Saltburn Primary School

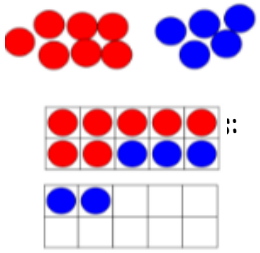
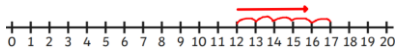
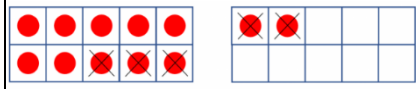
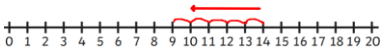
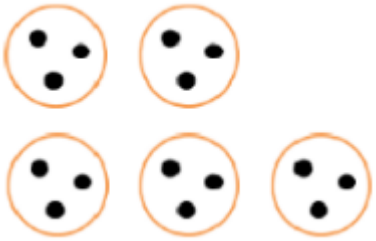
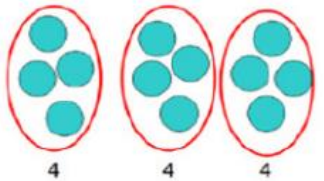
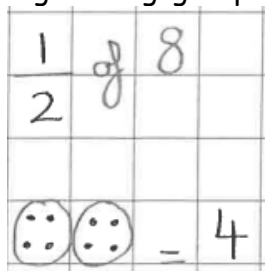
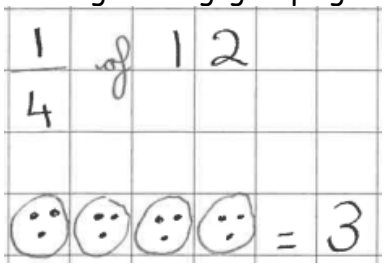
Mathematics

Calculation Policy

September 2024

Year 1 Calculation Policy – Saltburn Primary

These are the non-negotiable written calculation methods to be taught in Year 1 to ensure a consistent and progressive approach across school. Curriculum links are stated below but please refer to the National Curriculum/ Maths assessment grids for full coverage.

Addition	Subtraction	Multiplication	Division	Fractions
*Add one-digit and two-digit numbers to 20, including zero; represent and use number bonds within 20 Begin with use of tens frames as part of transition from Early Years Tens frames: 7 + 5 = 12  Number lines: Counting on 12 + 5 = 17  100 Square:	* Subtract one-digit and two-digit numbers to 20, including zero; represent and use number bonds and related subtraction facts within 20 Begin with use of tens frames as part of transition from Early Years Tens frames: 7 + 5 = 12  Number lines: Counting back 14 – 5 = 9  100 Square:	* Solve one-step problems involving multiplication by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher Arrays: 3 + 3 + 3 + 3 + 5 = 15 (3 x 5) 	* Solve one-step problems involving division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher Sharing/grouping:  12 shared by 3 is 4 12 into groups of 3 = 4 (12 ÷ 3 = 4)	* Recognise, find and name a half as one of two equal parts of an object, shape or quantity Using sharing/grouping:  * Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity Using sharing/grouping: 

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Year 2 Calculation Policy – Saltburn Primary

These are the non-negotiable written calculation methods to be taught in Year 2 to ensure a consistent and progressive approach across school. Curriculum links are stated below but please refer to the National Curriculum/ Maths assessment grids for full coverage.

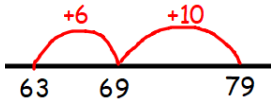
Addition

* Add: a two-digit number and ones; a two-digit number and tens; two two-digit numbers

Number lines:

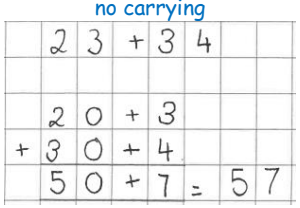
counting on – starting with ones

63 + 16



Expanded column addition:

no carrying



Column addition:

no carrying

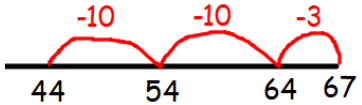
Subtraction

* Subtract: a two-digit number and ones; a two-digit number and tens; two two-digit numbers

Number lines:

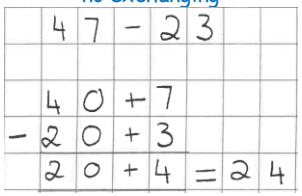
counting back – starting with ones

67 – 23 = 44



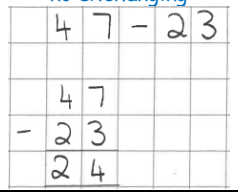
Expanded column subtraction:

no exchanging



Column subtraction:

no exchanging



Multiplication

* Calculate mathematical statements for 2x, 5x and 10x and write them using the multiplication (×) and equals (=) signs; solve problems involving multiplication

Arrays:

3 x 5=15 (5 + 5 + 5)

or

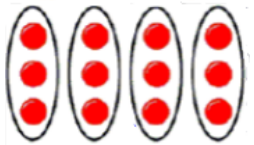
5 x 3=15 (3+3+3+3+3)

Division

* Calculate mathematical statements for 2x, 5x and 10x and write them using the division (÷) and equals (=) signs; solve problems involving division

Arrays:

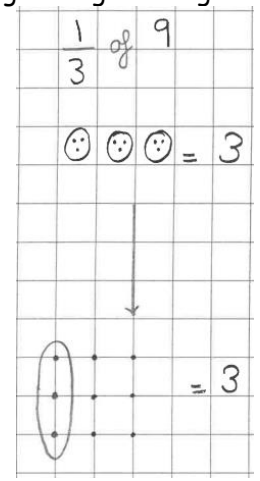
12 ÷ 4 = 3



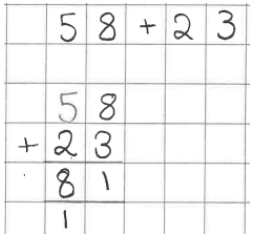
Fractions

*Recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$, $\frac{3}{4}$, of a length, shape, set of objects or quantity

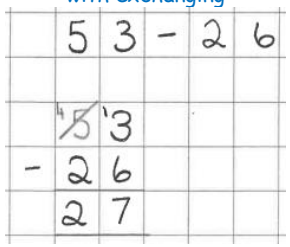
Using sharing/grouping, then progressing to using arrays:

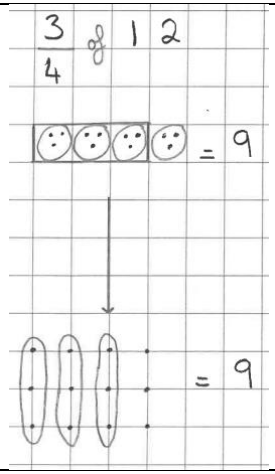


with carrying - record carrying underneath the line and cross off when used



with exchanging





Year 3 Calculation Policy – Saltburn Primary

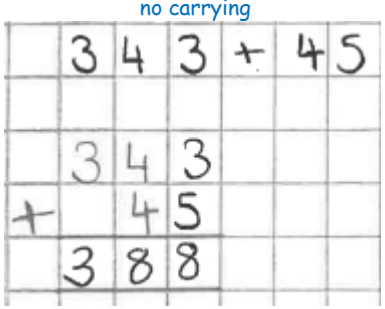
These are the non-negotiable written calculation methods to be taught in Year 3 to ensure a consistent and progressive approach across school. Curriculum links are stated below but please refer to the National Curriculum/ Maths assessment grids for full coverage.

Addition

*Add numbers with up to three digits, using the formal written method of columnar addition

Column addition:

no carrying



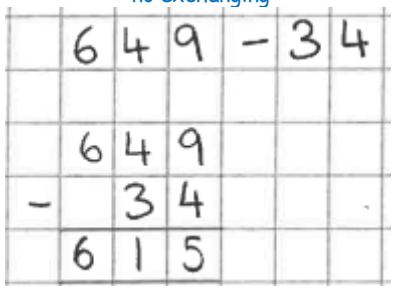
with carrying - record carrying underneath the line and cross off when used

Subtraction

* Subtract numbers with up to three digits, using the formal written method of columnar subtraction

Column subtraction:

no exchanging



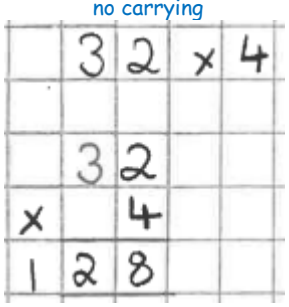
with exchanging

Multiplication

* Write and calculate mathematical statements for multiplication using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods

Short multiplication:

no carrying



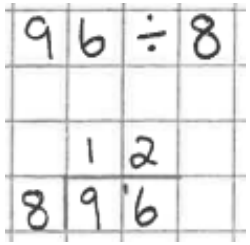
with carrying - record carrying underneath the line and cross off when used

Division

* Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods

Short division:

no remainders

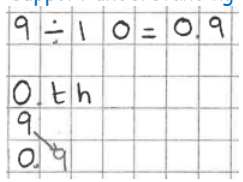


with remainders

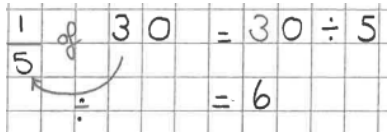
Fractions

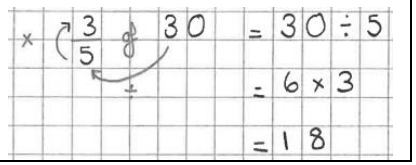
* Recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10

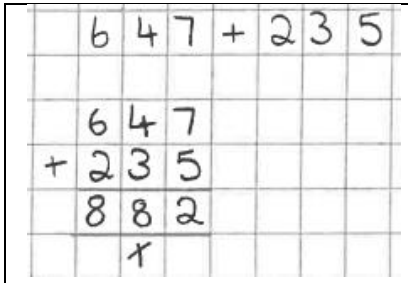
Use place value column names to support understanding

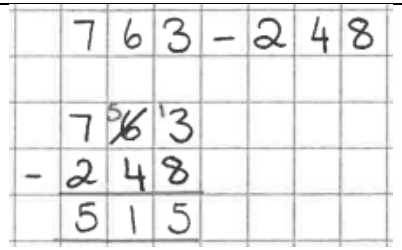


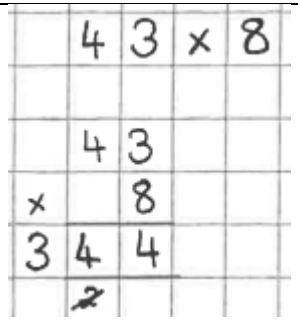
*Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators

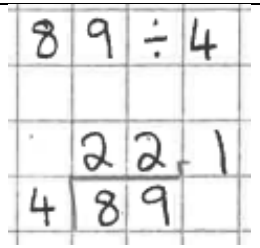




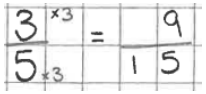




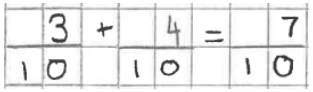


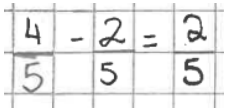


*Recognise and show, using diagrams, equivalent fractions with small denominators



* Add and subtract fractions with the same denominator within one whole





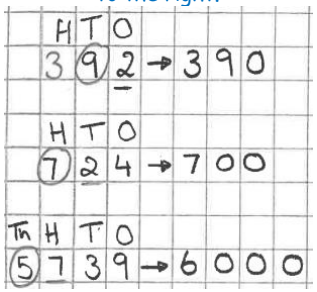
Year 4 Calculation Policy – Saltburn Primary

These are the non-negotiable written calculation methods to be taught in Year 4 to ensure a consistent and progressive approach across school. Curriculum links are stated below but please refer to the National Curriculum/ Maths assessment grids for full coverage.

Place Value

* Round any number to the nearest 10, 100 or 1000

To begin the rounding process, find the place value and circle the digit. Underline the digit to the right.

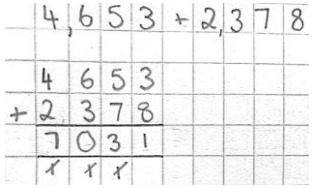


Addition

* Add numbers with up to 4 digits using the formal written methods of columnar addition

Column addition:

Record carrying underneath the line and cross off when used.

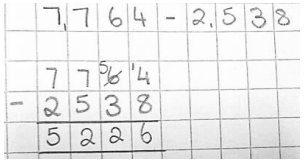


Pupils' understanding of the number system and decimal place value is extended at this stage to tenths and then hundredths e.g. through money.

Subtraction

* Subtract numbers with up to 4 digits using the formal written methods of columnar subtraction

Column subtraction:



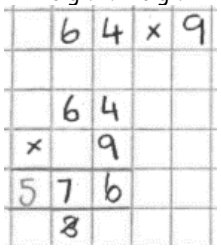
Pupils' understanding of the number system and decimal place value is extended at this stage to tenths and then hundredths e.g. through money.

Multiplication

* Recall multiplication facts up to 12 x 12; Multiply two-digit and three-digit numbers by a one-digit number using formal written layout

Record carrying underneath the line and cross off when used.

2-digit x 1-digit:

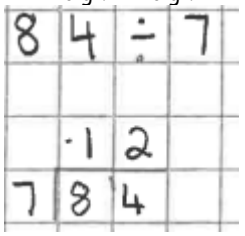


3-digit x 1-digit:

Division

* Recall division facts up to 12 x 12; *Pupils practise to become fluent in the formal written method of short division with exact answers*

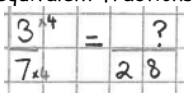
2-digit ÷ 1-digit:



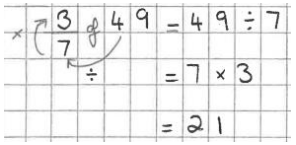
3-digit ÷ 1-digit:

Fractions

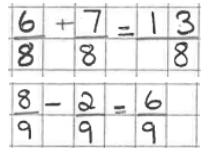
* Recognise and show, using diagrams, families of common equivalent fractions

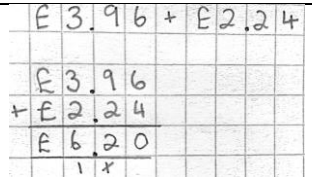
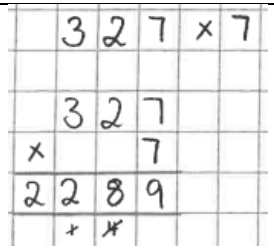
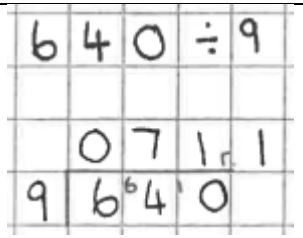
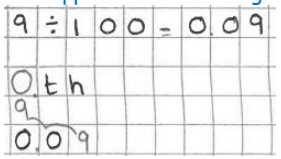
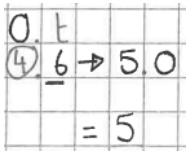


*Solve problems involving increasingly harder fractions - non-unit fractions where the answer is a whole number



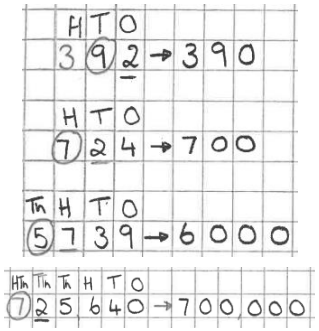
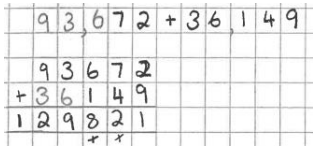
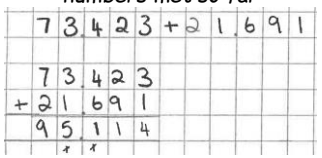
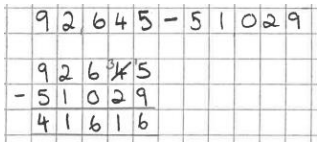
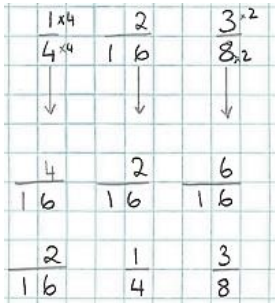
* Add and subtract fractions with the same denominator

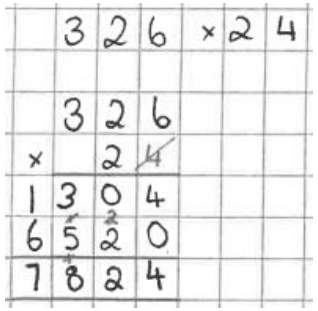
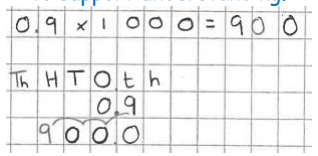
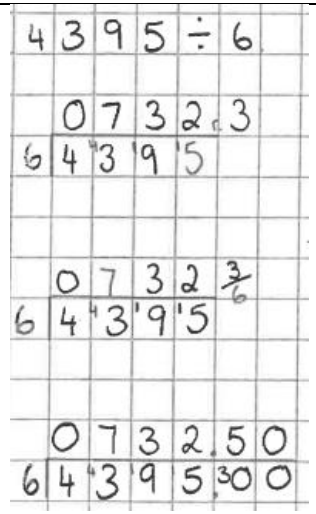
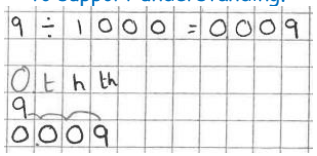
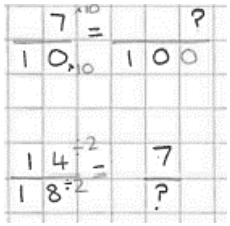
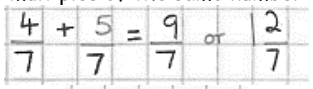
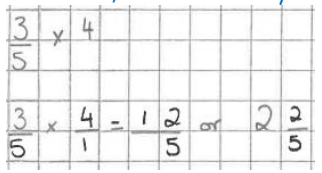
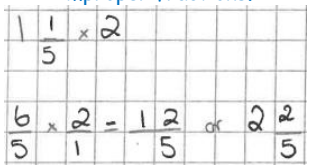


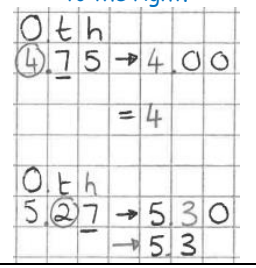
					*Find the effect of dividing a one- or two-digit number by 10 and 100 Use place value column names to support understanding.  *Round decimals with one decimal place to the nearest whole number 

Year 5 Calculation Policy – Saltburn Primary

These are the non-negotiable written calculation methods to be taught in Year 5 to ensure a consistent and progressive approach across school. Curriculum links are stated below but please refer to the National Curriculum/ Maths assessment grids for full coverage.

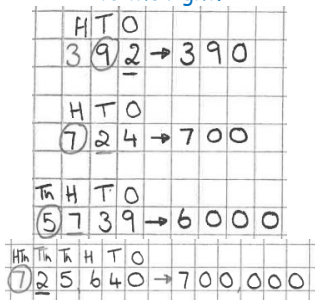
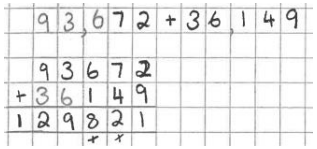
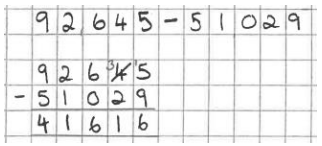
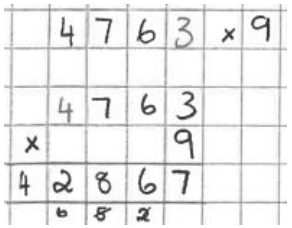
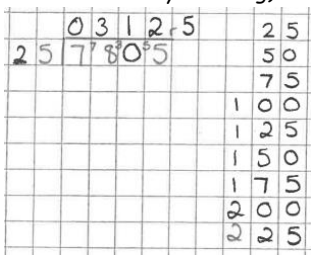
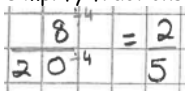
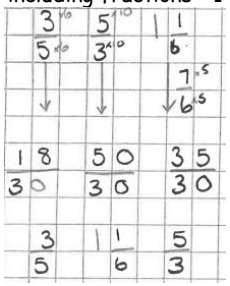
Place Value	Addition	Subtraction	Multiplication	Division	Fractions
*Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 To begin the rounding process, find the place value and circle the digit. Underline the digit to the right. 	*Add whole numbers with more than 4 digits, including using formal written methods Column addition: Record carrying underneath the line and cross off when used.  *Apply knowledge to decimal numbers met so far 	* Subtract whole numbers with more than 4 digits, including using formal written methods Column subtraction:  * Apply knowledge to decimal numbers met so far 	* Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers Short multiplication: Record carrying underneath the line and cross off when used. Long multiplication:	* Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context (including with remainders, as fractions, as decimals or by rounding) Short division:	* Compare and order fractions whose denominators are all multiples of the same number  * Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and

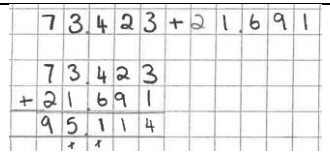
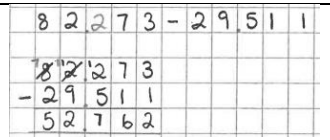
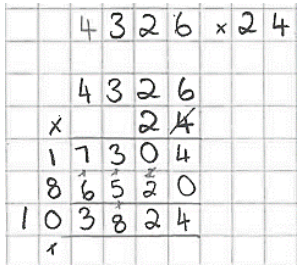
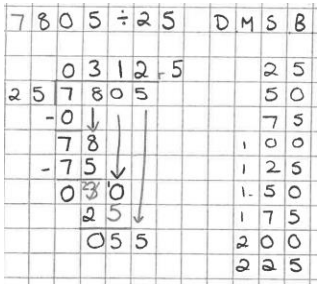
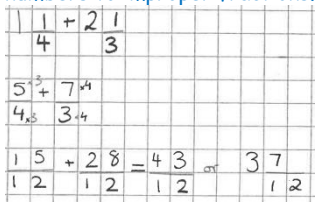
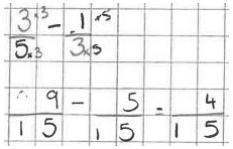
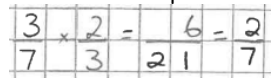
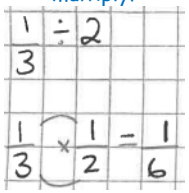
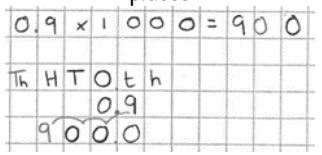
			Continue to record carrying underneath each line (small and central to the column). Cross off ones digit in the multiplier once used.  * Multiply whole numbers and those involving decimals by 10, 100 and 1000 Use place value column names to support understanding. 	 * Divide whole numbers and those involving decimals by 10, 100 and 1000 Use place value column names to support understanding. 	hundredths  * Add and subtract fractions with the same denominator and denominators that are multiples of the same number  * Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams Write the whole number over one, then multiply the numerators and multiply the denominators. Encourage converting answers to mixed numbers, where necessary.  As above, but begin by converting mixed numbers to improper fractions. 

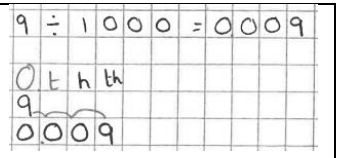
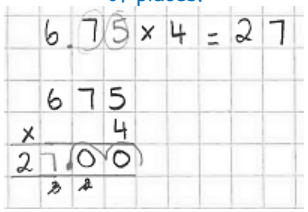
					* Round decimals with two decimal places to the nearest whole number and to one decimal place To begin the rounding process, find the place value and circle the digit. Underline the digit to the right. 

Year 6 Calculation Policy – Saltburn Primary

These are the non-negotiable written calculation methods to be taught in Year 6 to ensure a consistent and progressive approach across school. Curriculum links are stated below but please refer to the National Curriculum/ Maths assessment grids for full coverage.

Place Value	Addition	Subtraction	Multiplication	Division	Fractions
* Round any whole number to a required degree of accuracy To begin the rounding process, find the place value and circle the digit. Underline the digit to the right. 	* *Continue to practise addition of larger numbers (including decimals) using the formal written method of columnar addition.* Column addition: Record carrying underneath the line and cross off when used. 	* *Continue to practise subtraction of larger numbers (including decimals) using the formal written method of columnar subtraction.* Column subtraction: 	* Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication Short multiplication: Record carrying underneath the line and cross off when used.  Long multiplication:	* Divide numbers up to 4 digits by a two-digit number using the formal written method of **short division** where appropriate, interpreting remainders according to the context *(including with remainders, as fractions, as decimals or by rounding):* 	* Use common factors to simplify fractions  * Compare and order fractions, including fractions > 1  * Add and subtract fractions with different denominators and mixed numbers, using the

			Continue to record carrying underneath each line (small and central to the column). Cross off ones digit in the multiplier once used. 	*Divide numbers up to 4 digits by a two-digit whole number using the formal written method of **long division**, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context Follow DMSB (divide, multiply, subtract, bring down): 	concept of equivalent fractions Begin by converting mixed numbers to improper fractions.   * Multiply simple pairs of proper fractions, writing the answer in its simplest form  * Divide proper fractions by whole numbers To begin, write the whole number over one, then remember the rhyme: 'Dividing fractions is as easy as pie, flip the second and multiply!'  * Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places 

					 *Multiply one-digit numbers with up to two decimal places by whole numbers 'Bounce back method'. Remove the decimal point to multiply, then the bounce the decimal point back into the answer using the appropriate number of places.