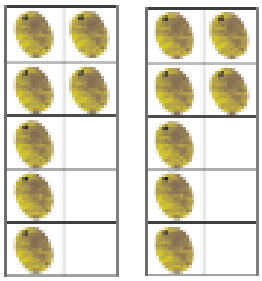
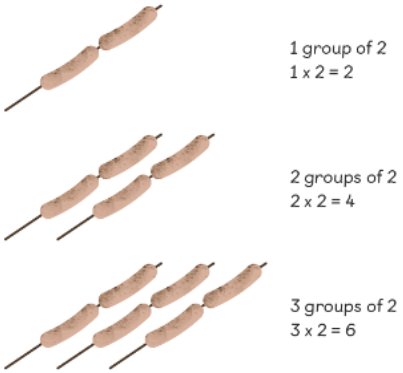
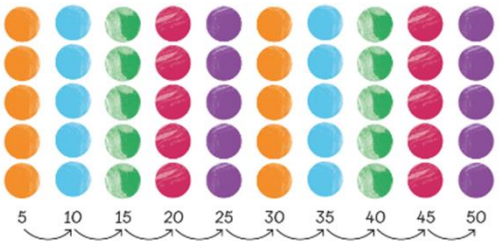
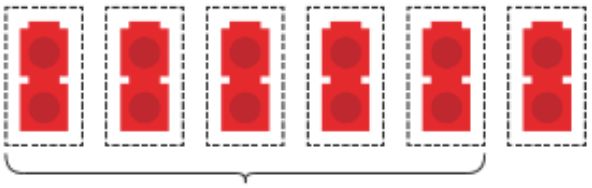
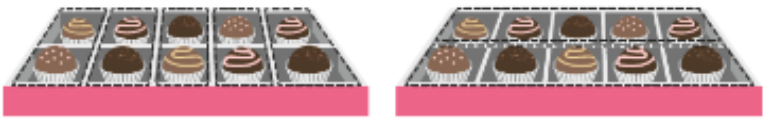
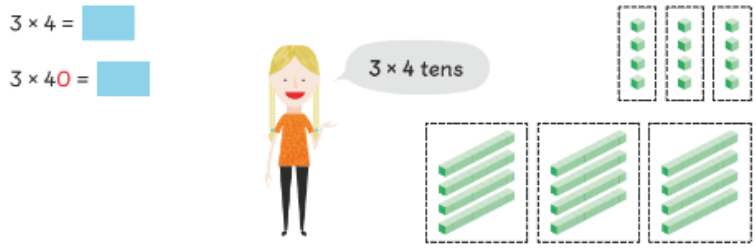
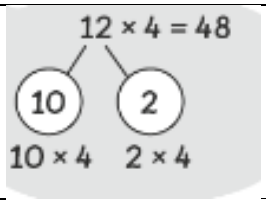
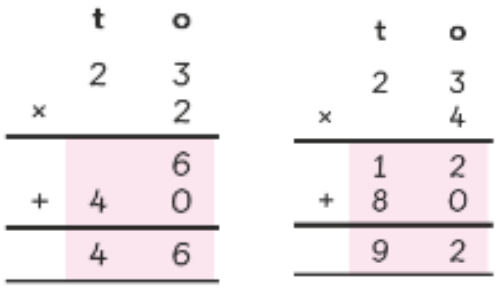
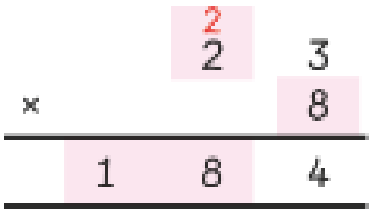
MULTIPLICATION - YEAR 1	
VOCABULARY: equal groups, groups of…, equal rows, altogether, lots of…, double	
Mental calculation/recall of Multiplication facts: *doubles of all numbers to 10, counting in 2s/10s	
*making equal groups	
*equal groups, counting up in…	 There are 5 bundles. 5 bundles of 3 = ☐ 5 groups of ☐ = ☐ ☐ threes = ☐ There are ☐ altogether.  Each bundle has 3 . 3, ☐, ☐, ☐, ☐. 
*arrays by making equal rows	 ☐ rows 5 in one row ☐ fives = ☐ There are ☐ altogether.
*doubling	 Double 7 = ☐ sevens = ☐

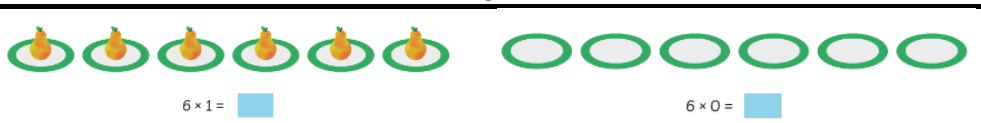
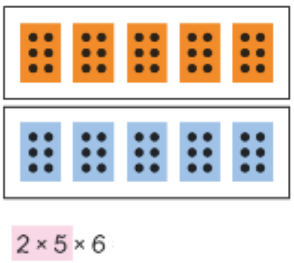
MULTIPLICATION - YEAR 2	
VOCABULARY: X, times, groups of…, lots of…, times table, arrays, multiple	
Mental calculation/recall of Multiplication facts: *times tables: 2,3,4,5,10, counting in 5s [Y1: doubles of all numbers to 10, counting in 2s/10s]	
*repeated addition	3 + 3 + 3 + 3 = 12 4 threes = 12 4 groups of 3 = 12 4 × 3 = 12 
*2,3,4,5,10 times table, counting up	1 stick has 2 sausages.  1 group of 2 1 x 2 = 2 2 groups of 2 2 x 2 = 4 3 groups of 2 3 x 2 = 6
*array images	 5 10 15 20 25 30 35 40 45 50
*using a times table fact to work out 1 more/less lot of…	6 x 2 = ☐  5 x 2 = 10 6 x 2 = 10 + 2 = 12 6 × 2 is 2 more than 10.
*commutative law, using array	 5 x 2 = 10 2 x 5 = 10 5 × 2 is equal to 2 × 5.

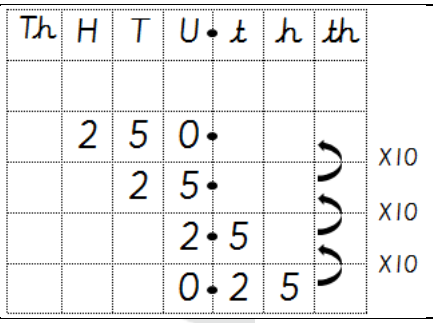
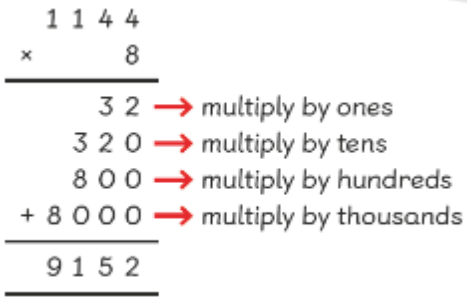
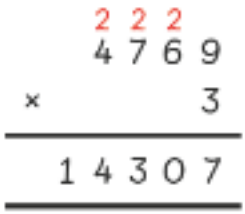
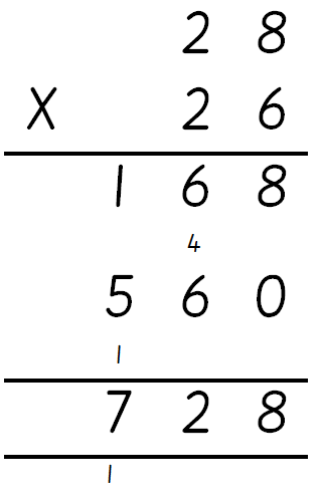
MULTIPLICATION - YEAR 3	
VOCABULARY: product, twice, …times as many…, partition, recombine	
Mental calculation/recall of Multiplication facts: *times tables: 6,8 [Y2: times tables: 2,3,4,5,10, doubles of all numbers to 10, counting in 2s/5s/10s]	
*doubling for 4,8 times table	 1 × 4 = 4 1 × 8 = 8 2 × 4 = 8 2 × 8 = 3 × 4 = 12 3 × 8 = 4 × 4 = 16 4 × 8 =
*distributive law	7 X 8 = (5 X 8) + (2 X 8)
*X by a multiple of 10	 3 × 4 = 3 × 40 = 3 × 4 tens
*X 10	23 X 10 H T U 2 3 0 2 3 X10 Each digit moves one column to the left (up the PV chart) Fill in any gaps with 0
*2-dig X 1-dig partition the 2-digit number, recombine	 12 × 4 = 48 10 2 10 × 4 2 × 4
*2-dig X 1-dig, using the expanded method	 t o 2 3 × 2 6 + 4 0 4 6 t o 2 3 × 4 1 2 + 8 0 9 2
*2-dig X 1-dig, using the formal method	 2 2 3 × 8 1 8 4 3 X 8 = 24 2 X 8 = 16 , 16 + 2 = 18

MULTIPLICATION - YEAR 4

VOCABULARY: brackets

Mental calculation/recall of Multiplication facts:
*times tables: 7,9,11,12, counting in 25s/50s
[Y3: times tables: 2,3,4,5,6,8,10, doubles of all numbers to 10, counting in 2s/5s/10s]

* X 0, 1	
*associative law a X (b X c) = (a X b) X c	Introduce brackets, show multiplication can be done in any order (2 X 5) X 6 = 10 X 6 = 60 2 X (5 X 6) = 2 X 30 = 60 etc 
*X by multiple of 10/100, using associative law	$9 \times 30 = 9 \times 3 \times 10$ $= 9 \times 3 \times 10$ $= 27 \times 10$ $= 27$ tens $= 270$ $7 \times 300 = 7 \times 3 \times 100$ $= 7 \times 3 \times 100$ $= 21 \times 100$ $= 21$ hundreds $= 2100$
*X 100	4•7 X 100 Th H T U•t h 4 7 0• 4 7• 4•7 X10 X10 Each digit moves two columns to the left (up the PV chart) Fill in any gaps with 0
*3-digit X 1-digit, using expanded method	5 1 2 × 8 1 6 multiply the ones 1 8 0 multiply the tens + 4 0 0 0 multiply the hundreds 4 0 9 6
*3-digit X 1-digit, using formal method	2 1 4 7 3 × 4 1 8 9 2 3 X 4 = 12 7 X 4 = 28 , 28 + 1 = 29 4 X 4 = 16 , 16 + 2 = 18

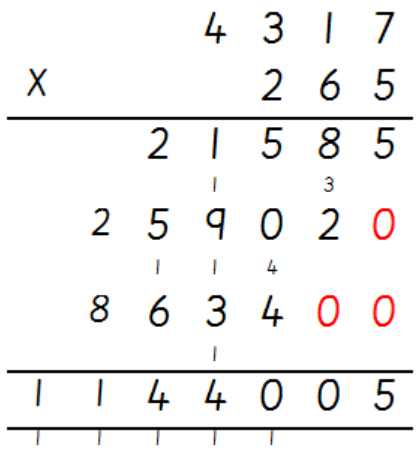
MULTIPLICATION - YEAR 5	
VOCABULARY: factors, factor pairs, prime numbers, non-primes, composite numbers, prime factors, common factors, lowest common factor, square numbers, formal written method, long multiplication	
Mental calculation/recall of Multiplication facts: *using times tables to multiply a number by a multiple of a power of 10, eg 7 X 400 [Y4: all times table up to 12X12, doubles of all numbers to 10, counting in 2s/5s/10s/25s/50s]	
*1-digit X decimal number with only one significant digit	4 X 0·7 = 4 X (7 ÷ 10) = (4 X 7) ÷ 10 = 28 ÷ 10 = 2·8
*X 1000	0·25 X 1000  Each digit moves three columns to the left (up the PV chart) Fill in any gaps with 0
*expanded method 4-dig X 1-dig	
*formal method 4-dig X 1-dig	
*2-dig X 2-dig, long multiplication method	 6 X 8 = 48 6 X 2 = 12, 12 + 4 = 16 Write 0 in units column 2 X 8 = 16 2 X 2 = 4, 4 + 1 = 5 168 + 560 using column addition method

MULTIPLICATION - YEAR 6

VOCABULARY: factors, factor pairs, prime numbers, non-primes, composite numbers, prime factors, common factors, lowest common factor, square numbers, formal written method, long multiplication

Mental calculation/recall of Multiplication facts:
*multiply a 1-digit number with a decimal number with 1 significant digit
eg 7 X 0·04
[Y5: using times tables to multiply a number by a multiple of a power of 10,
eg 7 X 400, all times table up to 12X12, doubles of all numbers to 10, counting in 2s/5s/10s/25s/50s]

*up to 6-digit X 6-digit, long multiplication method



5 X 7 = 35
5 X 1 = 5, 5 + 3 = 8
5 X 3 = 15
5 X 4 = 20, 20 + 1 = 21

Write 0 in units column
6 X 7 = 42
6 X 1 = 6, 6 + 4 = 10
6 X 3 = 18, 18 + 1 = 19
6 X 4 = 24, 24 + 1 = 25

Write 0 in the units and tens columns
2 X 7 = 14
2 X 1 = 2, 2 + 1 = 3
2 X 3 = 6
2 X 4 = 8

21585 + 259020 + 863400 using column addition method

*multiplying decimals by adjusting so they don't have decimals (X power of 10), calculate using long multiplication, then convert back (÷ power of 10)

84·36 X 12·8

84·36 X 12·8
= (84·36 X 12·8 X 1000) ÷ 1000
= (8436 X 128) ÷ 1000

Solve 8436 X 128 using long multiplication

8436 X 128 = 1079808

So 84·36 X 12·8 = 1079808 ÷ 1000
= 1079·808