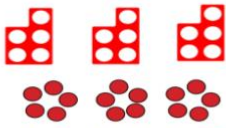

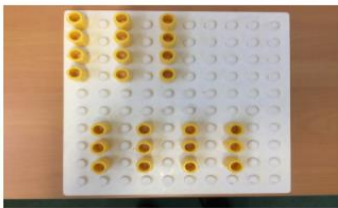
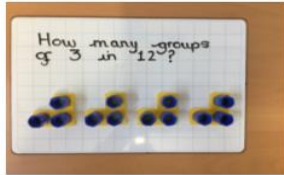
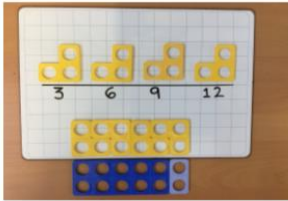
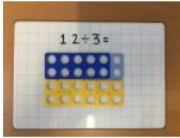


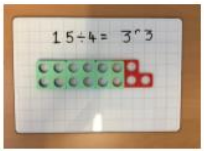

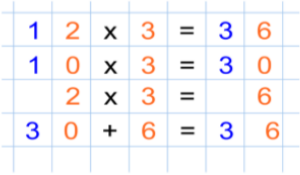
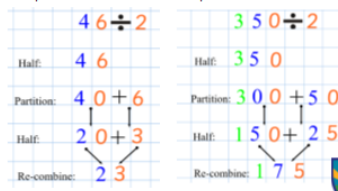


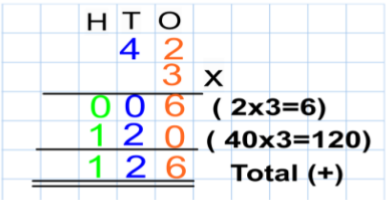

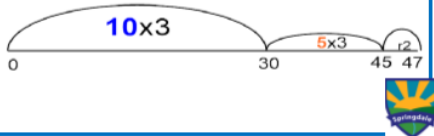

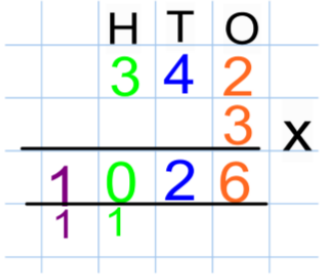





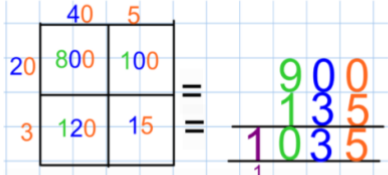

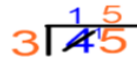



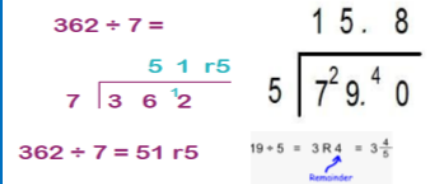



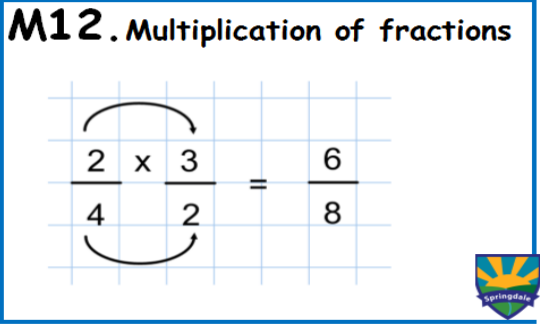
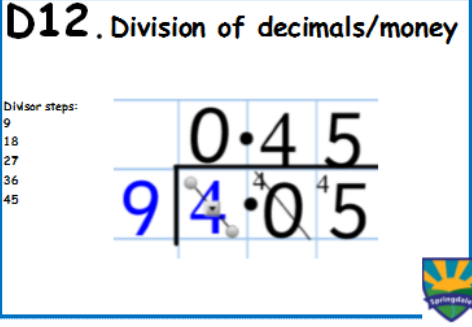
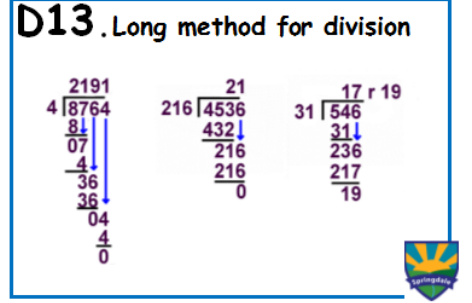
Visual Learning Steps for Written Calculations: Multiplication and Division

Expected By end of...	MULTIPLICATION	Key Concepts and Vocab	DIVISION	Key Concepts and Vocab
Year 1	M1 . Counting in groups with practical/concrete resources. 	This is 5×3 i.e. 5 three times. groups of sets of multiplied by count in 2s	D1 . Sharing with practical resources 	shared by groups of share
Year 1	M2 . Grouping in arrays 	4×3 i.e. 4 three times 3×4 i.e 3 four times arrays	D2 . Grouping with practical/concrete resources. 	groups of shapes of patterns of
Year 2	M3 . Counting in groups on a number line using practical/concrete resources 	4 lots of 3 How many 3s make 12? repeated addition	D3 . Grouping on a number line Step 1  Step 2 	4 lots of 3 4 groups of 3 4 sets of 3 How many times? divide jumps of

Year 2	<p>M4. Counting in groups on a number line</p> 	lots of groups of sets of jumps of times multiple of repeated addition	<p>D4. Grouping with a remainder</p> <p>Step 1</p>  <p>Step 2</p> 	<p>How many groups of? Sets of? Jumps of? How many left over?</p> <p>Remainder left left over inverse</p>
Year 3	<p>M5. Multiply by partitioning</p> 	<p>Partitioning into Tens and Ones is a vital skill</p> <p>partition multiply recombine/ total product times multiple of</p>	<p>D5. Halving using partitioning.</p> <p>Step 1: Evens numbers Step 2: Odd numbers</p> 	<p>Partitioning into Tens and Ones is a vital skill.</p> <p>partition divide by 2 half share inverse</p>
Year 3	<p>M6. Doubling using partitioning.</p> <p>Step 1: Not crossing 10s Step 2: Crossing 10s</p> 	<p>Partitioning into Tens and Ones is a vital skill.</p> <p>partition X 2 double near double twice times multiple of</p>	<p>D6. Grouping using the inverse on a number line, no remainder.</p> 	<p>Times table knowledge or ability to use a multiplication grid is vital.</p> <p>divide division divisor groups of quotient</p>

Year 4	<p>M7. Expanded method</p> <p>Estimate $\approx 40 \times 3 = 120$</p>  <p> H T O 4 2 3 X 0 0 6 (2x3=6) 1 2 0 (40x3=120) 1 2 6 Total (+) </p> 	<p>Multiply ones/units first. Always add carrying figures.</p> <p>tens ones/units expanded multiply times multiple of product</p>	<p>D7. Grouping using the inverse on a number line, remainder.</p> <p>$47 \div 3 = 15 \text{ r}2$</p>  	<p>inverse</p> <p>Times table knowledge or ability to use a multiplication grid is vital.</p> <p>division divisor groups of quotient left over/ remainder inverse</p>
Year 4	<p>M8. Standard written method</p> <p>Estimate $\approx 300 \times 3 = 900$ OR $340 \times 3 = 1020$</p>  <p> H T O 3 4 2 3 X 1 0 2 6 1 1 </p> 	<p>Multiply ones/units, then tens then hundreds.</p> <p>HTO multiplicand (342) multiplier (3) multiple of</p>	<p>D8 Short method without a remainder</p>  	<p>Use arrows to show how division calculation should be read</p> <p>divisor steps dividend (69) divisor (3) quotient (23) inverse check factor divisible by difference</p>

Year 4	<p>M9. Multiplication using a grid</p> <p>Estimate: $\approx 50 \times 20 = 1000$</p>  	<p>Partitioning into Tens and Ones is a vital skill.</p> <p>multiply ten times larger total column multiple</p>	<p>D9. Short method with a carried remainder</p>  	<p>Use arrows to show how division calculation should be read</p> <p>divisor steps dividend (45) divisor (3) quotient (15) remainder inverse check factor divisible by difference</p>
Year 5	<p>M10. Long multiplication</p> <p>Estimate $\approx 40 \times 20 = 800$</p>  	<p>Multiply the units and then the tens. Don't forget the 0 when multiplying 10s and 00 when multiplying 100s.</p> <p>HTO multiplicand (342) multiplier (3) total multiple</p>	<p>D10. Short method with a remainder</p>  <p>(including fraction and decimal remainders)</p> 	<p>Using arrows helps to show how division calculation should be read. A good understanding of times tables, inverse operations and remainders is vital.</p> <p>divisor steps dividend divisor quotient remainder</p>

<p>Year 5/6</p>	<p>M12. Multiplication of fractions</p> 	<p>Multiply the numerators and denominators. Cancel answers to the lowest/simplest form.</p> <p>numerator denominator</p>	<p>D12. Division of decimals/money</p> 	<p>Line up decimal points.</p> <p>divisor steps dividend divisor remainder decimal fraction quotient divisible by difference</p>
<p>Year 5/6</p>			<p>D13. Long method for division</p> 	<p>divisor steps dividend divisor remainder decimal fraction quotient divisible by difference</p>

Year
5/6

D14. Division of fractions (inverse)

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



Swop the
numerator and
denominator of
the second
fraction and
then use the
inverse (x)
Big Bottoms

numerator
denominator
inverse