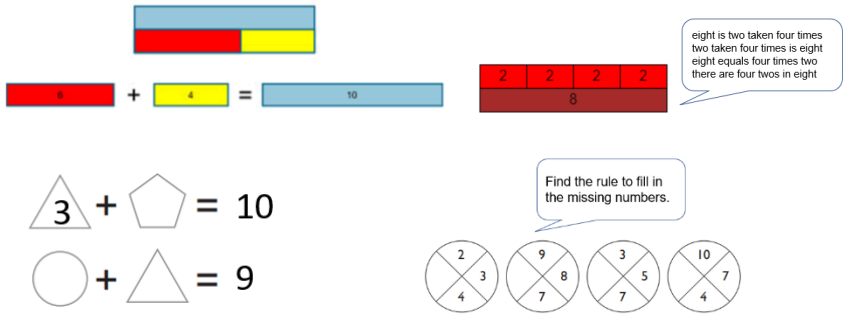
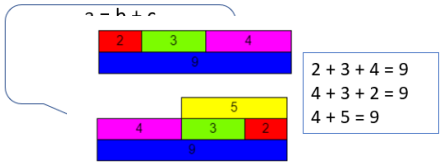
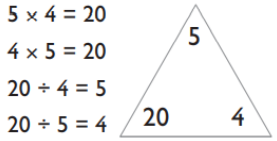
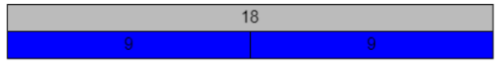
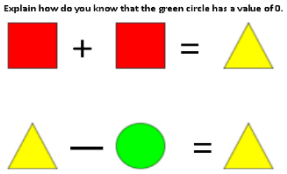
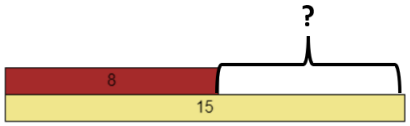
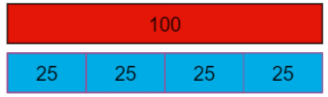
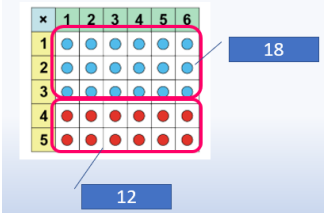
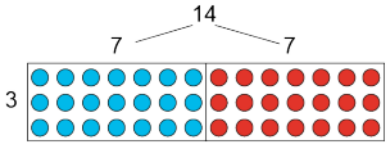
Arithmetic to Algebra 2022 (Click4teaching K Burton)

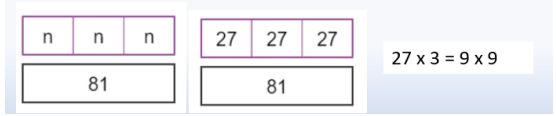
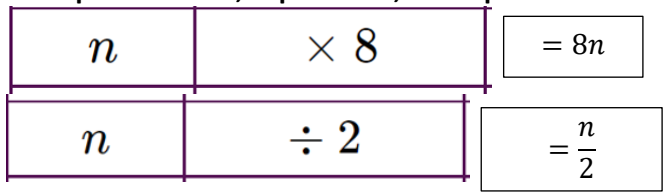
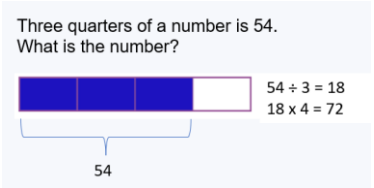
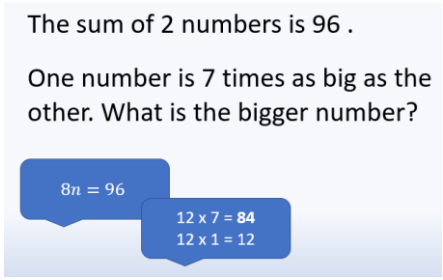
Year	Arithmetic	Algebra
EYFS: ELG Number	Have a deep understanding of number to 10, including the composition of each number; 14 - Subitise (recognise quantities without counting) up to 5; - Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. 	**Principles: balancing with the equals sign , repeating patterns.**  N+3=7 **N stands for a number**
1	Given a number, identify 1 more and 1 less. Represent and use number bonds and related subtraction facts within 20. Add and subtract one-digit and two-digit numbers to 20, including 0. Interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs 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.	**Principles: using symbols and shapes (empty box) to find missing values** 
2	Use place value and number facts to solve problems. Recall and use addition and subtraction facts to 20 fluently. Derive and use related facts up to 100. Add and subtract numbers using concrete objects, pictorial representations, and mentally, including:	**Principles: using symbols and shapes and letters, inverse relationships to find missing values with algebraic reasoning.**

Arithmetic to Algebra 2022 (Click4teaching K Burton)

	• a two-digit number and 1s • a two-digit number and 10s • 2 two-digit numbers • adding 3 one-digit numbers Show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. Calculate mathematical statements for multiplication and division within the multiplication tables. Show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot. Write the mathematical statements using the multiplication (×), division (÷) and equals (=) signs.	■ + 7 = 13 means that ■ must be 6 by transforming the equation by the laws of the arithmetic.      
Year	Arithmetic	Algebra
3	Count from 0 in multiples of 4, 8, 50 and 100. Find 10 or 100 more or less than a given number. Add and subtract numbers mentally, including: • a three-digit number and 1s • a three-digit number and 10s • a three-digit number and 100s Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know,	**Principles: generalising and stating a rule, finding unknowns and variables to solve equations and spot patterns. Integer scaling.**  5 x n = a Rule: a ends in 5 or 0.

	including for two-digit numbers, times one-digit numbers, using mental methods.	Peter has 4 books Harry has five times as many books as Peter. How many books has Harry?  4 × 5 = 20 Harry has 20 books A computer game is £24 in the sale. This is one quarter of its original price. How much did it cost before the sale? 
4	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. Add and subtract numbers with up to 4 digits using a range of mental methods for addition and subtraction where appropriate. Recall multiplication and division facts for multiplication tables up to 12 × 12. Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; dividing by 1; multiplying together three numbers. Recognise and use factor pairs and commutativity in mental calculations.	**Principles: generalising, associative and distributive laws, finding new relations from known facts.** Fill in the missing numbers. $100 \div 4 = \square$ $\square \times 20 = 100$ $100 \div 50 = \square$ $25 + \square = 100$  4n = 100 n = 25 $5 \times 6 = 3 \times 6 + 2 \times 6$   $14 \times 3 = 7 \times 3 + 7 \times 3$ $= 21 + 21$ $= 42$

Arithmetic to Algebra 2022 (Click4teaching K Burton)

		At the dressmakers, Debbie buys buttons weighing 3 grams each. If she has 81 grams of buttons, how many buttons does she buy? 
Year	Arithmetic	Algebra
5	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. Add and subtract numbers mentally with increasingly large numbers. Add and subtract square and cubed numbers. 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 Establish whether a number up to 100 is prime and recall prime numbers up to 19. Multiply and divide numbers mentally drawing upon known facts. Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.	**Principles: formula, expressions, and equations**   

6	Use negative numbers in context and calculate intervals across zero. Perform mental calculations, including with mixed operations. Identify common factors, common multiples, and prime numbers. Perform mental calculations, including with mixed operations and large numbers.	**Principles: formula, expressions, and equations, algebraic notation and manipulation.** 3(n+8) = 5n + 8 3n + 24 = 5n + 8 16 = 2n n = 8 