SBC Numeracy and Mathematics Progression Pathway

Second Level

Rationale:

- This progression pathway provides guidance for practitioners around planning learning, teaching and assessment within numeracy and mathematics.
- It supports sustained improvement and strives to provide increased clarity and consistency across Scottish Borders Council schools and settings.

Pedagogical Approach:

- The Concrete, Pictorial, Abstract approach (CPA) is embedded throughout the progression pathway to allow learners to develop a strong conceptual understanding, explore mathematical structures and build connections within numeracy and mathematics.

Structure and Layout:

- There are three clear phases within the progression pathway: Phase 1, Phase 2 and Phase 3. Each benchmark is presented at the end of Phase 3.
- Practitioners should work down each phase (e.g P2 should work down Phase 1 content) however numeracy content should be explored across each phase to provide increased challenge where required.
- The eight mathematical skills are highlighted in green throughout the progression pathway and should be fully considered within the planning process.
- Mathematical vocabulary is detailed for each phase. Mathematical language from the previous phase should be consolidated and revised, prior to building in the new vocabulary.
- As learners progress across each phase within a level their conceptual understanding, procedural fluency and ability to explain, justify and reason their mathematical thinking should develop.

Contents:

CURRICULUM ORGANISER: ESTIMATION & ROUNDING		**EXPERIENCE & OUTCOME:** ***I can use my knowledge of rounding to routinely estimate the answer to a problem then, after calculating, decide if my answer is reasonable, sharing my solution with others. MNU 2-01a***		
Core Aspect & Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	round to the nearest hundred, round to the nearest thousand, rounding, estimate, estimation, sensible/educated guess, approximate, approximately, nearest, close to, about the same as, accuracy, compare, notice, reasonableness of a solution	round to the nearest hundred, round to the nearest thousand, round to the nearest ten thousand, round to the nearest tenth, one decimal place, round to the nearest hundredth, two decimal places, round to the nearest whole number, estimate, estimation, roughly, approximate, approximately, educated guess, justify, accuracy, determine a reasonable solution	round to the nearest one hundred thousand, round to the nearest thousandth, three decimal places, whole number, decimal fraction, *Build confidence and depth of understanding across phases.	***Uses correct mathematical vocabulary.***
Rounding **Mental agility** **Determine the reasonableness of a solution**	• I can round numbers within 10,000 to the nearest 10, 100, and 1,000 using an empty number line to support. e.g. 4,552 rounds to: 4,550 (nearest 10) 4,600 (nearest 100) 5,000 (nearest 1 000)	• I can round numbers within 100,000 to the nearest 10, 100, 1,000 and 10, 000 using an empty number line to support. e.g. 35,785 rounds to: 35,790 (nearest 10) 35,800 (nearest 100) 36,000 (nearest 1,000) 40,000 (nearest 10,000)	• I can round numbers within to 1 000 000 to the nearest 10, 100, 1,000, 10,000 and 100,000 using an empty number line to support. e.g. 635,785 rounds to: 635,790 (nearest 10) 635,800 (nearest 100) 636,000 (nearest 1,000) 640,000 (nearest 10,000) 600,000 (nearest 100,000)	***Rounds whole numbers to the nearest 1000, 10 000 and 100 000.***
Mental agility **Mathematical Vocabulary and Notation**	• Not started in this phase.	• I can round decimal fractions with one decimal place (tenths) to the nearest whole number. e.g. 2.7 rounds to 3	• I can round decimal fractions with three decimal places (thousandths) to the nearest hundredth. e.g. 4.267 rounds to 4.27	***Rounds decimal fractions to the nearest whole number, to one***

		• I can round decimal fractions with two decimal places (hundredths) to the nearest tenth. e.g. 7.56 rounds to 7.6 **NB this should only be taught once pupils are secure with understanding of decimal place value to tenths and hundredths.*	• I can round decimal fractions to the nearest whole number, tenth and hundredth. e.g. 3.675 rounds to: 3.675 rounds to 4 (whole number) 3.675 rounds to 3.7 (nearest tenth) 3.675 rounds to 3.68 (nearest hundredth) ** NB this should only be taught once pupils are secure with understanding of decimal place value to thousandths.*	***decimal place and two decimal places.***
Determine the reasonableness of a solution	• I can use knowledge of rounding and estimation to check answer is reasonable in a range of contexts. e.g. money or measure, £5.97 + £2.89 estimating this must be around £9.	• I can use knowledge of rounding and estimation to check answer is reasonable in a range of contexts.	• I can use knowledge of rounding and estimation to check answer is reasonable in a range of contexts.	***Applies knowledge of rounding to give an estimate to a calculation appropriate to the context.***

CURRICULUM ORGANISER: NUMBER AND NUMBER PROCESSES **(Gaelic)**: (COUNTING DEVELOPMENT & PLACE VALUE) **Education Scotland Sketchnote**		**EXPERIENCE & OUTCOME:** ***I have extended the range of whole numbers I can work with and having explored how decimal fractions are constructed, can explain the link between a digit, its place and its value. MNU 2-02a***		
Core Aspect & Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	number names 0-10,000, counting forwards/backwards, digits, numerals, ones, tens, hundreds, thousands, ten thousands, hundred thousand, one-two-three-four-five-digit numbers, number sequence, order, patterns, multiples, place value, position, partitioning	number names 0-100,000, numerals, whole number, decimal fraction, ones, tens, hundreds, thousands, ten thousands, hundred thousands, millions, 6-digits, 7-digits, decimal places, tenths, one decimal place, hundredths, two decimal places, increment/s, ascending/ descending order, place value, partitioning	number names 0-1,000,000 hundred thousands, millions, 6 digits, 7 digits, three decimal places, tenths, hundredths, thousandths, partitioning, re-combine, ascending/ descending order, consecutive, non-consecutive, multiples, positive, negative integer	***Uses correct mathematical vocabulary.***
	Develop efficiency with concrete resources (digital and non-digital): ○ Dienes Materials ○ Place Value Counters ○ Place Value Arrow Cards	**Develop efficiency with concrete resources (digital and non-digital):** ○ Place Value Counters ○ Place Value Arrow Cards	**Efficient use of concrete resources (digital and non-digital):** ○ Place Value Counters ○ Place Value Arrow Cards	
	Within the range of 0 – 10,000	**Within the range of 0 – 100,000**	**Within the range of 0–1,000,000**	
Counting Development **Whole Numbers** **Mental agility**	• I can count forwards and backwards in 1s,10s, 50s, 100s, 500s and 1,000s from different starting points within 10,000. 8,698, 8,699, 8,700 8,701 (F1) 9,002, 9,001, 9,000, 8,999 (B1) 987, 997, 1007, 1017 (F10) 6,020, 6,010, 6,000, 5,990 (B10) 4,050, 4,100, 4,150, 4,200 (F50)	• I can count forwards and backwards in 1s, 1,000s, 5,000s and 10,000s from different starting points within 100,000. 19,998, 19,999, 20,000, 20,001 (F1) 60,002, 60,001, 60,000, 59,999 (B1) 58,390, 59,390, 60,390, (F1,000) 91,546, 90,546, 89,546 (B1,000) 7,520, 12,500, 17,500, 22,500 (F5,000)	• I can count forwards and backwards in 1s, 10,000s, 50 000s and 100,000s from different starting points within 1,000,000. 699,999, 700,000, 700,001 (F1) 800,001, 800,000, 799,799 (B1) 597,000, 607,000, 617, 000 (F10,000) 115,000, 105,000, 95,000 (B10,000) 620,000, 670,000, 720,000 (F 50,000) 890,000, 840,000, 790,000 (B 50,000)	

	5,634, 5,584, 5,534, 5,484 (B50) 1,722, 1,822, 1,922, 2,022 (F100) 9,289, 9,189, 9,089, 8,989 (B100) 750, 1250, 1750, 2250 (F500) 9,870, 9,370, 8,870, 8,370, (B500) 567, 1,567, 2,567, 3,567, (F1,000) 9,002, 8,002, 7,002, 6,002 (B1,000)	47,864, 42,864, 37,864 (B5,000) 12,000, 22,000, 33,000 (F10,000) 87,500, 77,500, 67,500 (B10,000)	456,678, 556,678, 656,678 (F 100,000) 785,000, 685,000, 585,000 (B 100,000)	
Decimal Counting **Mental agility**	• Not started in this phase.	• I can count forward and backwards in tenths and hundredths. e.g 3.6, 3.7, 3.8, 3.9, 4, 4.1 4.8, 4.6, 4.4, 4.2, 4, 3.8 8.93, 8.92, 8.91, 8.90, 8.89 4.96, 4.98, 5, 5.02, 5.04	• I can count forwards and backwards in thousandths. e.g. 0.006, 0.008,0.01, 0.012 2.002, 2.001, 2, 1.099, 1.098	
Place Value **Use Mathematical Vocabulary and Notation** **Interpret questions**	• I can explain the link between a digit, its place and its value for whole numbers up to 10,000. e.g. 5,926: 5 = five thousand or 5,000 9 = nine hundred or 900 2 = two tens or 20 6 = 6 ones or 6 • I can identify and read numbers within the range of 0-10,000. • I can compare quantities represented in the concrete, pictorial or abstract form using the	• I can explain the link between a digit, its place and its value for whole numbers up to 100,000. e.g. 94,384: 9 = nine ten thousands or 90,000 4 = four thousand 4,000 3 = 3 hundreds or 300 8 = 8 tens or 80 4 = 4 ones or 4 • I can identify and read numbers within the range of 0-100,000. • I can compare quantities represented in the concrete, pictorial or abstract form using the	• I can explain the link between a digit, its place and its value for whole numbers up to 1,000,000. e. g 635,079: 6 = 6 hundred thousand or 600,000 3 = three ten thousands or 30,000 5 = five thousand or 5,000, 0 = 0 hundred or 0 7 = 7 tens or 70 9 = 9 ones or 9 • I can identify and read numbers within the range of 0-1,000,000.	***Reads, writes, and orders whole numbers to 1 000 000, starting from any number in the sequence.*** ***Explains the link between a digit, its place and its value for whole numbers to 1 000 000.***

	language of more than, less than or equal to. • I can write a given number in numerals and words. • I can arrange consecutive and non-consecutive numbers in ascending and descending order.	language of more than, less than or equal to. • I can write a given number in numerals and words. • I can arrange consecutive and non-consecutive numbers in ascending and descending order.	• I can compare quantities represented in the concrete, pictorial or abstract form using the language of more than, less than or equal to. • I can write a given number in words and numerals. • I can arrange consecutive and non-consecutive numbers in ascending and descending order.	
Use Mathematical Vocabulary and Notation	• Not started in this phase.	• I can say the decimal fraction that is one tenth or one hundredth before or after a given number. e.g. What number is after 2.9? (counting in increments of tenths) e.g. What number is before 3 if counting back in increments of hundredths? • I can explain the link between a digit, its place and its value for numbers to 2 decimal places. e.g. 4.1 4= four ones 1 = one tenth 6.23 6 = six ones 2 = two tenths	• I can say the decimal fraction that is one thousandth before or after a given number: e.g. What number before/after 4.599? (increments of thousandths) • I can explain the link between a digit, its place and its value for numbers to 3 decimal places. e.g 5.794 5 = five ones 7 = seven tenths 9 = nine hundredths 4 = four thousandths	***Reads, writes and orders sets of decimal fractions to three decimal places.*** ***Explains the link between a digit, its place and its value for numbers to three decimal places.***

		3= three hundredths • I can identify and read decimal fractions with tenths and hundredths by understanding the value of each digit. • I can write a given decimal fraction in words or numerals. e.g 0.8 = eight tenths 0.06= six hundredths 23 tenths ($\frac{23}{10}$)= 2.3 23 hundredths($\frac{23}{100}$)= 0.23 • I can arrange consecutive and non-consecutive decimal numbers in ascending and descending order to hundredths. e.g. 6.4, 6.6, 6.8, 7 (1dp) 6.03, 6.13, 6.3, 6.73 (2 dp) 6.02, 6.05, 6.2, 6.22, 6.5 (1dp & 2dp)	• I can identify and read decimal fractions with tenths, hundredths and thousandths by understanding the value of each digit. • I can write a given decimal fraction in words or numerals. e.g 0.004 = four thousandths seven thousandths ($\frac{7}{1000}$) = 0.007 0.623 = 6 tenths, 2 hundredths and 3 thousandths zero ones, seven tenths and three thousands = 0.703 • I can arrange consecutive and non-consecutive decimal numbers in ascending and descending order up to thousandths. e.g. 8.002, 8.004, 8.006, 8.008 (3dp) 8.012, 8.021, 8.049, 8.055, 8.081, 8.12, 8.49, 8.5, 8.55, 8.81 (1dp, 2dp and 3dp)	

Interpret questions	• I can partition and recombine numbers up to 10 000 into their place value parts. e.g. 9,534 9,000 + 500 + 30 + 4	• I can partition and recombine numbers up to 100 000 into their place value parts. e.g. 54,362 = 50,000 + 4,000 + 300 + 60 + 2 • I can partition and recombine decimal fractions up to hundredths. *e.g. 2.4 = 2 ones and 4 tenths or 24 tenths* *5.23 = 5 ones, 2 tenths and 3 hundredths or* *5 ones and 23 hundredths or 523 hundredths*	• I can partition and recombine numbers up to 1,000,000 into their place value parts. e.g. 873,423 800,000+70,000+3,000+400+20+3 • I can partition and recombining decimal fractions up to thousandths. e.g. 6.475 = 6 ones, 4 tenths, 7 hudredths and 5 thousandths	***Partitions a wide range of whole numbers and decimal fractions to three decimal places, for example, 3 · 6 = 3 ones and 6 tenths = 36 tenths.***

CURRICULUM ORGANISER: NUMBER AND NUMBER PROCESSES **(Gaelic)**: (ADDITION & SUBTRACTION) **Education Scotland Sketchnote**		**EXPERIENCES & OUTCOMES:** ***Having determined which calculations are needed, I can solve problems involving whole numbers using a range of methods, sharing my approaches and solutions with others. MNU 2-03a*** ***I have explored the contexts in which problems involving decimal fractions occur and can solve related problems using a variety of methods. MNU 2.03b***		
Core Aspect & Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	calculation, addition, subtraction, minus, total, doubles/near doubles, halving place value parts, partitioning multiples of (10,100,1000), bridging through a friendly number, compensation, find the difference, constant difference, adjusting, exchanging, regrouping, standard algorithm, inverse relationship, mental/written strategies, explain, justify, reason, problem solve	decimal fractions, tenths, one decimal place, hundredths, two decimal places, partitioning into place value parts, bridging through a friendly number, exchanging, expanded algorithm, standard algorithm, constant difference, adjusting inverse relationship, explain, justify, reason, problem solve	thousandths, three decimal places, mental/written strategies, partitioning into place value parts, bridging through a friendly number, exchanging, expanded algorithm, standard algorithm, constant difference, adjusting, explain, justify, reason, problem solve	**Uses correct mathematical vocabulary.**
	Building on knowledge and skills from First Level, learners should be developing accuracy, flexibility and efficiency with a range of addition & subtraction strategies. **Developing efficiency using concrete manipulative:** • Dienes Materials (base 10) • Place Value Counters **Develop efficiency using pictorial approaches:** • Empty number line	**Efficient use of concrete manipulative:** • Dienes Materials (base 10) • Place Value Counters **Efficient and flexible use of pictorial approaches:** • Empty number line • Bar modelling	**Efficient use of concrete manipulative:** • Place Value Counters Dienes Materials **Efficient and flexible use of pictorial approaches:** • Empty number line • Bar modelling	

	• Bar modelling			
Mental agility **Use mathematical vocabulary & notation** **Link mathematical concepts** **Select and communicate processes and solutions** **Justify choice of strategy used**	• I can add and subtract multiples of 10, 100 or 1,000 to or from any whole number within the range 0-10,000. **e.g. Multiples of 10:** 4,652 + 40 = 4,652 + 60 = 4,652 – 40 = 4,652 – 70= **Multiples of 100:** 5,245 + 400 = 5,245 + 800 = 5,245 – 200 = 5,245 – 600 = **Multiples of 1000:** 6,734 + 3000 = 6,737 – 3000 =	• I can add and subtract multiples of 10, 100 or 1,000 to or from any whole number within the range 0-100,000. *e.g.* **Multiples of 10:** 95,267 + 30 = 95,267 + 50= 95,267 – 50= 95,267 – 80= **Multiples of 100:** 56,203 + 600= 56,203 – 600 = ***M*ultiples of 1000:** 85,034 + 7,000= 85,034 – 7,000 = • I can add and subtract multiples of 10 and 100 to and from decimal fractions to one decimal place. e.g. **Multiples of 10:** 4.5 + 40 32.6 – 20 **Multiples of 100:** 132.6 + 200 562.2 - 400	• I can add and subtract multiples of 10, 100 or 1,000 to or from any whole number within the range 0-1,000,000 **e.g Multiples of 100:** 678,434 + 400= 678,434 + 800= 678,434 – 400= 678,434 – 800= **Multiples of 1000:** 506,287 + 3,000= 506,287 – 8,000= • I can add and subtract multiples of 10, 100 or 1000 to and from decimal fractions to two decimal places. e.g. **Multiples of 10:** 45.56 + 30 45.36 – 30 **Multiples of 100:** 1,345.02 + 200 1,345.02 – 200 **Multiples of 1000:** 7,329.28 + 4000 7,329.28 - 4000	**Adds and subtracts multiples of 10, 100 and 1000 to and from whole numbers and decimal fractions to two decimal places.**

Use mathematical vocabulary & notation **Mental agility** **Link mathematical concepts** **Interpret questions** **Select and communicate processes and solutions** **Justify choice of strategy used**	**Mental Addition Strategies:** • I can confidently add 1, 2 and 3 digit numbers using mental strategies. ○ Count on (Bridging through friendly number) ○ Doubles/Near doubles ○ Partition into Place Value Parts ○ Compensation **Key Written Addition Strategies:** • I can add 2, 3 and 4 digit whole numbers using a range of written strategies (including more than two numbers). e.g 4678+ 2534= **Count On** (using an empty number line) **Partition into Standard Place Value Parts (horizontally)** e.g 4000 + 2000= 6000 600+500= 1100 70 +30= 100 8+ 4= 12 =7212	**Mental Addition Strategies:** • I can confidently add 2 and 3 digit numbers using mental strategies. ○ Count on (Bridging through friendly number) ○ Doubles/Near doubles ○ Partition into Place Value Parts ○ Compensation **Key Written Addition Strategies:** • I can add 2, 3, 4 and 5 digit whole numbers using a range of written strategies (including more than two numbers). e.g 58176+27845= **Count On** (using an empty number line) **Partition into Standard Place Value Parts (horizontally)** e.g 50000 +20000= 70000 8000+7000= 15000 100+800= 900 70+40= 110 6+5= 11 = 86021	**Mental Addition Strategies:** • I can confidently add 2 and 3 digit numbers using mental strategies. ○ Count on (Bridging through friendly number) ○ Doubles/Near doubles ○ Partition into Place Value Parts ○ Compensation **Key Written Addition Strategies:** • I can add 2, 3, 4, 5 and 6 digit whole numbers using a range of written strategies (including more than two numbers). *(see Phase 1&2 for examples) **Standard Algorithm:** e.g 468897 +356987 **Mental Subtraction Strategies:** • I can subtract 2 and 3 digit numbers using mental strategies. ○ Count back ○ Doubles/Near doubles ○ Find the Difference ○ Partition into Place Value Parts (without exchanging)	**Adds and subtracts whole numbers and decimal fractions to two decimal places, within the number range 0 to 1 000 000.**

Select and communicate processes and solutions **Justify choice of strategy used** **Mental agility**	**Partition into Standard Place Value Parts /Semi Formal Algorithm (vertically)** 4678 + 2534 12 100 1100 6000 7212 **Standard Algorithm:** e.g 46 178 346 4567 + 25 + 34 + 458 + 5698 **Compensation:** e.g 3526 + 2998 = 3526 + 3000-2 = **Mental Subtraction Strategies:** • I can subtract 1,2 and 3 digit numbers using mental strategies. ○ Count back ○ Doubles/ Near doubles ○ Find the Difference ○ Partition into Place Value Parts (without exchanging)	**Partition into Standard Place Value Parts /Semi Formal Algorithm (vertically)** 58176 + 27845 11 110 900 15000 70000 86021 **Standard Algorithm:** e.g 58176 + 27845 **Compensation:** e.g 64598 +39997 = 64598 +40000-3= **Mental Subtraction Strategies:** • I can subtract 2 and 3 digit numbers using mental strategies. ○ Count back ○ Doubles/Near doubles ○ Find the Difference ○ Partition into Place Value Parts (without exchanging)	**Key Written Subtraction Strategies:** • I can subtract 2, 3, 4, 5 and 6 digit whole numbers using a range of written strategies. **Standard Algorithm** (vertical model) 456789 -164389 *See phase 1 and 2 for examples of other written subtraction strategies. These strategies should allow flexibility and efficiency depending on the number calculation. • I can add and subtract decimal fractions to two decimal places using a range of mental and written strategies and models. e.g. 0.24 + 0.52 0.67 + 0.29 2.45 + 3.23 *5.27 + 6.58* *0.93 – 0.71* 0.85 – 0.28	

Mental agility **Interpret questions** **Select and communicate processes and solutions** **Justify choice of strategy used**	**Key Written Subtraction Strategies:** • I can subtract 2,3 and 4 digit whole numbers using a range of written strategies. **Partition into Standard Place Value Parts:** (with no exchanging). 5765-2354 = 5000-2000=3000 700-300= 400 6 0-50= 10 5-4= 1 = 3411 **Standard Algorithm** (vertical model) 54 465 705 5046 -28 - 87 - 589 -3489 **Count Back** (using an empty number line) 5467-2876 ○ 5467-2000-800-67-9 = **Find the Difference:** e.g 2052-1998 = starting on 1998 +2 + 50 + 2 = 54	**Key Written Subtraction Strategies:** • I can subtract 2, 3, 4 (see phase 1 for examples) and 5 digit whole numbers using a range of written strategies. **Standard Algorithm:** (vertical model) 78026 -59137 **Find the Difference:** e.g 68002- 67995 starting on 67995 + 5 +2 = 68002 **Constant Difference:** e.g 80002-68797= becomes: 79999-65794= **Compensation:** e.g 60003-39998 = becomes 60003-40000+2 = • I can add and subtract decimal fractions to one decimal place using a range of mental and written strategies and models. *e.g. 0.3 + 0.4*	*4.02 – 2.56* ***Extending to:*** 125.69 + 245.56 702.45 + 342.78 534.52 – 398.69 502.45-230.67 **Addition Strategies for Decimal Fractions:** ○ Partitioning into Place Value Parts (vertical & horizontal) ○ Count on (bridging through a friendly number) ○ Doubles/near doubles ○ Standard Algorithm **Subtraction Strategies for Decimal Fractions:** ○ Count back (bridging through a friendly number) ○ Find the difference ○ Standard Algorithm	

Mental agility **Interpret questions** **Select and communicate processes and solutions** **Justify choice of strategy used**	**<u>Constant Difference:</u>** e.g 5002-2997 = becomes: 5005-3000= **<u>Compensation:</u>** e.g 5002-2997 = becomes 5002-3000 +3 =	*0.7 + 0.5* *2.3 + 5.4* *5.6 + 7.5* *0.9 - 0.4* *12.7 – 5.2* *1.3 - 0.4* *4.7 – 2.9* **<u>Addition Strategies for Decimal Fractions:</u>** ○ Partitioning into Place Value Parts (vertical & horizontal) ○ Count On (bridging through a friendly number) ○ Doubles/Near Doubles ○ Standard Algorithm **<u>Subtraction Strategies for Decimal Fractions:</u>** ○ Count back (bridging through a friendly number) ○ Find the difference ○ Standard Algorithm		

CURRICULUM ORGANISER: NUMBER& NUMBER PROCESSES **(Gaelic)**: (MULTIPLICATION & DIVISION) **Education Scotland Sketchnote** **(ES Webinar)**		**EXPERIENCES & OUTCOMES:** ***Having determined which calculations are needed, I can solve problems involving whole numbers using a range of methods, sharing my approaches and solutions with others. MNU 2-03a*** ***I have explored the contexts in which problems involving decimal fractions occur and can solve related problems using a variety of methods. MNU 2-03b***		
Core Aspect & Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	doubling, halving, multiply multiplication, skip counting, multiples, sets of, multiplication facts, times tables, array, columns, rows, division, division facts, divide, equal groups, sharing, factors, product, remainder, commutative law, inverse, square numbers, near squares, fluency, recall, explain, justify, reason, problem solve	multiply multiplication, division, divide whole number, square numbers, decimal fractions, multiples, commutative law, fluency, accuracy, recall, strategies, models, area model, representations place value parts, standard algorithm (step/ bus stop method), expanded algorithm, compensation, doubling & halving strategy, explain, justify, reason, problem solve	multiply, multiplication, division, divide whole number, decimal fractions, multiples, commutative law, standard algorithm (step/ bus stop method), fluency, accuracy, recall, strategies, models, representations, area model, place value parts, ratio table, explain, justify, reason, problem solve	***Uses correct mathematical vocabulary.***
	Developing confidence using: ○ Cuisenaire Rods ○ Numicon ○ Coloured counters/Cubes **Pictorial Approaches:** ○ Hundred Square ○ Bar Modelling ○ Arrays ○ Area Model using grids (with squares) ○ Area Model no squares ○ Maths Flips	**Developing efficiency using concrete manipulatives:** ○ Cuisenaire Rods ○ Numicon ○ Coloured counters/ Cubes **Pictorial Approaches:** ○ Hundred Square ○ Bar Modelling ○ Arrays ○ Area Model using grids (with squares) ○ Area Model no squares ○ Maths Flips	**Developing efficiency using concrete manipulatives:** ○ Numicon ○ Cuisenaire Rods ○ Coloured counters/Cubes **Pictorial Approaches:** ○ Hundred Square ○ Bar Modelling ○ Arrays ○ Area Model using grids (with squares) ○ Area Model no squares ○ Maths Flips	

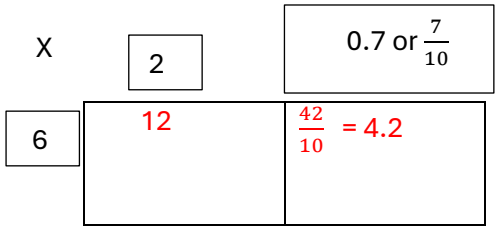
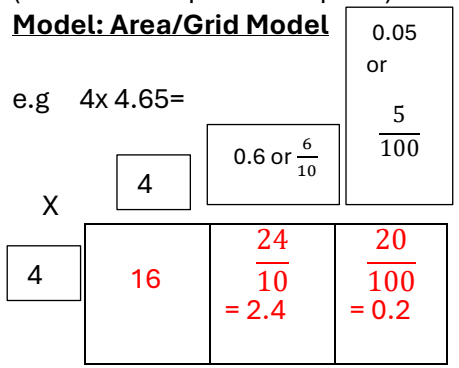
Use Mathematical Language **Mental agility** **Link mathematical concepts** **Select and communicate processes and solutions** **Justify choice of strategy used**	**<u>Multiplication & Division Fluency:</u>** • I am consolidating (from First Level) my knowledge and understanding of the multiplication and division facts for the 0, 1, 2, 5, 10, 3 and 4 times tables using derived facts and skip counting. • I am building my knowledge and understanding of the multiplication and division facts for the 6, 7, 8 and 9 times tables using derived facts (see below) and skip counting. ○ **Doubling:** 4 x 6 =24, 8 x 6 =48 ○ **Add a group:** 5 x 7 =35 so 6 x7= 35 +7 ○ **Subtract a group:** 10 x 8=80, so 9 x8=72 ○ **Square numbers:** 6x6=36 ○ **Near squares:** 7 x7 =49, so 8 x7 = 49 +7 ○ **Halving:** 5x8 = half of 10 x 8 **<u>Sharing & Grouping:</u>** • Using concrete manipulatives and pictorial approaches, I can confidently demonstrate my understanding of the two representations of division.	**<u>Multiplication & Division Fluency:</u>** • I am consolidating my knowledge and fluency of multiplication and division facts to the 10th multiplication table. *See phase 1 for strategies. • I can apply my knowledge and understanding of multiplication and division facts across a range of contexts (e.g area, measure, money). **<u>Sharing & Grouping:</u>** • Using concrete manipulatives and pictorial approaches, I can confidently demonstrate my understanding of the two representations of division. **<u>Related Facts:</u>** • I can use any multiplication fact to create the two related division facts. • I can use any division fact to create a related multiplication fact.	**<u>Multiplication & Division Fluency:</u>** • I am consolidating my knowledge and fluency of multiplication and division facts to the 10th multiplication table. *See phase 1 for strategies. • I can apply my knowledge and understanding of multiplication and division facts across a range of contexts (e.g area, measure, money). **<u>Related Facts:</u>** • I can use any multiplication fact to create the two related division facts. • I can use any division fact to create a related multiplication fact.	***Uses multiplication and division facts to the 10th multiplication table.***

	Related Facts: • I can use any multiplication fact to create the two related division facts. • I can use any division fact to create a related multiplication fact. **Square Numbers:** • I can create squared numbers using concrete and pictorial resources. • I can recall all the square numbers up to the 10th multiplication table.			
Mental agility **Select and communicate processes and solutions** **Justify choice of strategy used**	• I can multiply a single digit by 1000. e.g. 9 x 1000 • I can multiply a 2-digit number by 100. e.g. 32 x 100 • I can multiply a single digit by a multiple of 10. e.g. 7 x 40 • I can divide a 4-digit number by 10,100 and 1000. e.g 8,000 ÷ 10 = 800 8,000 ÷ 100 = 80	• I can multiply a 2-digit number by 1000. e.g. 94 x 1,000 • I can multiply a 3-digit number by 100. e.g. 525 x 100 • I can multiply a single digit by a multiple of 100. e.g. 8 x 300 • I can divide a whole number by a multiple of 10 and 100 (dividend is a multiple of 100): e.g. 800 ÷ 40	• I can multiply a single digit by a multiple of 1000. e.g. 9 x 6,000 • I can multiply a 2-digit number by a multiple of 10, 100 and 1000. e.g. 20 x 40 36 x 40 7 x 400 4 x 5,000 • I can divide a whole number by a multiple of 10, 100 and 1,000: e.g. 6,000 ÷ 30	***Multiplies and divides whole numbers by multiples of 10, 100 and 1000.***

	8,000 ÷ 1,000 = 8 • I can divide a whole number by a multiple of 10 (dividend is a decade number within 100). e.g. 60 ÷ 30 80 ÷ 20	720 ÷ 80 800 ÷ 400	6,000 ÷ 300 6,000 ÷ 3,000 12,000 ÷ 40 12,000 ÷ 400 12,000 ÷ 4,000	
Mental agility **Interpret questions** **Select and communicate processes and solutions** **Justify choice of strategy used**	• Not started in this phase.	• I can calculate 1 x 2-digit numbers using a range of strategies and models: ***<u>Strategies and Models</u>*** ○ **<u>Strategy</u> - Partial Products (partition into Place Value Parts)** ○ **<u>Model</u> - Area/Grid model** e.g 4 x 87 X | 80 | 7 4 | 320 | 28 320 + 28 = 348 **<u>Strategy -</u> Partial Products (Partition into Part Value Parts)**	• I can calculate 2 x 2- digit numbers using a range of strategies and models: ***<u>Strategies and Models</u>*** ○ **<u>Strategy -</u> Partial Products** (Partition into Place Value Parts) ○ **<u>Model -</u> Area/Grid model** e.g 34 x 26 = 884 X | 20 | 6 30 | 600 | 180 4 | 80 | 24 600 + 180 = 780 80 + 24 = 104 = 884 **<u>Strategy -</u> Partial Products (Partition into Part Value Parts)**	***Multiplies whole numbers by two-digit numbers***

Mental agility **Interpret questions** **Select and communicate processes and solutions** **Justify choice of strategy used**		**<u>Model –</u> Expanded Standard Algorithm (recording each Patrial product in its own row)** e.g 43 x 6= 43 x 6 18 240 258 **<u>Strategies for Depth:</u>** **<u>Halve and Double:</u>** e.g 8 x 25 = 4 x 50 = **<u>Compensation (with rounding):</u>** e.g 9 x 47 = 10 x 47 = 470 then subtract (1x47) **<u>Ratio table (coin multiplication)</u>**	**<u>Model –</u> Expanded Standard Algorithm (recording each Patrial product in its own row)** 34 x26 24 180 80 600 884 **<u>Strategies for Depth:</u>** **<u>Halve and Double:</u>** e.g 25 x 92 50 x 46 100 x 23 **<u>Compensation (with rounding)</u>** e.g 90 x 45 = 100 x 45= 4500 then subtract (10x450) **<u>Standard Algorithm (model) with shorthand notation</u>** **<u>Ratio table (coin multiplication)</u>**	
Mental agility **Interpret questions**	• I can divide a whole number by a single digit, when the answer has a remainder: e.g. 27 ÷ 5 = 5 r 2 or $27 \div 5 = 5\frac{2}{5}$	• I can divide whole numbers by a single digit with no remainders. e.g. 96 ÷ 6 = 16 301 ÷ 7 = 43 4564 ÷ 4 = 1141 • I can divide whole numbers by a single digit with remainders.	• I can divide whole numbers and decimal fractions to 1 and 2 decimal places: *e.g. 17 ÷ 4 = 4 .25* *25.8 ÷ 6 = 4.3* *329 ÷ 5 = 65.8* *10.4÷ 4 = 2.6* *41.84 ÷ 8 =5.23*	***Divides whole numbers and decimal fractions to two decimal places, by a single digit, including answers expressed as decimal***

Select and communicate processes and solutions **Justify choice of strategy used**		e.g. 87 ÷ 4 = 21 r 3 or $21\frac{3}{4}$ 549 ÷ 7 = 58 r 3 or $58\frac{3}{7}$ **<u>Strategies:</u>** **<u>Chunking/Partial Quotients</u>** (repeated subtraction) **<u>Standard Algorithm (bus stop/step method)</u>**	**<u>Strategies:</u>** **<u>Chunking/Partial Quotients</u>** (repeated subtraction) for answers with a whole number quotient or a remainder (not decimal fraction) **<u>Standard Algorithm (bus stop/step method)</u>**	***fractions, for example, 43 ÷ 5 = 8 · 6.***
Mental agility **Justify choice of strategy used**	• Not started in this phase.	• I can multiply and divide decimal fractions to one decimal place by 10 and 100. *e.g. 7.4 x 10* *7.4 x 100* *0.5 x 10* *0.5 x 100* *8 ÷ 10* *720 ÷ 100* *202 ÷ 10* *using a place value and Gattengo chart is highly encouraged.	• I can multiply and divide decimal fractions to two decimal places by 10, 100 and 1000. *e.g. 5.64 x 10* *2.05 x 100* *0.84 x 1000* *2.4 ÷ 10* *5 ÷ 100* *254 ÷ 100* *5020 ÷ 1000* *using a place value and Gattengo chart is highly encouraged.	***Multiplies and divides decimal fractions to two decimal places by 10, 100 and 1000***
Mental agility	• Not started in this phase.	• I can multiply decimal fractions to 1 decimal place by a single digit. *e.g. 4 x 0.2 = 0.8 (without regrouping)* *4 x 0.6 = 2.4 (with regrouping)* *3 x 2.2 = 6.6 (without regrouping)* *4 x 3.7 = 14.8 (with regrouping)*	• I can multiply decimal fractions to 2 decimal places by a single digit: e.g. 4 x 0.02 =0.08 4 x 0.04 = 0.16 2 x 0.32 = 0.64 3 x 0.34 = 1.02 4 x 0.45 = 1.8 *4 x 3.72 =14.88*	***Multiplies decimal fractions to two decimal places by a single digit.***

Select and communicate processes and solutions **Justify choice of strategy used**		**Multiplication Strategies:** **Strategy: Partial Products** (Partition into part value parts) **Model: Area/Grid Model:** e.g 6 x 2.7 =  12 + 4.2 = 16.2 **Multiplication Strategies:** **Strategy: Partial Products** (Partition into Part Value Parts) **Model – Standard algorithm** 2.7 X 6 4.2 12.0 = 16.2 **Strategy for Depth:** **Standard Algorithm (model) with shorthand notation.**	**Multiplication Strategies:** **Strategy: Partial Products** (Partition into part value parts) **Model: Area/Grid Model** e.g 4x 4.65=  16 + 2. 4 + 0. 2 = 18.6 **Multiplication Strategies:** **Strategy: Partial Products** (Partition into Part Value Parts) **Model – Standard algorithm** 4.65 x 4 0.20 2.40 16.00 = 18.6 **Strategy for Depth:** **Standard Algorithm (model) with shorthand notation.**	

	• I can solve one step and multistep word problems involving multiplication and division with whole numbers.	• I can solve one step and multistep word problems involving multiplication and division with whole numbers and decimal fractions.	• I can solve one step and multistep word problems involving multiplication and division with whole numbers and decimal fractions.	

CURRICULUM ORGANISER: NUMBER& NUMBER PROCESSES (ORDER OF OPERATIONS)		**EXPERIENCE & OUTCOME:** Having explored the need for rules for the order of operations in number calculations, I can apply them correctly when solving simple problems. **MTH 2-03c**		
Core Aspect & Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation			order of operations, calculation, operations, addition, subtraction, multiplication, division multi-step problems, order, strategy, explain, reason, justify	Uses correct mathematical vocabulary.
Interpret questions **Select and communicate processes and solutions** **Justify choice of strategy used**	• Not started in this phase.	• Not started in this phase.	• I can use the rule for the order of operations to solve number calculations by using the correct order of operations. e.g 2 + 10 x 3 = 32 6 x 4 ÷ 3 = 8 * No brackets required at this stage. e.g. Mrs Smith is ordering pack lunches for camp. There are 26 Primary 6's, 30 Primary 7's and 14 adults going. How many lunches will be needed for the 3-day trip? *This could be solved by 26+30+14 = 70 and then 70 x 3 = 210 or it could be solved as 26 x 3 = 78 / 30 x 3 = 90 / 14 x 3 = 42 and then 78 + 90 + 42 = 210* • I can explain and justify my strategy when solving multi-step problems.	Applies the correct order of operations in number calculations when solving multi-step problems.

CURRICULUM ORGANISER: NUMBER& NUMBER PROCESSES (NEGATIVE NUMBERS)		**EXPERIENCE & OUTCOME:** ***I can show my understanding of how the number line extends to include numbers less than zero and have investigated how these numbers occur and are used.*** ***MNU 2-04a***		
Core Aspect & Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	negative numbers, above/below zero, sequencing, ordering, position, scale, temperature, thermometer	negative numbers, above/below zero, sequencing, ordering, scale, position, temperature, thermometer	negative numbers, above/below zero, sequencing, ordering, scale, temperature, thermometer	**Uses correct mathematical vocabulary.**
Mathematical Vocabulary and Notation	• I can identity at least one context in which negative numbers are used in real life. e.g. temperature, lift level if below ground, credit/due money, elevation above/below sea level.	• I can identify a range of contexts in which negative numbers are used in real life. e.g. temperature, lift level if below ground, credit/due money, elevation above/below sea level.	• I can confidently identify a range of contexts in which negative numbers are used in real life. e.g. temperature, lift level if below ground, credit/due money, elevation above/below sea level.	***Identifies familiar contexts in which negative numbers are used.***
Mental agility	• I can count forwards and backwards in 1's using negative numbers. e.g. forwards from -7, -6, -5, -4... backwards from 2,1, 0, -1, -2 • I can locate numbers less than zero on a number line/scale. • I can order numbers less than zero.	• I can count forwards and backwards in 1's using negative numbers. e.g. forwards from -7, -6, -5, -4... backwards from 2,1, 0, -1, -2	• I can confidently count forwards and backwards for positive and negative numbers. e.g. forwards from -7, -6, -5, -4... backwards from 2,1, 0, -1, -2 • I can confidently locate numbers less than zero on a number line/scale. • I can confidently order numbers less than zero.	***Orders numbers less than zero and locates them on a number line.***

CURRICULUM ORGANISER: NUMBER& NUMBER PROCESSES (MULTIPLES, FACTORS & PRIMES)		**EXPERIENCE & OUTCOME:** Having explored the patterns and relationships in multiplication and division, I can investigate and identify the multiples and factors of numbers. **MTH 2.05a**		
Core Aspect & Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	multiple/s, multiplication, division, divide, whole number	Multiplication, factor, factor pair, whole numbers, divisor	multiplication, multiples, factors, factor pairs, quotient, divisible by, inverse	**Uses correct mathematical vocabulary.**
Mathematical vocabulary and notation **Mental agility** **Link mathematical concepts**	• I can explain what a multiple is. • I can identify a multiple (or multiples) of a given whole number. e.g. a multiple of 5 is 20 multiples of 7 are 7, 14, 21, 28, … etc. • I can determine whether a whole number is a multiple of another given whole number. e.g. Is 15 a multiple of 3? Is 23 a multiple of 2?	• I can explain what a factor is. • I can identify a factor pair if a given whole number. e.g. A factor pair of 10 is 2 and 5. • I can find all the factors of a given whole number. e.g 24 = 2,12,1,24,8, 3,4,6 (8 factors)	• I can use divisibility rules to determine if a number is a multiple of a particular times table. • I can apply my knowledge of multiples of whole numbers to solve relevant problems. e.g. to create equivalent fractions. • I can apply my knowledge of factors of whole numbers to solve relevant problems. e.g. to express fractions in their simplest form.	Identifies multiples and factors of whole numbers and applies knowledge and understanding of these when solving relevant problems in number, money and measurement.

CURRICULUM ORGANISER: NUMBER & NUMBER PROCESSES **FRACTIONS DECIMALS AND PERCENTAGES: (Gaelic)** **(ES Webinar)**		***I have investigated the everyday contexts in which simple fractions, percentages or decimal fractions are used and can carry out the necessary calculations to solve related problems. MNU 2-07a*** ***I can show the equivalent forms of simple fractions, decimal fractions and percentages, and can choose my preferred form when solving a problem, explaining my choice of method. MNU 2-07b***		
Core Aspect & Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	fractions, numerator, denominator, vinculum, unit fractions, non-unit fractions, equivalence, equivalent fractions, the same as, multiple representations, order, compare, number lines, bar modelling	fractions, decimal fractions, tenths, hundredths, percentages, equivalent fractions, multiple representations, simplify, simplest form, order, compare, explain, justify, reason, problem solve bar models	fraction, decimal fractions, percentage equivalence, thousandths, hundredths, tenths percentage symbol (%), out of 100, compare, convert, simplify, simplest form, order, compare, explain, justify, reason, problem solve	**Uses correct mathematical vocabulary.**
	Developing efficiency using concrete manipulatives: ○ Cuisenaire Rods ○ Numicon ○ Fraction Tiles (circular/linear) **Pictorial Approaches:** ○ Bar Modelling ○ Fraction walls ○ Number lines	**Developing efficiency using concrete manipulatives:** ○ Cuisenaire Rods ○ Fraction/Decimal Tiles (circular/linear) ○ Dienes Materials ○ Place value Counters ○ Numicon **Pictorial Approaches:** ○ Bar Modelling ○ Fraction walls ○ Number lines ○ Decimat ○ Squares divided into tenths/hundredths	**Developing efficiency using concrete manipulatives:** ○ Cuisenaire Rods ○ Fraction/Decimal Tiles (circular/linear) ○ Dienes Materials ○ Place value Counters ○ Numicon **Pictorial Approaches:** ○ Bar Modelling ○ Fraction wall ○ Number lines ○ Decimat ○ Squares divided into hundredths (percentages)	

Mathematical vocabulary and notation **Mental agility** **Link mathematical concepts** **Interpret questions**	• I can identify and understand the role of the numerator and denominator in a fraction. • I can position unit and non-unit fractions on a number line. • I can compare and order simple fractions.	• I can use the fact that 10 tenths make a whole to convert between fractions and decimal fractions. *e.g.* $0.4 = \frac{4}{10}$ $\frac{7}{10} = 0.7$ $2.8 = \frac{28}{10}$ $\frac{34}{10} = 3.4$ • I can use the fact that 100 hundredths make a whole to convert between fractions and decimal fractions. *e.g.* $0.07 = \frac{7}{100}$ $\frac{34}{100} = 0.34$ • I can use the fact that 10 hundredths equal a tenth to write fractions in equivalent forms. e.g. $0.23 = \frac{23}{100}$ or $\frac{2}{10} + \frac{3}{100}$	• I can explain what percentage means and give examples of where they are used in everyday life. • I can convert a percentage into a fraction and vice versa. *e.g.* $50\% = \frac{1}{2}$, $25\% = \frac{1}{4}$, $10\% = \frac{1}{10}$, $\frac{3}{4} = 75\%$ • I can fluently convert between simple fractions, decimal fractions and percentages. $50\% = \frac{1}{2} = 0.5$ $25\% = \frac{1}{4} = 0.25$ $20\% = \frac{1}{5} = 0.2$ $10\% = \frac{1}{10} = 0.1$ $75\% = \frac{3}{4} = 0.75$ $60\% = \frac{3}{5} = 0.6$ • I can compare and order fractions, decimal fractions and percentages and position these on a number line. • I can solve problems using my knowledge of fractions, decimal fractions and percentage conversion in everyday contexts.	***Uses knowledge of equivalent forms of common fractions, decimal fractions and percentages, for example,*** $\frac{3}{4}$ ***= 0.75 = 75%, to solve problems.***

			e.g. $\frac{3}{5}$ *or 0.6 or 60% sale price in a store.*	
Interpret questions **Select and communicate processes and solutions** **Justify choice of strategy used**	• Not started in this phase.	• Not started in this phase.	• I know that a percentage is a fraction with a denominator of 100. • I can convert a percentage to a fraction to help me calculate a percentage of an amount. *e.g. 25% =* $\frac{1}{4}$*, 50% =* $\frac{1}{2}$ • I can use my knowledge of fractions to find a simple percentage of a quantity using a bar model. *e.g. 100%, 90% 75%, 50%, 25%, 20%, 10%, 1%, 15% (10% + 5%)*	***Calculates simple percentages of a quantity and uses this knowledge to solve problems in everyday contexts, for example, calculates the sale price of an item with a discount of 15%.***
Mental agility **Select and communicate processes and solutions** **Justify choice of strategy used**	• I can find a fraction of an amount (non-unit fraction) by using concrete materials, bar models and knowledge of my multiplication and division facts. *e.g.* $\frac{2}{3}$ *of 15=* $\frac{3}{4}$ *of 24=* $\frac{4}{5}$ *of 25=* *N.B denominator should be 2, 3, 4, 5 and 10*	• I can find the fraction of an amount (non-unit fraction) by using concrete materials, bar models and knowledge of my multiplication and division facts. *e.g.* $\frac{5}{6}$ *of 30=* $\frac{3}{7}$ *of 21=* *N.B any denominator from 2 – 10.*	• I can confidently find a fraction of an amount (non-unit fraction) by using concrete materials, bar models and knowledge of my multiplication and division facts. *e.g.* $\frac{7}{9}$ *of 63.* $\frac{5}{6}$ *of 72* *N.B any denominator from 2 – 10.*	***Calculates simple fractions of a quantity and uses this knowledge to solve problems, for example, find*** $\frac{3}{5}$ ***of 60.***

CURRICULUM ORGANISER: NUMBER& NUMBER PROCESSES FRACTIONS, DECIMALS AND PERCENTAGES **(Gaelic version) :** (ES Webinar)		**EXPERIENCE & OUTCOME:** I have investigated how a set of equivalent fractions can be created, understanding the meaning of simplest form, and can apply my knowledge to compare and order the most commonly used fractions. **MTH 2-07c**		
Core Aspect & Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	numerator, denominator, equivalent fractions, equivalence, the same as, bar model, fraction wall, multiple representations	numerator, denominator equivalent fractions, equivalence, the same as, bar models, multiple representations, simplify, simplest form, factors, common factors	numerator, denominator equivalent fractions, equivalence, simplest form, reduce fractions, common factor, highest common factor	**Uses correct mathematical vocabulary.**
Mathematical Vocabulary and Notation	• I can create equivalent fractions visually using concrete materials and pictorial representations.	• I can use concrete materials or pictorial representations to find or represent equivalent fractions. • I can use known multiplication and division facts to find equivalent fractions.	• I can create equivalent fractions and use this to put a set of fractions in order from smallest to largest or largest to smallest. *e.g. twentieths, fiftieths etc*	Creates equivalent fractions and uses this knowledge to put a set of most commonly used fractions in order.
Link Mathematical Concepts **Interpret questions** **Select and communicate processes and solutions**	• Not started in this phase	• I can use concrete materials and pictorial representations (bar model/ fraction wall) to identify the simplest form of a fraction. e.g $\frac{2}{4}$ simplifies to $\frac{1}{2}$ $\frac{4}{8}$simplifies to $\frac{1}{2}$	• I can confidently use concrete materials or visual representations (fraction wall) to find the simplest form of a fraction. • I can simplify fractions to their simplest form by dividing the denominator and numerator by their highest common factor.	Expresses fractions in their simplest form.

CURRICULUM ORGANISER: MONEY: (Gaelic) (ES Webinar)		**EXPERIENCES & OUTCOMES:** ***I can manage money, compare costs from different retailers, and determine what I can afford to buy. MNU 2-09a*** ***I understand the costs, benefits and risks of using bank cards to purchase goods or obtain cash and realise that budgeting is important. MNU 2-09b*** ***I can use the terms profit and loss in buying and selling activities and can make simple calculations for this. MNU 2-09c***		
Core Aspect & Skills Focus	**Phase 1** →	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	money, currency, value, total amount/cost, purchase, bank, bank cards, payment, buying, selling, discount, reduced, sale, budget, profit, loss, tax, change, need/want, earn money, compare	money, currency, finance, value, total amount/cost, compare price, budget, most/least expensive, debit card, credit, debt, afford, save, interest, percentage, tax, benefits/risks, loss	money, currency, finance, increase, decrease, deduction, cost effective, best offer, best value for money, budgeting, prioritising wants/needs, fraud, profit, loss, salary, wage, earnings, interest rate	**Uses correct mathematical vocabulary.**

Mathematical Vocabulary and Notation **Interpret questions** **Mental Agility** **Select and communicate processes and solutions** **Justify choice of strategy used**	• I can read and write monetary values using the correct notation of pounds, pence and the decimal point. e.g two pounds and fifty six pence = £2.56 six hundred and eighty pence = 680p or £6.80 seventy-two pence= 72p or £0.72 • I am building my understanding of the use of the decimal point to write monetary values with decimal notation. e.g 1p = £0.01, $\frac{1}{100}$ 5p = £0.05, $\frac{5}{100}$ 10p= £0.10 $\frac{10}{100}$ or $\frac{1}{10}$ 20p = £0.20 $\frac{20}{100}$ or $\frac{2}{10}$ 50p = £0.50 $\frac{50}{100}$ or $\frac{5}{10}$ **<u>Counting Totals:</u>** • I can consolidate my ability to add and subtract monetary values within £10. e.g 580p + 360p = **<u>Paying for an Item/s:</u>** • I can work out the total cost of a selection of items (bridging the £1 and working with whole numbers).	• Using my place value knowledge, I am developing my understanding of tenths and hundredths to write monetary values with the decimal point. e.g £ 26.78, 2 tens, 6 ones, 7 tenths $\frac{7}{10}$, 8 hundredths $\frac{8}{100}$ • I can apply my knowledge of 1digit by 2 digit to determine the total cost of multiple items. e.g one apple = 57p, 4 apples = 4 x 57p 4 apples = 228p or £2.28 **<u>Counting Totals:</u>** • I can add 3 or more items together and calculate the total value. e.g. 246p+ 302p + 56p = 604p or £6.04 **<u>Paying for an Item/s:</u>** • I can apply my knowledge of division to determine the cost of one item when given the total. e.g 8 pears = 336p What is the cost of one pear?	• I can confidently use a variety of strategies to add, subtract, multiply and divide monetary values with a decimal point. *e.g. £24.56 + £15.45 =* *£435.50 - £43.55=* *£54.34 x 6 =* *£3.60 divided by 6 =* • I can add 3 or more items together and calculate the total value with decimal notation. e.g £12.45 + £14.54 + £13.60= rubber £0. 90, sharper £1.50, pencils £0.60 each x 2, what is the total and how much change from £10? **<u>Calculating Change:</u>** • I can work out how much change I will receive after paying for an item or selection of items. e.g Erin has £10. She wants to buy a smoothie which costs £4.99. She uses her charge to buy her friend Isla football cards. Each pack costs £1.50. How many packs can she afford to buy? • I can work out how much I would have to earn to afford a given item or make a given amount.	***Carries out money calculations involving the four operations.***

	e.g 75p + 87p + 27p = Football costs £15, Playstation game costs £59, Bike costs £149, what is the total cost? **<u>Calculating Change:</u>** • I can work out how much change I will receive after paying for an item/s.		• I can solve real life problems involving money. e.g. Enterprise opportunities	
Mathematical Vocabulary and Notation **Interpret questions** **Select and communicate processes and solutions**	• I can identify the differences between a need and a want.	• I can compare prices between different retailers to determine what I can buy within my budget. e.g Aldi Vs Tesco, Smyths Vs Argos • I can explain the terms debit, credit and debt. • I can talk about how and why I might save money to be able to afford something.	• I can identify offers and decide which one is the most cost effective. *e.g. Is it more cost effective to book individual flights, hotel and accommodation or a package holiday (JET2, TUI).* • I can work to a budget to buy certain items prioritising my wants and needs and explain why budgeting is an important skill.	***Compares costs to determine affordability within a given budget.***

Mathematical Vocabulary and Notation	• I can explain the role of a bank.	• I can compare and contrast different payment methods including cash, bank cards and digital technologies (face ID, banking apps). • I can explain the benefits and risks of using bank cards and digital technologies in comparison to cash. *e.g. fraud, online transactions*	• I understand the difference between a debit and credit card. • I can investigate debt and how this can mount up when using credit facilities. *e.g. credit cards, loans etc.* • I am developing my knowledge of the importance of banking security.	***Demonstrates understanding of the benefits and risks of using bank cards and digital technologies.***
Mathematical Vocabulary and Notation	• I can investigate ways in which people earn or obtain money.	• I understand the terms profit and loss and can use them in buying and selling activities.	• I can create a business plan for an enterprise activity, using supporting calculations to forecast my profit and loss.	***Calculates profit and loss accurately, for example, when working with a budget for an enterprise activity.***

Organisations to Support L& T of Money

My Bnk	Scotland's Financial Schools	Nat West – Money Sense	Young Enterprise	RBS	Red Start

CURRICULUM ORGANISER: **TIME: (Gaelic)** **(ES Webinar)**		**EXPERIENCES & OUTCOMES:** ***I can use and interpret electronic and paper-based timetables and schedules to plan events and activities and make time calculations as part of my planning. MNU 2-10a*** ***I can carry out practical tasks and investigations involving timed events and can explain which unit of time would be most appropriate to use. MNU 2-10b*** ***Using simple time periods, I can give a good estimate of how long a journey should take, based on my knowledge of the link between time, speed and distance. MNU 2-10c***		
Core Aspect & Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	time, am/pm, digital, analogue clock, arrive depart, leap year, century, millennium, date of birth, 5-minute intervals, *24-hour notation,* convert, estimate, events, timetable	time, am/pm, digital, analogue clock, arrive depart, leap year, century, millennium, date of birth, 5-minute intervals, *24-hour notation,* convert, estimate, events, timetable	time, am/pm, digital, analogue clock, arrive depart, distance, speed, miles per hour (mph), kilometres per hour (kph), tenths and hundredths of a second	***Uses correct mathematical vocabulary.***
Mathematical vocabulary and notation **Interpret questions**	• I can tell the time in 5-minute and 1-minute intervals using both analogue and digital clocks. • I know that there are 24 hours in a day split into two 12-hour cycles which gives am and pm times.	• I can confidently tell the time to the nearest minute on a digital and analogue clock. e.g 1.08pm • I can use my knowledge of the two 12 hour cycles to convert times into 24 hour notation. e.g 1.27pm = 13:27 4.46pm = 16:46	• I can read and record time in both 12-hour and 24-hour notation and convert between the two. e.g 20:30 = 8.30pm 11.47pm = 23:47	***Reads and records time in both 12 hour and 24-hour notation and converts between the two.***
Mathematical vocabulary and notation **Interpret questions**	• I can convert between minutes and hours. *e.g.* $1\frac{1}{2}$ *hours = 90 minutes* $2\frac{3}{4}$ *=165minutes* *75 minutes =* $1\frac{1}{4}$ *hours* *110minutes = 1hour 50 minutes*	• I can convert between seconds and minutes. e.g 90 seconds = 1minute 30 seconds 150 seconds = $2\frac{1}{2}$ minutes • I know that a millennium = 1000 years.	• I can confidently convert between seconds, minutes and hours. e.g. $2\frac{3}{4}$ hours = 165 minutes	***Knows the relationships between commonly used units of time and carries out simple conversion***

	• I know that a century = 100 years.			***calculations, for example, changes 1 $\frac{3}{4}$ hours into minutes.***
Mathematical vocabulary and notation **Interpret questions** **Select and communicate processes and solutions**	• I can use and interpret timetables displayed in 12 notation. • I can use a digital or paper-based calendar to calculate the number of days/weeks between events (bridging the month). e.g Isla birthday is on the 28th May, her party is the 4th June. How many days from her birthday until her party? Is it the 22nd January, how many weeks until Eid?	• I can read timetables using 12- and 24-hour notation in real-life contexts. • I can use a digital or paper-based calendar to calculate the number of days, weeks or months between events.	• I can apply my knowledge of 12- and 24-hour notation to plan activities using more than one timetable. *e.g. train times and cinema showing times* • I can find out how long a journey will take using digital route planners. e.g Google Maps	***Uses and interprets a range of electronic and paper-based timetables and calendars to plan events or activities and solve real life problems.***
Mathematical vocabulary and notation **Mental agility**	• I can calculate durations of activities/events using 12-hour notation. **<u>Result Unknown Going Forward in Time:</u>** e.g. Protek left school at 3.10pm. He got home 35 minutes later. What time did he arrive home? e.g Erin ran a marathon 4 hours and 12 minutes. If she started at 7.57am, what time would she finish? **<u>Change Unknown Elapsed Time:</u>**	• I can calculate durations of activities/events using 12-hour or 24-hour notation. **<u>Result Unknown Going Forward in Time:</u>** e.g. The plane departs Edinburgh Airport at 06:25am. It takes 7 hours and 30 minutes to reach New York. What time does it arrive? (24 hour notation) **<u>Change Unknown Elapsed Time:</u>**	• I can calculate durations of events bridging across several hours in 12-hour and 24-hour notation. **<u>Result Unknown Going Forward in Time:</u>** e.g. Sam started an online Fifa Tournament at 16:47pm. The tournament lasted 3 hours and 34 minutes. What time did Sam finish playing Fifa? (24 hour notation) **<u>Change Unknown Elapsed Time:</u>**	***Calculates durations of activities and events including situations bridging across several hours and parts of hours using both 12-hour clock and 24-hour notation.***

	e.g Omar went to play basketball at 1.30pm. He played until 4.49pm. How long did he play? e.g Sarah is baking a cake. She put her cake in the oven at 3.45pm. She took it out at 4.17pm. How long did she bake the cake for?	e.g Johan's cheerleading club starts at 08:45am. It ends at 16:30pm. How long does the club last?	e.g Javid went to bed at 21:35pm. He woke up at 06:50am. How long did he sleep? **<u>Start Unknown Going Back in Time</u>**: e.g Ross and his friends went to Glasgow. They arrived at 11:05am. The train took 52 minutes. What time did they depart? **<u>Multistep Elapsed Time:</u>** The new Minnions movie is shown at the cinema twice a day. The afternoon screening starts at 13:50pm and ends at 15:10pm. The evening screening starts at 19:40pm, what time does it end?	
Mathematical Vocabulary and Notation	• I can estimate the duration of a simple journey.	• I can estimate the time taken for a journey based on criteria given. *e.g. walking a known journey, cycling the same distance.*	• I can explain what is meant by miles per hour (mph) and kilometres per hour (km/h). • I can calculate the time taken for a journey, given the speed and distance. *e.g. If a car travels 100 miles at 50 miles an hour, can you calculate how long the journey takes?*	***Estimates the duration of a journey based on knowledge of the link between speed, distance and time.***
Mathematical Vocabulary and Notation	• I can select appropriate digital or non- digital devices to time activities or events. e.g. stopwatch, timer on phone/tablets.	• I can confidently select and accurately use appropriate digital devices to time activities or events. e.g. stopwatch, timer on phone/tablets	• I can record time using relevant units including a hundredth of a second.	***Chooses the most appropriate timing device in practical situations and records using relevant units,***

	• I can record times using the appropriate units and justify my choice. e.g. seconds, minutes etc.	• I can record times using the appropriate units and justify my choice. e.g. seconds, minutes etc.		***including hundredths of a second.*** ***Selects the most appropriate unit of time for a given task and justifies choice.***

CURRICULUM ORGANISER: MEASUREMENT: (ES Webinar)		**EXPERIENCES & OUTCOMES:** ***I can use my knowledge of the sizes of familiar objects or places to assist me when making an estimate of measure. MNU 2-11a*** ***I can use the common units of measure, convert between related units of the metric system and carry out calculations when solving problems. MNU 2-11b*** ***I can explain how different methods can be used to find the perimeter and area of a simple 2D shape or volume of a simple 3D object. MNU 2-11c***		
Core Aspect & Skills Focus	**Phase 1** →	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	measure, measurement, estimate, length, height, width, breadth, edge mass, capacity, weight, perimeter, area, distance, centimetres (cm), metres (m), grams (g), kilograms (Kg), litres (l), millilitre (ml), centilitre (cl), scales, increments, digital/dial scales, measuring tools	measure, measurement, estimate, length, height, width, breadth, edge mass, capacity, weight, perimeter, area, distance, centimetres (cm), metres (m), grams (g), kilograms (Kg), litres (l), millilitre (ml), centilitre (cl), scales, increments, digital/dial scales, measuring tools stones, pounds, ounces Area (a)= length (l) x breadth (b)	measure, measurement, estimate, perimeter, volume, metric, imperial, pint, gallon, feet, foot, inches, inch, stones, pounds, ounces, area, right-angled triangle, squared, mm^2, cm^2, m^2 cm^3 and m^3 Area (a)= $\frac{1}{2}$ x length x breadth Volume (v)= length x breadth x height (v=l x b x h)	**Uses correct mathematical vocabulary.**
Mathematical Vocabulary and Notation **Interpret questions** **Mental Agility**	• I can confidently convert between common units of measurement (no decimal notation). *e.g. 10mm = 1cm,* *100cm = 1m* $\frac{1}{2}$*m= 50cm,* $\frac{1}{4}$ *m =25cm,* $\frac{3}{4}$*m=75cm* *1m 34cm = 134cm* *1000m=1km,* $\frac{1}{2}$ *km=500m,* $\frac{1}{4}$*Km=250m* *1kg = 1000g,* $\frac{1}{2}$ *kg = 500g,* $\frac{1}{4}Kg = 250g$ *1L = 1000ml,* $\frac{1}{2}$ *L= 500ml,* $\frac{1}{4}$*L=250ml*	• I can convert between common units of measurement up to 1 decimal place. *e.g. 3.4cm = 34mm* *3400m = 3.4km* *5700g = 5.7kg* *2600ml = 2.6L*	• I can convert between common units of measurement up to 3 decimal places. *e.g. 324cm = 3.24m* *5683m = 5.683km* *6370g = 6.37kg* *9.24L = 9240ml*	**Converts between common units of measurement using decimal notation, for example, 550 cm = 5·5 m; 3·009 kg = 3009 g.**

Mathematical Vocabulary and Notation **Determine the reasonableness of a solution** **Interpret questions** **Select and communicate processes and solutions**	• I can record measurements using the correct units. • I can determine the value of the increments on a scale including scales with unmarked intervals. • I can read a variety of scales accurately to $\frac{1}{2}, \frac{1}{4}, \text{and} \frac{3}{4}$. • I can estimate and measure the length/height of objects in centimetres (cm), metres (m) or millimetres (mm) using an appropriate device. • I can estimate and measure the mass of objects in grams (g) and kilograms (kg) using an appropriate device. • I can estimate and measure the volume of liquid in a container in millilitres (ml) and litres (L) using an appropriate device.	• I can record measurements using the correct units. • I can determine the value of the increments on a scale which include unmarked intervals. • I can confidently read a variety of scales including tenths. e.g 2.4 Kg on dial scales 0.8L on a measuring jug • I can estimate and measure the length/height of objects in millimetres (mm), centimetres (cm) and metres (m), using an appropriate device. • I can estimate and measure the mass of objects in grams (g) and kilograms (kg) using an appropriate device. • I can estimate and measure the volume of liquid in a container in millilitres (ml) and litres (l) using an appropriate device.	• I can confidently record measurements using the correct units. • I can determine the value of the increments on a scale which include unmarked intervals. • I can confidently read a variety of scales including tenths and hundredths. e.g 1.82Kg on dial scales 0.45L on a measuring jug • I can estimate and accurately measure the length/height of objects in millimetres (mm), centimetres (cm) and metres (m) using the most appropriate measuring device. • I can estimate and accurately measure the mass of objects in grams (g) and kilograms (kg) using the most appropriate measuring device. • I can estimate and accurately measure the volume of liquid in a container in millilitres (ml) and litres (l) using the most appropriate measuring device.	**Uses the comparative size of familiar objects to make reasonable estimations of length, mass, area and capacity.** **Estimates to the nearest appropriate unit, then measures accurately: length, height and distance in millimetres (mm), centimetres (cm), metres (m) and kilometres (km); mass in grams (g) and kilograms (kg); and capacity in millilitres (ml) and litres (l).** **Chooses the most appropriate measuring device for a given task and carries out the required calculation,**

	• I can estimate and measure the capacity of varying containers in millilitres (ml) and litres (L) using an appropriate device.	• I can estimate and measure the capacity of varying containers in millilitres (ml) and litres (L) using an appropriate device.	• I can estimate and measure the capacity of varying containers in millilitres (ml) and litres (L) using an appropriate device.	**recording results in the correct unit.** **Reads a variety of scales accurately.**
Mathematical Vocabulary and Notation **Interpret questions** **Mental Agility** **Select and communicate processes and solutions** **Justify choice of strategy used**	**Calculating Perimeter:** • I know that the perimeter is the distance around the outside of a shape. • I can calculate the perimeter of a straight sided 2D shape by finding the total length of all sides (cm and m) including word problems. e.g Oscar's garden is 8 metres by 5 metres. What is the perimeter? • I can explain the method I used to find the perimeter of a shape and use the correct units. • I can accurately draw a square or rectangle when given the length of each side.	**Calculating Area:** • I can use my knowledge of multiplication to calculate the area of squares and rectangles represented on squared paper. • I can calculate the area of squares and rectangles in mm^2, cm^2 and m^2. e.g Amar's bedroom is 4 metres by 3 metres. What is the area of his bedroom? • I can use the formula: **Area(a)=length (l) x breadth (b)** to calculate the area of rectangles and squares. • I can accurately draw a square or rectangle when given the length of each side and calculate the area.	**Calculating Perimeter & Area:** • I can calculate the perimeter of a straight sided 2D shape in millimetres, centimetres or metres by finding the total length of all sides (including decimal fractions). e.g A rectangle has a length of 8cm and breadth of 2.4cm. What is the perimeter? • I can confidently use the formula area (a)=length (l) x breadth (b) to calculate the area of rectangles and squares. • I can accurately draw a square or rectangle when given the length of each side and calculate the area and perimeter. • I can use the formula: **Area = ½ x length (l) x breadth (b)** to calculate the area of a right-angled triangle in mm^2, cm^2, m^2.	**Calculates the perimeter of simple straight sided 2D shapes in millimetres (mm), centimetres (cm) and metres (m).** **Calculates the area of squares, rectangles and right-angled triangles in square millimetres (mm^2), square centimetres (cm^2) and square metres (m^2).** **Draws squares and rectangles accurately with a given perimeter or area.**
	• I can accurately draw a variety of rectangles which have the same perimeter.	• I can use my knowledge of factors to accurately draw a variety of	• Using my knowledge of factors and multiplication, I can	**Demonstrates understanding of the**

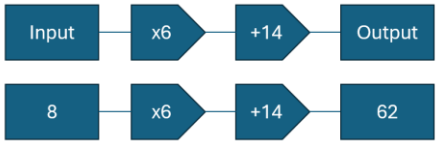
	e.g. A rectangle with length 6cm, width 4cm has the same perimeter as a rectangle with length 9cm and width 1cm.	rectangles which have the same area. e.g A rectangle length 6cm, width 4cm, area = 24 cm^2 rectangle with length 8cm and breadth 3cm, area = 24 cm^2	accurately draw rectangles with the same perimeter or area.	**conservation of measurement, for example, draw three different rectangles each with an area of 24 cm^2.**
Mental agility **Link Mathematical Concepts**	• Not started in this phase.	• I can explain what the volume of an object means. • I can explore how to calculate volume of cubes and cuboids using practical materials. e.g multilink cubes	• I can calculate the volume of cubes and cuboids using practical materials. e.g multilink 1cm cubes. • I can calculate the volume of cubes and cuboids using the formula: **Volume (v) = length (l) x breadth (b) x height (h)** in cm^3 and m^3.	**Calculates the volume of cubes and cuboids in cubic centimetres (cm^3) and cubic metres (m^3).**
	• Not started in this phase.	• I have an awareness of different types of imperial units. e.g Miles for measuring distance Ounces/Pounds for baking Stones for measuring body mass	• I can give examples of imperial units in everyday life. e.g Miles for measuring distance Ounces/Pounds for baking Stones for measuring body mass	**Shows awareness of imperial units used in everyday life, for example, miles or stones.**

CURRICULUM ORGANISER: MATHEMATICS – ITS IMPACT ON THE WORLD, PAST, PRESENT and FUTURE		**EXPERIENCES & OUTCOMES:** I have worked with others to explore, and present our findings on, how mathematics impacts on the world and the important part it has played in advances and inventions. MTH 2-12a		
Core Aspect/Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	mathematics, world, job/ careers, interventions, past, present, research, binary, engineering, STEM	historical, the world, society, coding, technology, STEM	mathematics, world, job/ careers, interventions, past, present, research, society, STEM	**Uses correct mathematical vocabulary.**
	• I know why mathematics is important for daily life. e.g engineering, building design (links with STEM). • I can research jobs/careers where mathematics plays an important part. • I can research how mathematics has played a crucial part in the creation of important inventions in the past. e.g. Binary • I can work with peers to create and present my findings using digital or non-digital approaches.	• I can research how mathematics has played a part in advances in society. e.g. coding and technology. • I can research how mathematics has played a crucial part in the creation of important inventions in the present. • I can work with peers to create and present my findings using digital and non-digital approaches.	• I can work with peers to research and present which key subjects at secondary school use mathematics and I understand the importance for the world of work/life.	Researches and presents examples of the impact mathematics has in the world of life and work. Contributes to discussions and activities on the role of mathematics in the creation of important inventions, now and in the past.

CURRICULUM ORGANISER: PATTERNS AND RELATIONSHIPS		**EXPERIENCE & OUTCOME:** Having explored more complex number sequences, including well-known named number patterns, I can explain the rule used to generate the sequence, and apply it to extend the pattern. MTH 2-13a		
Core Aspect & Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	pattern, sequence, digit, number, rule, square number, explore, describe, investigate, reason, justify, determine,	pattern, sequence, rule, square numbers, multiples, describe, investigate, reason, justify, determine, apply	pattern, sequence, triangular numbers, multiples, Fibonacci sequence	**Uses correct mathematical vocabulary.**
Mathematical Vocabulary and Notation **Interpret questions** **Mental agility**	• I can recognise a pattern and describe the rule in a number sequence. • I can extend a number sequence by recognising the rule. • I can find a missing number in a sequence by applying the rule. • I can use my knowledge of addition and subtraction to create my own number sequence which follows a set rule. • I can explore, observe and describe patterns within the multiplication tables. e.g use a hundred square • I can create squared numbers using concrete and pictorial resources.	• I can recognise and describe a number sequence and write the rule. • I can find a missing number in a number sequence through applying the rule. • I can use my knowledge of addition and subtraction to create my own number sequence which follows a set rule.	• I can explore triangular numbers using concrete materials and pictorial representations and explain the rule. *(The number of dots in an equilateral triangular pattern) e.g counters, drawing dots • I can continue the Fibonacci sequence and explain the rule. (Each number is the sum of the two preceding numbers) • e.g 0,1,1,2,3,5,8,13,21,34,55,89 • I know that the Fibonacci sequence is found in nature. e.g. pinecones, flower petals, fruit (star in the middle)	Explains and uses a rule to extend well known number sequences including square numbers, triangular numbers and Fibonacci sequence.

	• I can recall all the square numbers up to the 10th multiplication table.			
Interpret questions **Mental agility**	• I can use my knowledge of multiples to create my own number pattern which follows a set rule. e.g Multiples: 18,24,30.... 63,56,49,42...	• I can use my knowledge of multiples or square numbers to create my own number pattern which follows a set rule. e.g. Multiples: 36,45,54,63.... Square numbers: 0,1,4,9,16	• I can use my knowledge of multiples, square numbers or triangular numbers to create my own number pattern which follows a set rule. e.g Triangular numbers: 1,3,6,10,15,21, 28	Applies knowledge of multiples, square numbers and triangular numbers to generate number patterns.

CURRICULUM ORGANISER: EXPRESSIONS & EQUATIONS		**EXPERIENCES & OUTCOMES:** I can apply my knowledge of number facts to solve problems where an unknown value is represented by a symbol or letter. MTH 2-15a		
Core Aspect & Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	expression, equation, unknown value, missing number, equals, balanced, equivalent, equivalence, represented, symbol/letter, input/output, process	expression, equation, algebra, unknown value, missing number, equals, balanced, equivalent, equivalence, represented, symbol/letter	expression, equation, algebra, unknown value, missing number, equals, balanced, equivalent, equivalence, represented, symbol/letter	**Uses correct mathematical vocabulary.**
	Developing efficiency using concrete manipulatives: ○ Cuisenaire Rods **Pictorial approaches:** ○ Bar Modelling	**Developing efficiency using concrete manipulatives:** ○ Cuisenaire Rods **Pictorial approaches:** ○ Bar Modelling	**Developing efficiency using concrete manipulatives:** ○ Cuisenaire Rods **Pictorial approaches:** ○ Bar Modelling	
Reason algebraically **Mental agility** **Determine the reasonableness of a solution**	• I understand that the equal sign means equivalence therefore both sides of the equation must balance. *e.g. 7 + ◆ = 14 – 3* • I can solve missing number problems with the four operations. *e.g. 47 + ◎ = 96* *82 - ◆= 43* *5 x ☺= 40* *24÷ ☼= 6*	• I can solve missing number problems with the four operations. *e.g. 470 + ? = 962* *763 - ? = 526* *8 x ? = 72* *54 ÷ ? =* • I understand that a letter can be used to represent an unknown quantity. e.g. a =4, b = 6, • I can solve a simple algebraic equation. e.g x + 8 = 12, b – 9 = 6	• Using my understanding that letters can be used to represent a number, I can solve algebraic equations demonstrating the steps taken. e.g 5a = 25 5 x a = 25 a = 25 ÷ 5 (inverse) a = 5 • I can use pictorial representations (bar modelling) to support my understanding of algebraic equations. e.g. t + 10 = 30	Solves simple algebraic equations with one variable, for example, a – 30 = 40 and 4b = 20.

Reason algebraically **Mental agility**	• I can use a two-step function machine to solve calculations. 	• I can confidently use two or three-step function machines to calculate the output or input. e.g Input: ? Step 1: x9 Step 2: Subtract 120 Output: 240 * (Reverse operations)		

CURRICULUM ORGANISER: PROPERTIES OF 2D SHAPES & 3D OBJECTS		**EXPERIENCES & OUTCOMES:** Having explored a range of 3D objects and 2D shapes, I can use mathematical language to describe their properties, and through investigation can discuss where and why particular shapes are used in the environment. MTH 2-16a Through practical activities, I can show my understanding of the relationship between 3D objects and their nets. MTH 2-16b I can draw 2D shapes and make representations of 3D objects using an appropriate range of methods and efficient use of resources. MTH 2.16C		
Core Aspect & Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	vertical, horizontal, diagonal, regular, irregular, sides, vertices, vertex, internal angles, faces, edges, net/s, rhombus, kite, parallelogram, trapezium, octagon, nonagon, decagon, dodecagon, right-angled triangle, square based pyramid, triangular based pyramid, triangular prism, pentagonal prism hexangonal prism	two dimensional, three-dimensional, parallel lines, perpendicular lines, sides, vertices, internal angles, internal angles, acute, obtuse, reflex, right angle, faces, edges, polygon, regular, irregular, net/s, protractor, right angled triangle, isosceles triangle, pentagonal prism, hexagonal prism	parallel lines, perpendicular lines, internal angles, acute, obtuse, reflex, right angle, equal sides/angles, equilateral triangle, right-angled triangle, isosceles triangle, scalene triangle, quadrilaterals, net/s, protractor, compass, centre, radius, radii, diameter, circumference polyhedron, congruent	Uses correct mathematical vocabulary.
Mathematical Vocabulary and Notation	• I can identify and describe parallel lines. • I can identify, name and classify regular and irregular 2D shapes using the language of sides, vertices and angles. **e.g Shapes to consider:** ○ Rhombus ○ Kite ○ Parallelogram, ○ Trapezium ○ Octagon	• I know that the three internal angles in a triangle add up to 180°. • I can identify, name and describe the properties of a right-angled, equilateral and isosceles triangle. • I can identify, name and classify common 3D objects using the language of faces, edges, and vertices. **e.g Shapes to consider:** ○ **Pyramid Family:**	• I can identify, name and classify a range of quadrilaterals using the language of sides, angles and parallel lines. • I can identify, name and describe the properties of an equilateral, right-angled, isosceles and scalene triangle.	Describes 3D objects and 2D shapes using specific vocabulary including regular, irregular, diagonal, radius, diameter and circumference. Uses digital technologies and mathematical instruments to draw 2D shapes and make

Mathematical Vocabulary and Notation **Select and communicate processes and solutions**	○ Nonagon ○ Decagon ○ Right-angled triangle. • I can draw a range of 2D shapes using a ruler.	○ Square based pyramid ○ Triangular based pyramid ○ **Prism Family:** ○ Triangular prism ○ Pentagonal prism ○ Hexangonal prism • I can use digital technology to draw a range of 2D shapes and 3D objects. • I can use a ruler and protractor to draw a right angle, equilateral, isosceles triangles and mark on equal sides	• I can use digital technology to draw a range of 2D shapes and 3D objects. **Properties of a Circle:** • I can describe the properties of circles using the language of centre, radius, diameter and circumference. • I can construct an accurate circle with a given radius or diameter using a compass and a ruler. • I can explain the relationship between the radius and diameter. e.g. The radius is half of the diameter. • I can calculate the diameter when given the radius and vice versa. e.g Radius = 3cm, Diameter = 6cm Diameter = 30 cm, radius= 15cm	representations of 3D objects, understanding that not all parts of the 3D object can be seen Knows that the radius is half of the diameter.
	• I can identify and describe regular 2D shapes in the environment, explaining their function where appropriate.	• I can identify and describe 3D objects in the environment, explaining their function where appropriate.	• I can confidently identify and describe regular and irregular 2D shapes and 3D objects in the environment and explain their function.	Identifies and describes 3D objects and 2D shapes within the environment and explains

		e.g £1 coin = dodecagon * (12 sides) making it much harder to counterfeit.		why their properties match their function.
	• I can identify a cube, cuboid, cone or cylinder from it's net.	• I can identify a pyramid or triangular prism from it's net.	• I can identify a range of 3D objects from their 2D net.	Applies this knowledge to demonstrate understanding of the relationship between 3D objects and their nets.

CURRICULUM ORGANISER: GEOMETRY ANGLES, SYMMETRY & TRANSFORMATION	**EXPERIENCES & OUTCOMES:** I have investigated angles in the environment, and can discuss, describe and classify angles using appropriate mathematical vocabulary. MTH 2-17a I can accurately measure and draw angles using appropriate equipment, applying my skills to problems in context. MTH 2-17b Through practical activities which include the use of technology, I have developed my understanding of the link between compass points and angles and can describe, follow and record directions, routes and journeys using appropriate vocabulary. MTH 2-17c Having investigated where, why and how scale is used and expressed, I can apply my understanding to interpret simple models, maps and plans. MTH 2-17d I can use my knowledge of the coordinate system to plot and describe the location of a point on a grid. MTH 2-18a / MTH 3-18a I can illustrate the lines of symmetry for a range of 2D shapes and apply my understanding to create and complete symmetrical pictures and patterns. MTH 2-19a / MTH 3-19a			
Core Aspect & Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	measure, acute, obtuse, straight, degrees (°), greater than, less than protractor, identify, classify, equal to, clockwise, anticlockwise, horizontal, vertical, compass points (N, S, E, W), symmetry, line of symmetry, reflect	classify, acute angle, right, straight, obtuse, reflex, complementary angles, degree symbol °, plot, locate, quadrant, transformation, symmetry, symmetrical, lines of symmetry, reflect	identify, classify, reflex, complimentary angles, supplementary angles, vertices, interpret, scale, ratio, compass point NE, NW, SE, SW, tessellation, translate	**Uses correct mathematical vocabulary.**
Mathematical Vocabulary and Notation	• I know that an acute angle is less than 90°. • I know that a straight angle is equal to 180°. • I know that a half turn is equal to 180°.	• I know a reflex angle is more than 180° but less than 360°. • I know that a full turn is 360°. • I can identify and classify angles as acute, right, straight, obtuse or reflex.	• I can confidently identify, classify and describe angles including acute, right, straight, obtuse and reflex.	Uses mathematical language including acute, obtuse, straight and reflex to describe and classify a range of angles identified within shapes in the environment.

	• I know that an obtuse angle is more than 90° but less than 180°. • I can identify and classify angles as acute, right, straight or obtuse. • I can find examples of angles in the environment and discuss where and why they are used. • I can use the words acute, obtuse, and right angle to describe the angles within a 2D shape.			
Mathematical Vocabulary and Notation	• I can estimate the size of an angle and check using a protractor. • I can draw right angles accurately using a protractor and a ruler.	• I can estimate the size of an angle and check using a protractor. • I can draw acute, right, obtuse and straight angles accurately using a 180° protractor and a ruler.	• I can estimate and measure angles to within ±2° using a protractor. • I can draw acute, obtuse and reflex angles within ±2° accuracy using a 180° or 360° protractor and a ruler.	Measures and draws a range of angles to within $\pm 2^{o}$.
Select and communicate processes and solutions	• Not started in this phase.	• I know that complimentary angles add up to 90° and can use this fact to calculate missing angle/s.	• I know that supplementary angles add up to 180° and can use this fact to calculate missing angle/s.	Knows that complementary angles add up to 90° and supplementary angles add up to 180° and uses this knowledge to calculate missing angles.

Mathematical Vocabulary and Notation	• I know that 90° = quarter turn. • I know that 180°= half turn. • I understand that rotating between the 4 main compass points (e.g North to East) involves a quarter turn which equals 90° (right angle). • I can recognise the eight main compass points (N, S, E, W, NE, NW, SE, SW).	• I know that 270°= three quarter turn • I know that 360° = full turn/rotation • I can use my knowledge of angles and rotation (clockwise and anticlockwise) to determine which direction I will be facing after a particular turn or series of turns.	• I can use my knowledge of compass points to create, follow and record directions for journeys using a wide range of language including the use of digital technologies.	Uses knowledge of the link between the eight compass points and angles to describe, follow and record directions.
	• Not started in this phase.	• Not started in this phase.	• I can interpret a simple scale e.g. 1cm:10km to help me understand/read a map, model or plan.	Interprets maps, models or plans with simple scales, for example, 1 cm: 2 km.
	• I understand that the x-axis is the horizontal axis on a coordinate grid. • I understand that the y axis is the vertical axis on a coordinate grid. • I know that first number in a coordinate describes how far along the x-axis it is and the second number describes how far up the y-axis it is. • I can locate, describe or plot a coordinate point on a grid.	• I can accurately plot a point on a coordinate grid when given its x and y coordinates. • I can record the coordinates of a given point using x-y coordinate notation (x, y).	• I can confidently describe, plot or record the coordinates of a point within the first quadrant using accurate coordinate notation.	Describes, plots and records the location of a point, in the first quadrant, using coordinate notation.

	• I can identify and draw the lines of symmetry on a wide range of 2D shapes, patterns, or objects. • I can complete a shape or pattern using my knowledge of symmetry.	• I can complete a shape or pattern using my knowledge of symmetry using digital technology.	• I can confidently identify and draw lines of symmetry on 2D shapes. • I can create and complete symmetrical patterns with or without digital technology.	Identifies and illustrates line symmetry on a wide range of 2D shapes and applies this understanding to complete a range of symmetrical patterns, with and without the use of digital technologies.

CURRICULUM ORGANISER: **DATA ANALYSIS: (Gaelic)** (ES Webinar Part 1) (ES Webinar Part 2) (ES Webinar Part 3)		**EXPERIENCES & OUTCOMES:** ***Having discussed the variety of ways and range of media used to present data, I can interpret and draw conclusions from the information displayed, recognising that the presentation may be misleading. MNU 2-20a*** ***I have carried out investigations and surveys, devising and using a variety of methods to gather information and have worked with others to collate, organise and communicate the results in an appropriate way. MNU 2-20b*** I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology. MTH 2-21a / MTH 3-21a		
Core Aspect & Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	data, information, data set, line graph, survey, questionnaire/poll, frequency table collect, organise, sort, present, display, scale, axis, title, analyse, compare, find the difference, sample size	data, information, data set, closed questions, open questions, categories, collect, organise, sort, present, display, create, survey, questionnaire/poll, bar graph, line graph, axis, scale, measure, compare, comparison, conclusions, analyse, evaluate, sample bias	data, information, data set, categories, survey, questionnaire, poll, line graph, axis, scale, pie chart, analyse, evaluate, conclusions, compare, sample size, sample bias, reliable, valid, spreadsheets	**Uses correct mathematical vocabulary.**
Mathematical Vocabulary and Notation **Interpret questions**	• I know that there are different types of data for different purposes. • I can consider an overarching question which I want to find an answer to and consider what information I will require. • I can design a survey including the use digital tools to assist with data collection (e.g	• I can create and design open and closed questions (with predetermined categories) within a questionnaire/survey. • Using digital or non-digital approaches, I can choose an appropriate way to collect data for a given task.	• I can create and design open and closed questions (with predetermined categories) within a questionnaire/survey. • Using digital or non-digital approaches, I can choose an appropriate way to collect data for a given task. • I can collect data over a given time period rather in a single episode.	**Devises ways of collecting data in the most suitable way for the given task.**

	Microsoft forms to create a survey, questionnaire or poll.) • I can explore the different ways that I can collect data for a given task. e.g sensors in the local environment: rain gauge or thermometers in the playground.		e.g pre and post action from survey	
Mathematical Vocabulary and Notation **Interpret questions** **Select and communicate processes and solutions** **Justify choice of strategy used**	• I can collect and organise data in a variety of different way including the use of digital technology. *e.g. surveys, frequency tables* • I can represent and display data by creating a bar graph. • I can include a given scale, axis labels, a title and a key when displaying data.	• I can collect and organise data in a variety of different ways including the use of digital technology. *e.g. surveys, frequency tables* • I can represent and display data by creating a line graph. • I can include a given scale, axis labels, a title and a key when displaying data.	• I can collect and organise data in a variety of different ways including the use of digital technology. e.g. surveys, frequency tables • I can understand that a pie chart is a pictorial representation which displays data in a circular shaped graph. • I can represent and display data by creating a pie chart, including a title, legend (key) and coloured sections. • I can choose whether my data is better represented using a bar graph, line graph or pie chart. • I can include a given scale, axis labels, a title and a key when displaying data.	***Collects, organises and displays data accurately in a variety of ways including through the use of digital technologies, for example, creating surveys, tables, bar graphs, line graphs, frequency tables, simple pie charts and spreadsheets.*** Displays data appropriately making effective use of technology and chooses a suitable scale when creating graphs.

Mathematical Vocabulary and Notation **Interpret questions** **Mental agility** **Select and communicate processes and solutions** **Justify choice of strategy used**	• I can analyse a data set and match this to the corresponding graph. • I can interpret a data set or bar graph and answer part-part whole problems. **Quantity Unknown:** e.g In January, Cakes Limited sold 256 cakes. In March, they sold 405 cakes. What was the total number of cakes they sold? • I can interpret a graph and answer comparison problems. **Difference Unknown:** e.g. In January, Cakes Limited sold 256 cakes. In March, they sold 405 cakes. How many more cakes were sold in March than January?	• I can analyse a data set and match this to the corresponding graph. • I can interpret a data set (table, timetable, chart) or graph (bar graphs/line graph) and answer part-part whole problems. **Quantity Unknown:** e.g. In June, it rained 60mm. In July, it rained 84.7mm. In August, it rained 67.5mm. What was the total rainfall over the three months? • I can interpret a graph and answer comparison problems. **Difference Unknown:** e.g. In June, it rained 60mm. In July, it rained 84.7mm. In August, it rained 67.5mm. What was the difference in rainfall between the driest and wettest months? • I can interpret the story told by a line graph. • I can draw conclusions from a data set or graph.	• I can analyse a data set and match this to the corresponding graph. • I can interpret a data set (table, timetable, chart) or graph (bar graphs/line graph/pie chart) and answer part-part whole problems. **Quantity Unknown:** e.g Use the line graph to calculate how many steps Ben completed in total over three days? (Mon 12,000, Tues 8,800, 10,400) • I can interpret a graph and answer comparison problems. **Difference Unknown:** e.g Use the line graph to identify the difference in the number of steps completed between Wednesday and Monday (Mon 12,000, Tues 8,800, 10,400) • I can use my knowledge and fractions and percentages to interpret simple pie charts.	**Analyses, interprets and draws conclusions from a variety of data.**

		e.g. On Monday, 75 ice creams were sold, On Wednesday 24 ice creams were sold. On Sunday 168 ice creams were sold. Why do you think Sunday had the highest sales?		
	• I can consider the sample size for data I am collecting depending on the overarching question created. e.g class, whole school, community	• I can analyse data and consider sample bias which might impact the results.	• I can draw conclusions about the reliability of data through considering sample size and sample bias. e.g random sampling	**Draws conclusions about the reliability of data taking into account, for example, the author, the audience, the scale and sample size used.**

CURRICULUM ORGANISER: IDEAS OF CHANCE AND UNCERTAINTY: (GAELIC) (ES WEBINAR)		**EXPERIENCE & OUTCOME:** ***I can conduct simple experiments involving chance and communicate my predictions and findings using the vocabulary of probability. MNU 2-22a***		
Core Aspect & Skills Focus	**Phase 1**	**Phase 2**	**Phase 3**	**Benchmark**
Mathematical Vocabulary and Notation	probability, chance, good chance, poor chance, equal chance, equally likely, no chance, risk, doubt, uncertainty, certain, likely, likelihood, most/least likely, even chance, fifty-fifty, random	probability, chance, good chance, poor chance, equal chance, equally likely, no chance, risk, doubt, uncertainty, certain, likely, likelihood, most/least likely, even chance, fifty-fifty, one in two chance, random	probability, chance, data set, risk, doubt, random biased, represented, greatest/least probability, percentages	**Uses correct mathematical vocabulary.**
Mathematical vocabulary and notation	• I can confidently use the language of probability and determine how likely an event is to occur using different scales. e.g Impossible-------Certain Most likely.....least likely	• I can use the language of probability accurately to describe the likelihood of an event occurring. e.g equal chance, fifty-fifty, one in two. • I understand that probability can be represented by assigning a numerical value to the likelihood of an event occurring.	• I can match probability vocabulary to a data set or visual representation. e.g bags of items with different coloured counters, spinners etc • I can use my knowledge of fractions to determine the greatest/least probability. • I can describe the likelihood of events happening using percentages. e.g. 100% chance, 50 % chance.	**Uses the language of probability accurately to describe the likelihood of simple events occurring, for example equal chance; fifty-fifty; one in two, two in three; percentage chance; and $\frac{1}{6}$**
	• I can plan and carry out a simple experiment to investigate the possible outcomes. e.g dice rolling, coin flipping, spinning colour wheel	• I can plan and carry out a simple experiment and investigate possible outcomes. e.g coin toss, dice throws, bag of coloured counters	• Using data, I can develop my ability to predict and identify all the possible outcomes of an experiment.	**Plans and carries out simple experiments involving chance with repeated trials, for example, 'what is the probability of**

		• I can record and organise the results of the experiment. • I can discuss and describe my findings.	• I can repeat an experiment multiple times and understand that the more you carry out the experiment the more confident you can become in predicting the results. e.g A coin is flipped 50 times. There are two equally likely outcomes. Theoretically we would expect 25 heads and 25 tails. Experimentally the result might be 23 heads, 27 tails.	**throwing a six if you throw a die fifty times?'.** **Uses data to predict the outcome of a simple experiment.**