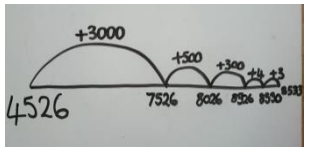
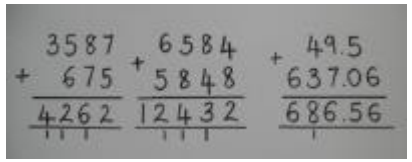
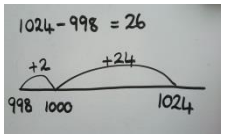
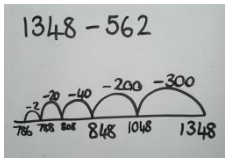
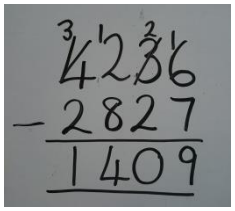
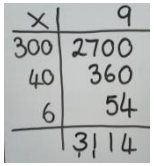
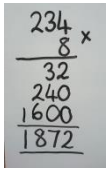
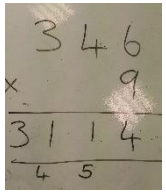
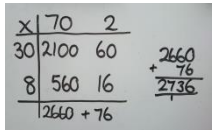
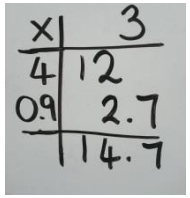
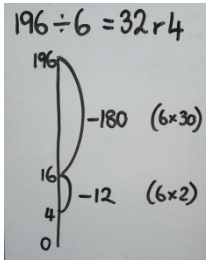
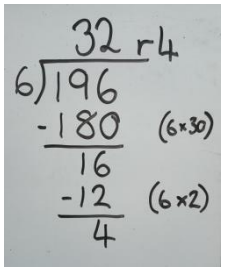
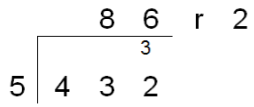
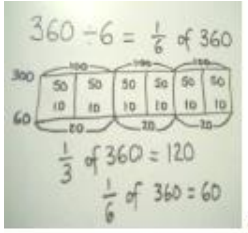
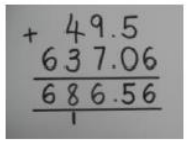
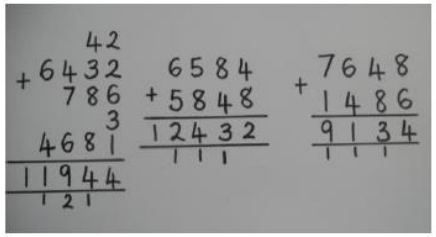
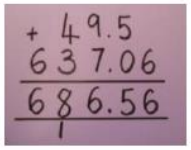
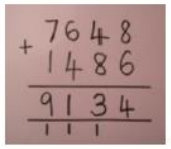
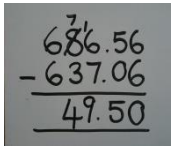
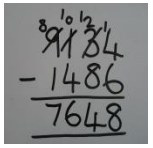
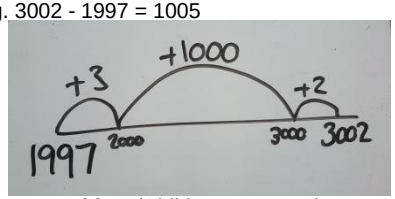
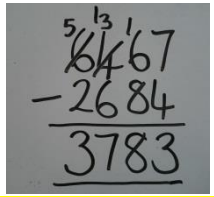
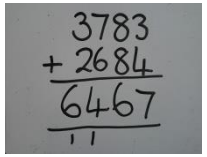
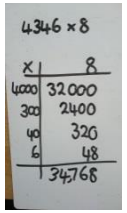
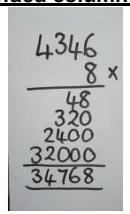
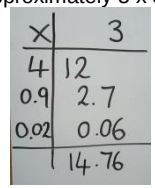
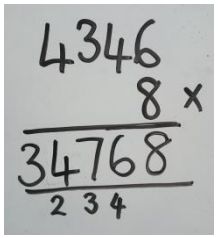
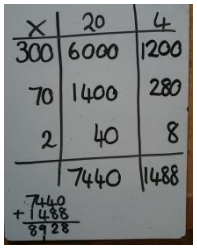
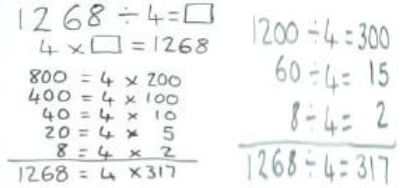
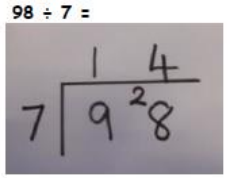
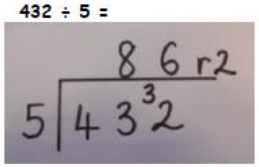
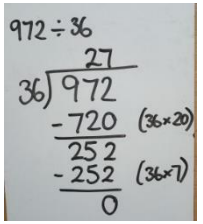
In order to encourage children to work mentally, calculations should always be presented horizontally so children can make decisions about how to tackle them. Encourage children to choose to use the most efficient method for the numbers and the context. Teach operations together to emphasise the importance of inverse.

	Addition to be taught alongside each other **Subtraction**		**Multiplication** to be taught alongside each other **Division**	
Y5	Children should be taught to add more than four digits, including decimals. **Number lines using efficient counting on:** 4526ml + 3807ml = 8333ml = 8.333 litres  **Compact method:**  **Compensation:** Children need to round and adjust to the nearest 10/100/1000, especially in the context of money. £4.95 + £6.80 + £9.14 = £5.00 - 5p + £7.00 - 20p + £9.00 + 14p = £21.00 + 14p - 25p = £21.00 - 11p = £ 20.89 Using similar methods, children will: ✓ add several numbers with different numbers of digits ✓ begin to add two or more decimal fractions with up to three digits and the same number of decimal places ✓ know that decimal points should line up under each other, particularly when adding or subtracting mixed amounts, e.g. 3.2 m - 280 cm	Children should be taught to subtract using more than four digits, including decimals. **Number lines and difference**: Where numbers are close together or near to multiples of 10/100/1000, children should continue to be taught to find the difference by counting up using a number line.   **Decomposition:** *(See Y4 for expanded form, which may be used to aid understanding before some children are ready to use the compact method)*  Moving on to decimals when ready… Children should: ✓ be able to subtract numbers with different numbers of digits ✓ begin to find the difference between two decimal fractions with up to three digits and the same number of decimal places ✓ know that decimal points should line up under each other Children should be encouraged to record their calculations in the most efficient way (i.e. using the fewest number of steps).	**Grid method** *(See Y4 to link grid method with arrays)* Children should calculate TOxO mentally, with jottings or expanded informal method. 3 and 4 digit x 1 digit numbers Children will approximate first 346 x 9 is approximately 350 x 10 = 3500   **Standard Method:** As children's understanding develops, they will move onto using the standard written method:  **Long multiplication (multiplication by more than a single digit) :** Children will approximate first 72 x 38 is approximately 70 x 40 = 2800, then use grid method, before progressing to the formal method.  23 × 14 92 (23 × 4) 230 (23 × 10) Children should multiply decimals with one decimal place by a single digit number, approximating first. They should know that the decimal points line up under each other.  4.9 x 3 is approximately 5 x 3 = 15 Factorise to multiply by larger numbers	Children should calculate TO ÷ O mentally, with jottings, using knowledge of known facts. **Short division HTO ÷ O** Children can start to subtract larger multiples of the divisor by x multiples of 10.   Solve division by chunking into known multiples of the divisor and illustrate on a vertical number line. **Standard Method:** As children's understanding develops, they will move onto using the standard written method:  Any remainders should be shown as integers, then as fractions, i.e. if the children were dividing 32 by 10, the answer should be shown as 3 2/10 (which could then be written as 3 1/5 in its lowest terms). Children need to make sensible decisions about rounding up or down after division, according to the context.  **Known Facts** 2000 ÷ 400 2000 ÷ 4 1500 ÷ 500 1500 ÷ 5 400 x 5 500 x 4 1/4 of 2000 1/5 of 2000

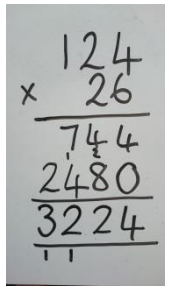
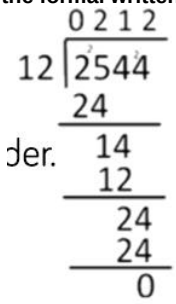
In order to encourage children to work mentally, calculations should always be presented horizontally so children can make decisions about how to tackle them. Encourage children to choose to use the most efficient method for the numbers and the context. Teach operations together to emphasise the importance of inverse.

			eg. 35x14 35 x (2x7) = (35x2) x 7 70 x 7= 490	

In order to encourage children to work mentally, calculations should always be presented horizontally so children can make decisions about how to tackle them. Encourage children to choose to use the most efficient method for the numbers and the context. Teach operations together to emphasise the importance of inverse.

	Addition to be taught alongside each other **Subtraction**		**Multiplication** to be taught alongside each other **Division**	
Y6 ↓ **Y7**	Children should: ✓ add several numbers with different numbers of digits ✓ begin to add two or more decimal fractions with up to four digits and either one or two decimal places ✓ know that decimal points should line up under each other, particularly when adding or subtracting mixed amounts, e.g. 401.2 + 26.85 + 0.71 401.2 26.85 + 0.71 428.76 1   Encourage self-checking using the inverse operation.     	Children should: ✓ be able to subtract numbers with different numbers of digits ✓ be able to subtract two or more decimal fractions with up to three digits and either one or two decimal places ✓ know that decimal points should line up under each other **Number lines 'Find the difference by counting up'** Where the numbers are involved in the calculation are close together or near to multiples of 10, 100 etc counting on using a number line could be used. e.g. 3002 - 1997 = 1005  **Decomposition** *(Children may continue to use number lines for subtraction if they are not yet ready for decomposition)*  This can be self-checked using the inverse operation.  	Short multiplication (by a single digit) - Grid method, leading to expanded and contracted column methods (3 and 4 digit x 1 and 2 digit numbers) **Grid method** **Expanded column method**   **Grid Method for decimals:** 4.92 x 3 is approximately 5 x 3 = 15  **Standard formal method (short multiplication):**  **Long Multiplication (grid method):** Children will approximate first. 372 x 24 is approximately 400 x 25 = 10,000  	Children will continue to use written methods to solve short division (division by a single digit).  **Short division;**   **Long division (3 digit ÷ 2 digit)** **Solve divisions with 3 and 4 digit numbers ÷ 1 and 2 digit numbers.** **Continue to use informal jottings on an empty number line to show chunking.** 

In order to encourage children to work mentally, calculations should always be presented horizontally so children can make decisions about how to tackle them. Encourage children to choose to use the most efficient method for the numbers and the context. Teach operations together to emphasise the importance of inverse.

			<u>Long multiplication (standard method):</u> As children progress, they will move onto using the standard method for long multiplication.  BODMAS- (brackets, orders, division, multiplication, addition, subtraction) (See Mathematics Appendix 1: Examples of formal written methods - The National Curriculum 2013 for further guidance.)	**Leading into the formal written method:**  **Any remainders should be shown as fractions, i.e. if the children were dividing 32 by 10, the answer should be shown as 3 2/10 which could then be written as 3 1/5 in its lowest terms.** Extend to decimals with up to 2 decimal places. Children should know that decimal points line up under each other.

In order to encourage children to work mentally, calculations should always be presented horizontally so children can make decisions about how to tackle them. Encourage children to choose to use the most efficient method for the numbers and the context. Teach operations together to emphasise the importance of inverse.

				(See Mathematics Appendix 1: Examples of formal written methods - The National Curriculum 2013 for further guidance.)

In order to encourage children to work mentally, calculations should always be presented horizontally so children can make decisions about how to tackle them. Encourage children to choose to use the most efficient method for the numbers and the context. Teach operations together to emphasise the importance of inverse.
