



Numeracy and Mathematics



Programme & Policy

A Numeracy and Mathematics programme has been drawn up to ensure progression of skills from Early to Second Level. By using the Significant Aspects of Learning, the Progression Framework, Lines of Progression and the guidance on Breadth, Challenge and Application in Numeracy and Mathematics, staff will plan learning, teaching and assessment using the Experiences and Outcomes.

How to use this programme:

1. Choose which significant aspect you wish to work on and a topic linked to this.
2. Identify which Experiences and Outcomes you will be covering through this topic. The Experiences and Outcomes which link to each topic have been bundled where appropriate, but may be adjusted for your topic if necessary.
3. Identify the correct level for your group of pupils and use the learning intentions and success criteria detailed below as a basis for planning activities incorporating breadth, challenge and application.

Significant aspects of learning in Numeracy and Mathematics

The Progression Framework for Numeracy and Mathematics (Appendix 1) shows the knowledge and understanding within a level and skills permeating all levels. These must be understood and supported by a range of assessment evidence to determine achievement of a level. The expectations for each Significant Aspect of Learning in Numeracy and Mathematics are outlined below:

- 1. Use knowledge and understanding of the number system, patterns and relationships**
 - Learners' ability to use their knowledge and understanding of the number system will provide the basis for all other learning in numeracy and mathematics.
 - A sound understanding of place value, the concept of zero and its use as a place holder, underpins learners' ability to partition and to work confidently and flexibly with number, including fractions and decimal fractions. Confidence in mental agility will be central to ensuring learners are accurate in calculations.
 - Learners' skills in, and application of, estimating and rounding should be a regular feature of learning. Progression in estimation should involve learners taking account of the impact of real life contexts and using this knowledge when communicating their understanding. For example, when solving word problems, such as those involving division, where the interpretation of the context is required to gain a reasonable answer.
 - From early level, learners will develop an understanding of relationships between operations, including inverse processes, commutative, associative and distributive laws.
 - The concept of wholes and parts, grouping and sharing will form the basis of understanding of number processes, fractions, decimal fractions and percentages including proportion.
 - Numeracy and mathematics organisers/subdivisions, such as money, provide a context for learners to develop their knowledge and understanding of the number system.
 - From early level, learners will be supported to think algebraically to provide a solid foundation for formal algebraic concepts. Learners' understanding of these algebraic concepts will be developed by investigating and exploring the relationships between operations. For example, inverse operations can be used to identify a missing number. Algebraic reasoning supports learners to identify, continue and extend a pattern. For example, when generalising a rule for sequences and using functions and creating pictorial representations.
- 2. Use knowledge and understanding of measurement and its application**
 - Learners' understanding of measurement and its application is supported by their ability to estimate, use number and number processes, fractions, decimal fractions and percentages.
 - Through practical activities, learners will develop a conceptual understanding of measurement, relevant to their own experiences. For example, when using time management to organise everyday tasks or plan a journey. Learners will progress to the use of standardised units, their interrelationships and develop their ability to use measurement in unfamiliar contexts. For example, when calculating the surface area and volume of prisms and comparing their relative sizes.
 - Learners will use measuring instruments with increasing accuracy. Within a context, they will choose the level of accuracy required and understand the impact of tolerance. For example, when exploring the importance of tolerance in measurement when manufacturing components.
 - As learners progress, they will build an understanding of how formulae relates to measurement. They will establish algebraic formulae through investigative approaches, and progress to the use and manipulation of formulae.

3. Use knowledge and understanding of shape and space

- In developing an understanding of 2D shapes and 3D objects, learners will apply skills in number, measurement, patterns and relationships. Visualisation and spatial awareness are also developed through this significant aspect of learning. For example, creating a net from a representation of a 3D object then calculating the area of card required to build the net and using programmable toys or applications to explore properties of angles.
- Through experience, learners will develop mathematical language to classify shapes and objects and describe position and direction. Learners' development of the understanding of properties and relationships of 2D shapes and 3D objects, alongside that of angle, will allow them to interpret and calculate within complex mathematical diagrams. For example, using symmetry, rotation and transformation on a coordinate grid to create designs.

4. Research and evaluate data to assess risks and make informed choices

- Evaluating data to make informed choices involves extracting and interpreting information to draw valid, justified conclusions. When working with data in a variety of contexts, learners will apply the knowledge and skills from other aspects of numeracy and mathematics. For example, analysing statistical information relating to finances could provide opportunities to apply knowledge and understanding of fractions, decimal fractions and percentages.
- It is important that learners have the opportunity at all levels to experience and use technology to create and display data. Learners will have an increasing range of knowledge of different types of tables, charts and diagrams, be able to choose the most appropriate form of display and justify their choice. Learners will gather data and create appropriate representations to communicate information. They will also assess the validity of data, consider its source and sample taken.
- Through the interpretation and analysis of increasingly complex information learners can use probability to assess risk and consider consequences to make informed decisions. For example, considering trends in weather records to predict the likelihood of rainfall.

5. Apply numeracy and mathematical skills

- It is important that learners develop numeracy and mathematical skills as they build their knowledge and understanding. As learners progress, they should demonstrate an increasing sophistication in their ability to:
 - interpret questions
 - select and communicate processes and solutions
 - justify choice of strategy used
 - link mathematical concepts
 - use mathematical vocabulary and notation
 - use mental agility
 - reason algebraically
 - determine the reasonableness of a solution

These skills should be evident across the other significant aspects of learning in numeracy and mathematics. Staff should actively promote the development of these skills and ensure they are embedded in planning for learning, teaching and assessment.

At all levels, learners should be encouraged to identify relevant strategies for carrying out a range of tasks, communicate their thinking in different ways and explain and justify their answers. Developing mathematical language and notation is vital to ensure learners are supported to become confident in sharing their ideas and are mathematically articulate.

As learners progress in their understanding, they should be able to identify and use the links between mathematical concepts which will enable the development of a range of flexible strategies for calculating mentally and the ability to manipulate numbers with fluency, accuracy and confidence.

At all stages, it is important to build on learners' algebraic thinking and reasoning skills. As learners progress, they should begin to use algebra in problems of increasing complexity and abstraction. Proficiency in interpreting questions will be evidenced by learners' ability to choose, apply, communicate and justify their strategies using appropriate notation and mathematical vocabulary.

Estimation and rounding should feature regularly in learning and teaching and go beyond the learning of a set of procedural rules. Learners should routinely use estimation and rounding to determine the reasonableness of their solutions or calculations.

Breadth, Challenge and Application in Mathematics

Breadth in numeracy and mathematics

Learners demonstrate breadth in numeracy and mathematics when they:

- work confidently with an increasing number of connected experiences and outcomes
- identify the mathematical ideas and concepts required to interpret questions
- use an increasing range of mathematical language and notation, formula and equations
- use an increasing range of mathematical tools.

Opportunities for breadth can be provided by planning a range of activities to bring together and use mathematical knowledge and understanding. For example, using money as a context for learning about number or using knowledge of decimal fractions within area and perimeter calculations.

Challenge in numeracy and mathematics

Learners are provided with challenge in numeracy and mathematics when they can:

- approach increased complexity of questions involving more steps and operations
- work with open ended questions and tasks
- use an extended range of mathematical knowledge in tasks
- interpret increasingly complex numerical information and use this to draw conclusions, assess risk, make reasoned evaluations and informed decisions
- communicate understanding by articulating ideas, approaches and processes with increasing clarity, both orally and in written form

Challenge can be provided through planning an appropriate range of opportunities within tasks and activities. These tasks and activities should increase in complexity and require a greater number of processes to complete them. For example, learners sorting a range shapes and objects using their own criteria or working out the cost and risks of various forms of loans and justifying choices. Using open ended tasks allows learners the opportunity to clearly explain their approach to the question.

Application in numeracy and mathematics

Learners demonstrate application of their numeracy and mathematics when they:

- make connections and apply knowledge, understanding and skills across the numeracy and mathematics experiences and outcomes
- use numeracy and mathematical skills in other curricular areas
- understand and explain how numeracy and mathematics impacts on the world of learning, life and work

Learners should be provided with opportunities to use a wide range of mathematical skills to experience tasks in new and unfamiliar contexts. Learners should also have planned opportunities to use their mathematical skills in other curriculum areas. For example, designing and creating a new board game or working out the electrical consumption of a house and calculating the most effective way to save money, given a variety of options.

Development of Skills

In the Numeracy and Mathematics Principles and Practice paper, it is stated that:

“From the early years through to the senior stages, children and young people will demonstrate progress in their skills in interpreting and analysing information, simplifying and solving problems, assessing risk and making informed choices. They will also show evidence of progress through their skills in collaborating and working independently as they observe, explore, experiment with and investigate mathematical problems.

The experiences and outcomes encourage learning and teaching approaches that challenge and stimulate children and young people and promote their enjoyment of mathematics. To achieve this, teachers will use a skilful mix of approaches, including:

- planned active learning which provides opportunities to observe, explore, investigate, experiment, play, discuss and reflect
- modelling and scaffolding the development of mathematical thinking skills
- learning collaboratively and independently
- opportunities for discussion, communication and explanation of thinking
- developing mental agility
- using relevant contexts and experiences, familiar to young people
- making links across the curriculum to show how mathematical concepts are applied in a wide range of contexts, such as those provided by science and social studies
- using technology in appropriate and effective ways
- building on the principles of Assessment is for Learning, ensuring that young people understand the purpose and relevance of what they are learning
- developing problem-solving capabilities and critical thinking skills.

Mathematics is at its most powerful when the knowledge and understanding that have been developed are used to solve problems. Problem solving will be at the heart of all our learning and teaching. We should regularly encourage children and young people to explore different options: ‘what would happen if...?’ is the fundamental question for teachers and learners to ask as mathematical thinking develops.”

The following programme takes all of these principles into account and provides a clear, coherent path of progression across levels of Numeracy and Mathematics. The table below shows each area of Numeracy and Mathematics and the expectations within and across levels. This Experiences and Outcomes have then been matched to each of the topics and areas to be covered within Numeracy and Mathematics, in order to achieve the Significant Aspects of Learning at each level.

The three main areas of Numeracy and Mathematics, as highlighted in the Principles and Practice paper, have been colour-coded:

- Number, Money and Measure
- Shape, Position and Movement
- Information Handling

Monitoring, Tracking & Assessment:

Teachers from similar stages plan together and meet throughout the year to discuss learning and teaching strategies. There are transition processes in place between Nursery and P1, and also between stages. This includes a formal meeting between teachers and the completion of a hand-on sheet. This informs teachers of levels achieved, work covered and next steps. This information is used for the next stage in planning. Assessment is carried out through: teacher observations; check-ups; self and peer assessment; formal assessments (PiMs). Moderation occurs through specific moderation topics, as part of LQAG work, and ongoing moderation discussions where standards are shared and agreed.

Numeracy and Mathematics Programme – Sgoil nan Loch

Learning Statements (From Lines of Progression Framework)

	Early Level (Nursery-P1)	First Level (P2-P4)	Second Level (P5-P7)
Number, Money and Measure Number Word Sequences	<ul style="list-style-type: none"> Forward and back number word sequences Say number word before and after 	<ul style="list-style-type: none"> Say forward and back number word sequences to 100 Recall number before and number word after 200 Say the next 2, 3 or 4 number words in a number word sequence to 100 Count number of jumps to A to B Count in 10s Say forward and back number word sequences in 2s, 3s, 5s and 10s Next number word before and after in a multiple 	<ul style="list-style-type: none"> Say forward and back number word sequences in multiples Count forward and backward from any number Increase and decrease in 1000s, 100s, 10s and 1s
	<ul style="list-style-type: none"> Increase and decrease in 10s on and off the decade Increase and decrease in 10s and 100s 	<ul style="list-style-type: none"> Increase and decrease in 10s on and off the decade Increase and decrease in 10s and 100s 	<ul style="list-style-type: none"> Increase and decrease in a range of composite numbers
Number, Money and Measure Structuring Numbers	<ul style="list-style-type: none"> Say forward and back number word sequences to 30 Recall number word before and number word after to 30 Say the next 2, 3 or 4 numbers in forward and back number sequences. 	<ul style="list-style-type: none"> Say forward and back number word sequences in multiples (Keeping track on fingers) 	
	<ul style="list-style-type: none"> Explore ways in which numbers can be structured 	<ul style="list-style-type: none"> Apply knowledge of number structures to 20 Build knowledge of number structures to 100 	<ul style="list-style-type: none"> Develop multiplication and division strategies Relate knowledge of number structures to fractions
Number, Money and Measure Numerals	<ul style="list-style-type: none"> Identify numerals to 5 Identify numerals to 10 	<ul style="list-style-type: none"> Identify numerals to 100 	
		<ul style="list-style-type: none"> Identify numerals to 1000 	
	<ul style="list-style-type: none"> Identify numerals to 20 		

Number, Money and Measure Estimation & Rounding	<ul style="list-style-type: none"> Understand and use the language of estimation 	<ul style="list-style-type: none"> Explain the rule for rounding up and down to the nearest 10 	<ul style="list-style-type: none"> Understand and round to the nearest 100 Understand and round to the nearest 1000 Estimate answers to 4 digit sums using rounding and compare with solution
	<ul style="list-style-type: none"> Check a solution by comparing with the estimate 	<ul style="list-style-type: none"> Estimate answers to 2 digit sums using rounding and compare with solution Estimate answers to 3 digit sums using rounding and compare with solution 	<ul style="list-style-type: none"> Round a decimal to the nearest whole number Round to any given number of decimal places
Number, Money and Measure Addition & Subtraction – Counting Strategies	<ul style="list-style-type: none"> Count visible items in rows and collections 	<ul style="list-style-type: none"> Counting on and back to solve screened addition and subtraction tasks using materials Add and subtract to 20, using mental strategies 	<ul style="list-style-type: none"> Use both mental and written algorithm to solve a variety of addition and subtraction tasks beyond 100
	<ul style="list-style-type: none"> Copying and counting temporal patterns and sequences Add and subtract in range 1-10, using pairs, 5 and 10 pattern/frames Counting screened items in rows and collections – counting on 	<ul style="list-style-type: none"> Add and subtract to and from decade numbers Add and subtract 10s and 1s on and off the decade Two digit addition and subtraction, by counting with/without regrouping 	<ul style="list-style-type: none"> Evaluate the task and select the most effective strategy to solve tasks to 1000 and beyond
Number, Money and Measure Multiplication & Division – Counting Strategies	<ul style="list-style-type: none"> Describe, organise and make visible equal groups and equal sharing, using materials 	<ul style="list-style-type: none"> Combine and count visible equal groups/determine equal shares using materials Describe and build visible arrays 	<ul style="list-style-type: none"> Developing mental and semi-formal strategies for multiplication and division Quick recall of multiplication division facts – link to multiples and factors
		<ul style="list-style-type: none"> Determining number in repeated group, rows and arrays – partially screened and screened 	<ul style="list-style-type: none"> Solve more complex multiplication and division problems Multiply and divide by multiple digits
		<ul style="list-style-type: none"> Developing a range of strategies for multiplication and division of two digits by one 	<ul style="list-style-type: none"> Solve more complex multiplication and division problems

Number, Money and Measure Multiples, Factors & Primes			<ul style="list-style-type: none"> Investigate multiples of small whole numbers
			<ul style="list-style-type: none"> Identify factors using multiplication tables
Number, Money and Measure Fractions, Decimal Fractions & Percentages	<ul style="list-style-type: none"> Experience sharing equally within a relevant context Experience grouping within a relevant context 	<ul style="list-style-type: none"> Use concrete materials to investigate breaking a whole into parts Recognise halves and quarters, in pictorial, word and mathematical form 	<ul style="list-style-type: none"> Compare and order simple fractions Describe and record simple equivalences orally, in writing and through practical enquiry Convert between improper fractions and mixed numbers
		<ul style="list-style-type: none"> Recognise and use simple fractional notation, in word and mathematical form. Understand the relationship between numerator and denominator 	<ul style="list-style-type: none"> Find a fraction of an amount outwith the tables Identify where simple decimal fractions lie on a number line Investigate and convert fractions into decimal fractions and percentages
		<ul style="list-style-type: none"> Identify where simple fractions lie on an empty number line Understand the relationship between division and simple fractions and use this knowledge to identify fractions of quantities 	<ul style="list-style-type: none"> Apply understanding of the relationship between fractions, decimal fractions and percentages Use mental and written methods to find simple percentages of quantities Add and subtract proper fractions, with the same denominator Solve real-life and relevant problems using simple fractions, decimal fractions and percentages
Number, Money and Measure Patterns & Relationships	<ul style="list-style-type: none"> Recognise simple patterns in the environment 		<ul style="list-style-type: none"> Use well known named number patterns
		<ul style="list-style-type: none"> Apply knowledge of number facts to identify more complex patterns and sequences 	<ul style="list-style-type: none"> Explain a rule from a sequence and extend that sequence
	<ul style="list-style-type: none"> Create simple patterns 	<ul style="list-style-type: none"> Describe rules and justify decisions 	<ul style="list-style-type: none"> Explain and create more complex number sequences

Number, Money and Measure Expressions & Equations		<ul style="list-style-type: none"> Continue to solve word problems using practical materials Translate more word problems into a number sentence Use =, - and = to form and solve a number sentence 	
		<ul style="list-style-type: none"> Find the unknown in a number sentence and begin to find a substitution 	<ul style="list-style-type: none"> Solve unknown using symbols or letters including substitution
	<ul style="list-style-type: none"> Solve word problems using practical materials Translate a word problem into a number sentence 	<ul style="list-style-type: none"> Use the symbols equal to, not equal to, less than and greater than in a number sentence 	<ul style="list-style-type: none"> Solve more complex unknown using symbols or letters including substitution
Number, Money and Measure Powers & Roots			
		<ul style="list-style-type: none"> Develop an understanding of multiplication facts and their corresponding division facts 	<ul style="list-style-type: none"> Recognise and understand square and cubic numbers and their inverses
Number, Money and Measure Time	<ul style="list-style-type: none"> Daily routine Seasons Know and sequence days of the week and months of the year 	<ul style="list-style-type: none"> Know time equivalents, e.g 60 minutes = 1 hour Use analogue and digital clocks to show and read minutes to and minutes past Read a simple 12 hour timetable 	<ul style="list-style-type: none"> Calculate time intervals Interpret calendars and timetables to solve problems
		<ul style="list-style-type: none"> Make link between 24 hour and 12 hour clock Use 24 hour clock to show and read times Use and apply their knowledge of the calendar to work out durations and plan events 	<ul style="list-style-type: none"> Convert between 12 hour and 24 hour time Use and create timetables, set out in both 12 and 24 hour times
	<ul style="list-style-type: none"> Reinforce and extend days of the week and months of the year, using clocks and calendars for display Clocks – tell the time to the hour 	<ul style="list-style-type: none"> Record dates in a variety of formats, e.g. written and numerically Develop and understanding of time intervals Express time in a variety of formats, e.g. 2.15, quarter past 2 or fifteen minutes past 2 	<ul style="list-style-type: none"> Select and utilise the most appropriate unit of time Investigate common units and different ways that time/speed can be measure against each other, e.g. athletics

Number, Money and Measure Money	<ul style="list-style-type: none"> Understand money as a value and can be exchanged for goods and services, through activities and role plays Recognise the coins 	<ul style="list-style-type: none"> Understand where to use money in everyday life Recognise, name and order money Introduce mental strategies involving money, e.g. rounding, count on, count back, etc. 	<ul style="list-style-type: none"> Investigate effective mental strategies to carry out straight forward calculations involving money Select appropriate strategies to solve simple money problems Compare costs for different retailers to compare products or services
		<ul style="list-style-type: none"> Investigate using different combinations of coins and notes to make the same amount of money Develop mental strategies involving money, e.g. rounding, count on, count back, etc. 	<ul style="list-style-type: none"> Interpret sales information from different retailers Compare costs to determine what is affordable within a given spend Budget own personal spending for an event or given scenario
	<ul style="list-style-type: none"> Recognise the value of coins Calculate simple totals of coins Find different ways to make exact amounts Use a range of coins through structured activities and role plays 	<ul style="list-style-type: none"> Know the £ and p signs and the need for two decimal places in written amounts of money Know that combinations of coins and notes can be used to give change for goods Be able to use rounding to estimate totals 	<ul style="list-style-type: none"> Understand the importance of budgeting and the costs, benefits and risks of bank cards Understand the terms profit and loss in real life contexts Use appropriate calculations to work out profit and loss in buying and selling activities
Number, Money and Measure Length	<ul style="list-style-type: none"> Know length is how long/short, height is how tall/small, width is how wide/narrow 	<ul style="list-style-type: none"> Measure and estimate using metres (m) Measure and estimate using $\frac{1}{2}$ metres 	<ul style="list-style-type: none"> Measure and estimate the length, width and height of an object using cm Measure and estimate distance using km
		<ul style="list-style-type: none"> Convert 1m to 100cms Measure using metres and centimetres 	<ul style="list-style-type: none"> Measure and estimate the length, height and width of an object using mm Convert m to cm and cm to m Convert cm to mm and mm to cm Convert m to km and km to m
	<ul style="list-style-type: none"> Compare 2 lengths/heights/widths Order more than 2 lengths/heights/widths Use non-standard units to measure 	<ul style="list-style-type: none"> Measure in $\frac{1}{4}$ metre Compare and order lengths of objects using cms and ms 	<ul style="list-style-type: none"> Apply knowledge to increasingly complex contexts and real life scenarios.
Number, Money and Measure Weight	<ul style="list-style-type: none"> Know weight is how heavy Compare 2 weights by hand/scales 	<ul style="list-style-type: none"> Measure and estimate using kilograms 	<ul style="list-style-type: none"> Know that $\frac{1}{2}$kg = 500g Know that $\frac{1}{4}$kg = 250g Estimate the weight of an object to 1kg, $\frac{1}{2}$ kg and $\frac{1}{4}$ kg
		<ul style="list-style-type: none"> Measure and estimate using grams Know 1000g is 1kg 	<ul style="list-style-type: none"> Estimate the weight of an object to the nearest 50g Choose the appropriate unit of measure when estimating the weight of objects Measure accurately using $\frac{1}{4}$ kg, $\frac{1}{2}$kg and g Read scales accurately using kg and g
	<ul style="list-style-type: none"> Use non-standard units to measure Order more than 2 weights 	<ul style="list-style-type: none"> Compare and order weight of objects using g and kg 	<ul style="list-style-type: none"> Convert kg to g and g to kg Apply knowledge to increasingly complex contexts and real life scenarios.

Number, Money and Measure Perimeter			<ul style="list-style-type: none"> Know perimeter is the distance round the outside Measure accurately the perimeter of regular shapes using cm
			<ul style="list-style-type: none"> Measure accurately the perimeter of irregular shapes using cm
			<ul style="list-style-type: none"> Calculate accurately the perimeter of irregular shapes using cm Apply knowledge to increasingly complex contexts and real life scenarios.
Number, Money and Measure Area	<ul style="list-style-type: none"> Know that area is the amount of surface space covered by a shape 		
	<ul style="list-style-type: none"> Compare areas that are the same shape Use non-standard units to measure the area of a variety of sizes and shapes 		
Number, Money and Measure Volume	<ul style="list-style-type: none"> Compare non-standard units 	<ul style="list-style-type: none"> Measure and estimate using millilitres 	<ul style="list-style-type: none"> Read scales accurately when using litres and millilitres Measure and estimate using $\frac{1}{2}$ litre (500ml) and $\frac{1}{4}$ litres (250ml)
		<ul style="list-style-type: none"> Convert 1000ml to 1 litre 	<ul style="list-style-type: none"> Measure and estimate using cm cubed (cm³) Convert cm³ to ml Convert cm³ to ml to l
	<ul style="list-style-type: none"> Understand conservation of volume 	<ul style="list-style-type: none"> Measure and estimate using litres 	<ul style="list-style-type: none"> Calculate volume of cubes and cuboids by counting cubes Calculate volume of cubes and cuboids using $V = l \times b \times h$ Calculate volume of a composite shape containing cubes and cuboids Apply knowledge to increasingly complex contexts and real life scenarios.
Number, Money and Measure Capacity	Due to the SIMILARITY in nature of the vocabulary, prior learning, skills and learning experiences and activities associated with VOLUME and CAPACITY, (and to avoid unnecessary duplication), the significant aspects relating to VOLUME can be applied to CAPACITY accordingly.	Due to the SIMILARITY in nature of the vocabulary, prior learning, skills and learning experiences and activities associated with VOLUME and CAPACITY, (and to avoid unnecessary duplication), the significant aspects relating to VOLUME can be applied to CAPACITY accordingly.	<ul style="list-style-type: none"> Know that CAPACITY is maximum VOLUME
			Due to the SIMILARITY in nature of the vocabulary, prior learning, skills and learning experiences and activities associated with VOLUME and CAPACITY, (and to avoid unnecessary duplication), the significant aspects relating to VOLUME can be applied to CAPACITY accordingly.

Shape, Position & Movement 2D Shape	<ul style="list-style-type: none"> Sort according to shape Recognise properties 	<ul style="list-style-type: none"> Know properties of shapes 	<ul style="list-style-type: none"> Extend the range of 2D shapes
	<ul style="list-style-type: none"> Name triangle, circle, square and rectangle 	<ul style="list-style-type: none"> Extend understanding of shape Develop understanding of properties of shape through tiling and tessellation Sketch/Draw 2D shapes 	<ul style="list-style-type: none"> Extend knowledge of shapes Continue to extend the range of shapes and properties
Shape, Position & Movement 3D Shape	<ul style="list-style-type: none"> Sort according to shape 	<ul style="list-style-type: none"> Identify and describe 3D shapes, including prisms and pyramids. 	<ul style="list-style-type: none"> Extend understanding of 3D shape Use and create nets of 3D shapes
	<ul style="list-style-type: none"> Name cube, cuboid, cone, sphere, cylinder 	<ul style="list-style-type: none"> Link properties of 2D shapes to faces of 3D shapes Recognise properties of 3D shapes – vertices, corners, faces 	<ul style="list-style-type: none"> Extend the range of 3D shapes Extend knowledge of properties of 3D shapes
Shape, Position & Movement Angles	<ul style="list-style-type: none"> Use simple directions to describe positions- forwards and backwards 	<ul style="list-style-type: none"> Know quarter, half, full turns 	<ul style="list-style-type: none"> Identify acute, obtuse, straight and reflex angles Name the 8 compass rose, use three figure bearings
	<ul style="list-style-type: none"> Use simple directions, including left and right, to describe positions 	<ul style="list-style-type: none"> Clockwise and anti-clockwise Know that 90 degrees is a right angle and a quarter turn Know the compass points are North, South, East and West Describe simple journeys using NSEW, turns and clockwise/anti-clockwise 	<ul style="list-style-type: none"> Name angles using 3 capital letters Measure and draw angles Measure and draw 3 figure compass bearings Draw triangles given angles and sides Know that scale is used to produce maps, plans Know that the sum of 3 angles in a triangle is 180.
Shape, Position & Movement Symmetry	<ul style="list-style-type: none"> Understand what symmetrical means 	<ul style="list-style-type: none"> Identify lines of symmetry in 2D shapes by folding and draw one line of symmetry 	<ul style="list-style-type: none"> Identify lines of symmetry of irregular shapes, drawn on square grids
	<ul style="list-style-type: none"> Create symmetrical pictures and patterns 	<ul style="list-style-type: none"> Identify symmetrical patterns and shapes in the environment Complete a shape to make it symmetrical 	<ul style="list-style-type: none"> Identify and draw up to four lines of symmetry Complete and create symmetrical shapes with vertical, horizontal and diagonal lines of symmetry Recognise shapes and designs with rotational symmetry
Shape, Position & Movement Transformation	<ul style="list-style-type: none"> Describe where objects are and place objects using language of position 	<ul style="list-style-type: none"> Understand the purpose of a grid and use grid references to describe positions in the grid Create a grid and give instructions of how to use 	<ul style="list-style-type: none"> Interpret a co-ordinate system to locate and plot a point on a grid
	<ul style="list-style-type: none"> Use the language of direction to describe and direct 	<p>Ongoing across level, with more complex activities and grid systems.</p>	<ul style="list-style-type: none"> Apply knowledge of grid systems to real-life scenarios, e.g. maps, atlases

Information Handling Ideas of Chance & Uncertainty		<ul style="list-style-type: none"> Use and understand vocabulary of probability 	<ul style="list-style-type: none"> Conduct experiments involving chance and probability
		<ul style="list-style-type: none"> Discuss events of chance and probability 	<ul style="list-style-type: none"> Predict and explain outcomes, using appropriate vocabulary
Information Handling Data Handling & Analysis	<ul style="list-style-type: none"> Sort objects into different categories, using given criteria/own criteria 	<ul style="list-style-type: none"> Ask and answer questions about specific presented information 	<ul style="list-style-type: none"> Interpret information presented to show awareness of significance of the data Display data in a variety of more complex ways
		<ul style="list-style-type: none"> Know and select the most effective way to gather data for a particular purpose 	<ul style="list-style-type: none"> Select appropriate questions for a survey, to gather information required
	<ul style="list-style-type: none"> Display data in different ways 	<ul style="list-style-type: none"> Use technology to display gathered data 	<ul style="list-style-type: none"> Know how methods of collecting information may affect the data collected Display data in the most appropriate manner
Information Handling Mathematics and its impact on the world	<ul style="list-style-type: none"> Explore numbers all around us 	<ul style="list-style-type: none"> Investigate our number system 	<ul style="list-style-type: none"> Research historical number systems and how they have changed over time Research famous mathematicians and their work

Early Level	<u>Experiences & Outcomes Covered</u>
Estimation and Rounding	<p>BUNDLE E1 <i>I am developing a sense of size and amount by observing, exploring, using and communicating with others about things in the world around me. MNU 0-01a</i></p>
Number Word Sequences	<p>BUNDLE E2 <i>I have explored numbers, understanding that they represent quantities, and I can use them to count, create sequences and describe order. MNU 0-02a</i></p> <p><i>I use practical materials and can 'count on and back' to help me to understand addition and subtraction, recording my ideas and solutions in different ways. MNU 0-03a</i></p>
Structuring Numbers	
Numerals	
Addition & Subtraction – Counting Strategies	
Multiplication & Division – Counting Strategies	
Fractions, decimal fractions and percentages	<p>BUNDLE E3 <i>I can share out a group of items by making smaller groups and can split a whole object into smaller parts. MNU 0-07a</i></p>
Patterns and relationships	<p>BUNDLE E4 <i>I have spotted and explored patterns in my own and the wider environment and can copy and continue these and create my own patterns. MTH 0-13a</i></p>

Time	<p>BUNDLE E5 <i>I am aware of how routines and events in my world link with times and seasons, and have explored ways to record and display these using clocks, calendars and other methods. MNU 0-10a</i></p>
Money	<p>BUNDLE E6 <i>I am developing my awareness of how money is used and can recognise and use a range of coins. MNU 0-09a</i></p>
Length	<p>BUNDLE E7 <i>I have experimented with everyday items as units of measure to investigate and compare sizes and amounts in my environment, sharing my findings with others. MNU 0-11a</i></p>
Weight	
Area	
Volume	
Capacity	

2D Shape	<p>BUNDLE E8 <i>I enjoy investigating objects and shapes and can sort, describe and be creative with them. MTH 0-16a</i></p>
3D Shape	
Angles	<p>BUNDLE E9 <i>In movement, games, and using technology I can use simple directions and describe positions. MTH 0-17a</i></p> <p><i>I have had fun creating a range of symmetrical pictures and patterns using a range of media. MTH 0-19a</i></p>
Symmetry	
Transformation	

Data Handling and Analysis	<p>BUNDLE E10 <i>I can collect objects and ask questions to gather information, organising and displaying my findings in different ways. MNU 0-20a</i></p> <p><i>I can match objects, and sort using my own and others' criteria, sharing my ideas with others. MNU 0-20b</i></p> <p><i>I can use the signs and charts around me for information, helping me plan and make choices and decisions in my daily life. MNU 0-20c</i></p>
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First Level	<u>Experiences & Outcomes Covered</u>
Estimation and Rounding	BUNDLE F1 <i>I can share ideas with others to develop ways of estimating the answer to a calculation or problem, work out the actual answer, then check my solution by comparing it with the estimate. MNU 1-01a</i>
Number Word Sequences	
Structuring Numbers	
Numerals	
Addition & Subtraction – Counting Strategies	
Multiplication & Division – Counting Strategies	
Powers & Roots	BUNDLE F2 <i>I have investigated how whole numbers are constructed, can understand the importance of zero within the system and can use my knowledge to explain the link between a digit, its place and its value. MNU 1-02a</i> <i>I can use addition, subtraction, multiplication and division when solving problems, making best use of the mental strategies and written skills I have developed. MNU 1-03a</i>
Fractions, decimal fractions and percentages	BUNDLE F3 <i>Having explored fractions by taking part in practical activities, I can show my understanding of:</i> <ul style="list-style-type: none"> • how a single item can be shared equally • the notation and vocabulary associated with fractions • where simple fractions lie on the number line. MNU 1-07a <i>Through exploring how groups of items can be shared equally, I can find a fraction of an amount by applying my knowledge of division. MNU 1-07b</i> <i>Through taking part in practical activities including use of pictorial representations, I can demonstrate my understanding of simple fractions which are equivalent. MTH 1-07c</i>

Patterns and relationships	<p>BUNDLE F4</p> <p>I can continue and devise more involved repeating patterns or designs, using a variety of media. MTH 1-13a</p> <p>Through exploring number patterns, I can recognise and continue simple number sequences and can explain the rule I have applied. MTH 1-13b</p>
Expressions and Equations	<p>BUNDLE F5</p> <p>I can compare, describe and show number relationships, using appropriate vocabulary and the symbols for equals, not equal to, less than and greater than. MTH 1-15a</p> <p>When a picture or symbol is used to replace a number in a number statement, I can find its value using my knowledge of number facts and explain my thinking to others. MTH 1-15b</p>
Time	<p>BUNDLE F6</p> <p><i>I can tell the time using 12 hour clocks, realising there is a link with 24 hour notation, explain how it impacts on my daily routine and ensure that I am organised and ready for events throughout my day. MNU 1-10a</i></p> <p><i>I can use a calendar to plan and be organised for key events for myself and my class throughout the year. MNU 1-10b</i></p> <p><i>I have begun to develop a sense of how long tasks take by measuring the time taken to complete a range of activities using a variety of timers. MNU 1-10c</i></p>
Money	<p>BUNDLE F7</p> <p><i>I can use money to pay for items and can work out how much change I should receive. MNU 1-09a</i></p> <p><i>I have investigated how different combinations of coins and notes can be used to pay for goods or be given in change. MNU 1-09b</i></p>
Length	<p>BUNDLE F8</p> <p><i>I can estimate how long or heavy an object is, or what amount it holds, using everyday things as a guide, then measure or weigh it using appropriate instruments and units. MNU 1-11a</i></p> <p><i>I can estimate the area of a shape by counting squares or other methods. MNU 1-11b</i></p>
Weight	
Area	
Volume	
Capacity	

2D Shape	<p><u>BUNDLE F9</u> I have explored simple 3D objects and 2D shapes and can identify, name and describe their features using appropriate vocabulary. MTH 1-16a</p>
3D Shape	<p>I can explore and discuss how and why different shapes fit together and create a tiling pattern with them. MTH 1-16b</p>
Angles	<p><u>BUNDLE F10</u> I can describe, follow and record routes and journeys using signs, words and angles associated with direction and turning. MTH 1-17a</p>
Symmetry	<p><u>BUNDLE F11</u> I have explored symmetry in my own and the wider environment and can create and recognise symmetrical pictures, patterns and shapes. MTH 1-19a</p>
Transformation	<p><u>BUNDLE F12</u> I have developed an awareness of where grid reference systems are used in everyday contexts and can use them to locate and describe position. MTH 1-18a</p>

Ideas of Chance and Uncertainty	<p><u>BUNDLE F13</u> <i>I can use appropriate vocabulary to describe the likelihood of events occurring, using the knowledge and experiences of myself and others to guide me. MNU 1-22a</i></p>
Data Handling & Analysis	<p><u>BUNDLE F14</u> <i>I have explored a variety of ways in which data is presented and can ask and answer questions about the information it contains. MNU 1-20a</i></p> <p><i>I have used a range of ways to collect information and can sort it in a logical, organised and imaginative way using my own and others' criteria. MNU 1-20b</i></p> <p>Using technology and other methods, I can display data simply, clearly and accurately by creating tables, charts and diagrams, using simple labelling and scale. MTH 1-21a</p>
Mathematics and its impact on the world	<p><u>BUNDLE F15</u> I have discussed the important part that numbers play in the world and explored a variety of systems that have been used by civilisations throughout history to record numbers. MTH 1-12a</p>

Second Level	<u>Experiences & Outcomes Covered</u>
Estimation and Rounding	<u>BUNDLE S1</u> <i>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</i>
Number Word Sequences	
Structuring Numbers	<u>BUNDLE S2</u> <i>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</i>
Numerals	<i>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>
Counting Strategies – Addition and Subtraction	<i>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</i>
Counting Strategies – Multiplication & Division	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 <i>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</i>
Multiples, Factors & Primes	<u>BUNDLE S3</u> Having explored the patterns and relationships in multiplication and division, I can investigate and identify the multiples and factors of numbers. MTH 2-05a
Powers & Roots	
Fractions, decimal fractions and percentages	<u>BUNDLE S4</u> <i>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> <i>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 2-07</i> 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 2-07

Patterns & relationships	<p>BUNDLE S5</p> <p>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</p>
Expressions & Equations	<p>BUNDLE S6</p> <p>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</p>
Time	<p>BUNDLE S7</p> <p><i>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></p> <p><i>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</i></p> <p><i>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</i></p>
Money	<p>BUNDLE S8</p> <p><i>I can manage money, compare costs from different retailers, and determine what I can afford to buy. MNU 2-09a</i></p> <p><i>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></p> <p><i>I can use the terms profit and loss in buying and selling activities and can make simple calculations for this. MNU 2-09c</i></p>
Length	<p>BUNDLE S9</p> <p><i>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></p> <p><i>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></p> <p><i>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</i></p>
Weight	
Perimeter	
Area	
Volume	
Capacity	

2D Shape	<p><u>BUNDLE S10</u> 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</p>
3D Shape	<p>Through practical activities, I can show my understanding of the relationship between 3D objects and their nets. MTH 2-16b</p> <p>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</p>
Angles	<p><u>BUNDLE S11</u> I have investigated angles in the environment, and can discuss, describe and classify angles using appropriate mathematical vocabulary. MTH 2-17a</p> <p>I can accurately measure and draw angles using appropriate equipment, applying my skills to problems in context. MTH 2-17b</p> <p>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</p> <p>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</p>
Symmetry	<p><u>BUNDLE S12</u> 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</p>
Transformation	<p><u>BUNDLE S13</u> I can use my knowledge of the coordinate system to plot and describe the location of a point on a grid. MTH 2-18a</p>


Ideas of Chance and Uncertainty	<p><u>BUNDLE S14</u> <i>I can conduct simple experiments involving chance and communicate my predictions and findings using the vocabulary of probability. MNU 2-22a</i></p>
Data Handling & Analysis	<p><u>BUNDLE S15</u> <i>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></p> <p><i>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></p> <p>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</p>
Mathematics & its Impact on the world	<p><u>BUNDLE S16</u> 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</p>

Appendix 1: Progression Framework for Numeracy and Mathematics

Numeracy and Mathematics: assessing progress and achievement This progression framework is a guide which is intended to support practitioners as they consider the evidence of knowledge and understanding, skills, attributes and capabilities provided by learners as they progress through and achieve a level in Numeracy and Mathematics. The significant aspects of learning (detailed in the professional learning paper) relate to the statements for each level within this progression framework. They should be considered jointly when assessing progress and achievement. In order to demonstrate achievement of a level in Numeracy and Mathematics, the learner provides a range of evidence related to the experiences and outcomes *within* a level as well as towards learning at the *next* level. – Education Scotland

	interpret questions select and communicate processes and solutions justify choice of strategy used link mathematical concepts use mathematical vocabulary and notation mental agility algebraic reasoning determine the reasonableness of a solution	
Early	First	Second
Concept of zero Associates number with quantities Subitising Order of number Grouping and sharing A whole and parts Concept of pattern in number Concept of measurement including time Non-standard units of measurement Comparison of size Classification and grouping of 2D shapes and 3D objects Positional language Concept of pattern and symmetry Organise items and information Informed choice and decision making	Zero as a placeholder in whole numbers Conceptual place value Round numbers Accuracy of calculations Compare estimate to solution Relative size of fractions Relationship between operations Connections between operations and fractions Simple number sequences Rules for patterns and sequences Importance of numbers and number systems Instruments for measurement Standard units of measurement Scales for measurement including time Accuracy of measurement Features of a wide range of 2D shapes and 3D objects Concept of angles Grids Pattern and symmetrical shapes Interrogating data Graphical representations Likelihood of an event to inform choice	Zero as a place holder in decimal fractions Choose the appropriate level of accuracy in a given context Negative numbers Relationship between fractional numbers, decimal fractions and percentages Multiples and factors of numbers Order of operations Complex number sequences Impact of mathematics in our global environment Conservation of measurement Calculate measurements Convert standard units Area, perimeter, volume Properties of, and relationships between, 2D shapes and 3D objects Symmetry in a range of 2D shapes Geometric representations Nets Bearings Coordinates Appropriate collection of data and graphical representations Reliability of data and graphical presentation Probability

Appendix 2: Examples of Success Criteria for areas of Numeracy and Mathematics

 Numeracy & Maths: Securing Levels with Success Criteria 			
	Early Level	First Level	Second Level
NUMBER	<p>I can create my own marks and pictures to represent numbers and amounts</p> <p>I can compare two quantities and tell you which is more and which is less.</p> <p>I can explore taking away quantities from a bigger amount.</p> <p>MNU 0-01a</p> <p>I can notice and talk about numbers that are around me and are special to me.</p> <p>I can join in actively with counting rhymes and songs.</p> <p>I can touch, count aloud and move a set of objects, actions and sounds up to about five, recognising when there are none.</p> <p>I can match a written number to an amount up to about five/ten, including zero.</p> <p>I can combine two quantities working out how many I have altogether.</p>	<p>I can round numbers up or down – nearest 10/100.</p> <p>MNU 1-01a</p> <p>I can talk about how numbers are used all around us.</p> <p>I can count on and back in sequence, use this to help me accurately count a group of objects and know if my answer makes sense.</p> <p>I can use numbers to describe the order of items.</p> <p>I can discuss the digits in a number, their position, their value and I know why zero is important – up to at least 100.</p> <p>1 can count on and back in steps of 1, 10 and 100 and can describe how this changes the digits in the number.</p> <p>I can recognise and record numbers in different formats – up to 100.</p> <p>I can compare numbers and put them in order – up to 100/1000/beyond 1000.</p> <p>I can use symbols to help describe number relationships – up to at least 100. MNU 1-02a</p>	<p>I can use a range of mental strategies for addition and subtraction for an extended range of numbers – rounding and adjusting.</p> <p>I can use doubles, near doubles and halves to help in calculations.</p> <p>I can use the rule for the order of operations in calculations.</p> <p>I can round a wide range of numbers to the nearest 10, 100 and 1000 and use this to estimate.</p> <p>MNU 2-01a</p> <p>I can use my knowledge of place value to count, read, write, partition and order numbers</p> <p>I can use an extended range of numbers – beyond 5 digits.</p> <p>MNU 2-02a</p> <p>I can recall number bonds quickly and accurately and use multiples of 10 and 100 to create new facts.</p> <p>I can recall my table facts quickly and accurately and can use multiples of 10 and 100 to create new facts.</p>

	<p>I can create a set of addition facts for each number to five/ten.</p> <p>I understand what it means to share and group in everyday life.</p> <p>I can explore doubles.</p> <p>I have explored numbers beyond 10.</p> <p>MNU 0-02a</p> <p>I can count on two from any given number and relate this to adding on two.</p> <p>I can count back one or two and relate this to taking away one and two.</p> <p>MNU 0-03a</p>	<p>I can create and complete number sequences by repeatedly adding or subtracting a number.</p> <p>I can use and explain the connection between addition and subtraction and can work out related facts.</p> <p>I can use pictures, jottings and models to work out and record my addition and subtraction calculations.</p> <p>MNU 1-03a</p>	<p>I can work with the four operations using a variety of strategies to solve calculations.</p> <p>I can multiply and divide by 1000.</p> <p>I can change the order of numbers in a calculation using brackets to show my thinking.</p> <p>I can work out and record addition and subtraction calculations using formal methods for any whole numbers.</p> <p>I can work out and record my division calculations in a variety of different ways – Chunking method (2-digit ÷ 1-digit); Expanded method (2-digit ÷ 1-digit, 3-digit ÷ 1-digit, 2- and 3-digit ÷ multiple of 10); Formal method (2-digit ÷ 1-digit and 3-digit ÷ 1-digit).</p> <p>I know how to extend my range of mental strategies for multiplication – rounding and adjusting.</p> <p>I know how to extend my range of mental strategies for multiplication – Multiples of 10, 100 and 1000.</p> <p>I can work out & record multiplication calculations in a variety of different ways – Grid method (2-digit × 1-digit and 3-digit × 1-digit); formal methods (2-digit × 2-digit and 3-digit × 2-digit).</p> <p>I can select and use the most appropriate strategy to solve a calculation.</p> <p>MNU 2-03a</p>
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		 The logo for Snoilman is a large, stylized red letter 'S' with a white outline. Inside the 'S', there is a red silhouette of a man in a suit, holding a briefcase. The text 'Snoilman' is written in a red, cursive font above the 'S'.	<p>I can use an extended range of numbers – Negative numbers.</p> <p>MNU 2-04a</p> <p>I can explain and use the tests of divisibility.</p> <p>I can explain how a number being odd or even helps me to work out what it is divisible by.</p> <p>I can use halving skills to test if numbers are divisible by 4 and 8.</p> <p>I can explain how the last digit can help test if a number can be divided by 5 or 10.</p> <p>I can work out the sum of the digits to test if it is divisible by 3 or 9.</p> <p>I can create a set of multiples and find common multiples between tables.</p> <p>I can work out factor pairs and work out which numbers are prime.</p> <p>MTH 2-05a</p>
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**FRACTIONS,
DECIMAL
FRACTIONS &
PERCENTAGES**

I can split a whole object into smaller parts.

I recognise smaller parts made from a larger object and match.

MNU 0-07a

I understand what a half and a quarter means – creating & identifying a half/quarter of a shape and finding half/quarter of a number; describing & recording a half/quarter in a variety of different ways and locating them on a number line.

I understand what a tenth/fifth means – creating & identifying tenths/fifths of a shape and can find tenths of a number; describing and recording tenths/fifths in a variety of different ways and locating them on a number line.

I can compare and order simple fractions – halves, quarters, fifths and tenths

MNU 1-07a

MNU 1-07b

MTH 1-07

I can explain what a percentage is and how it relates to fractions and decimals.

I can find a simple percentage of an amount using knowledge of fractions.

I can demonstrate knowledge & understanding that a division with a remainder can be represented as a decimal or a fraction.

I can solve problems involving percentages - finding a percentage of an amount; increase or decrease by a percentage.

MNU 2-07a

MNU 2-07b

MTH 2-07c

<p>TIME</p>	<p>I can engage in discussion about times which are special to me.</p> <p>I can show that I am beginning to have a sense of how I organize my time.</p> <p>I can arrange times of my day and other events in the year in order.</p> <p>MNU 0-10a</p>	<p>I can engage in discussion about why time is important in our lives.</p> <p>I can tell the time on digital and analogue clocks – o'clock, half past, quarter past, quarter to, multiples of 5 minutes and 1 minute times.</p> <p>MNU 1-10a</p> <p>I can engage in discussion about days, months and seasons and relate this to how they are shown on different calendars.</p> <p>MNU 1-10b</p> <p>I can read, interpret and create timetables to help in planning their time.</p> <p>MNU 1-10a/MNU 1-10b</p> <p>I can measure how long it will take to do something using non-standard units, showing that I am beginning to have a sense of how long a second, minute or hour lasts.</p> <p>I can estimate what I can do in different lengths of time, checking my estimates using a variety of different timers and units of time.</p> <p>MNU 1-10c</p>	<p>I can tell any time on 12 hour digital and analogue clocks.</p> <p>I can tell the time on 24 hour digital clocks, relating this to 12 hour times.</p> <p>I can engage in discussion about how people plan their lives, using times and dates.</p> <p>I can explore the different time calculations people carry out to help them plan their lives.</p> <p>I can explore how people plan and make decisions about their time and how these are recorded.</p> <p>MNU 2-10a</p> <p>I can estimate and then measure how long tasks or events will take and what I can achieve in a given time period.</p> <p>MNU 2-10b</p> <p>I can explore the relationships between speed, time and distance.</p> <p>MNU 2-10c</p> <p>I can solve a variety of problems involving time.</p> <p>MNU 2-10a/MNU 2-10b/MNU 2-10c</p>
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MONEY

Use money in play.

I can explore different ways to sort coins and notes.

MNU 0-09a

I can talk about and act out how and why money is used in everyday life and can recognise and name a range of coins and notes.

I can total my coins and notes to work out how much money I have.

I can find different ways to pay an exact amount using a variety of coins and notes.

I can work out the total cost, how I should pay and any change I should receive when buying several items.

MNU 1-09a

MNU 1-09b

I can talk about the different ways that money are represented and accessed.

I can talk about the different products and services people spend money on and the choices they make.

I have developed a sense of costs value and pricing.

I can compare deals and offers and talk about what represents the best value.

I can plan and make choices for spending money within a budget.

I can carry out an enterprise project and present and discuss accounts, working out the profit and/or loss involved.

MNU 2-09a

MNU 2-09b

MNU 2-09c

<p>MEASUREMENT</p>	<p>I have experimented with everyday items as units of measure to investigate and compare sizes and amounts in my environment, sharing my findings with others.</p> <p>I can explore objects which have different sizes; different weights and can hold different amounts.</p> <p>I can make comparisons between two objects and say which is longer, heavier or holds more.</p> <p>I can explore and make choices about how they measure.</p> <p>MNU 0-11a</p>	<p>I can estimate how long or heavy an object is, or what amount it holds, using everyday things as a guide, then measure or weigh it using appropriate instruments and units.</p> <p>I can engage in discussion about how measurements are used all around them.</p> <p>I can make comparisons and order the measurements of different objects, using direct comparison and non-standard units – length, weight, capacity and volume.</p> <p>I know how to explore the need for standard units, talking about different types.</p> <p>I can estimate, measure and compare different quantities – length, weight, area, capacity and volume.</p> <p>I can solve problems involving measures.</p> <p>MNU 1-11a</p> <p>I can estimate the area of a shape by counting squares or other methods.</p> <p>I can make comparisons and order the measurements of different objects, using direct comparison and non-standard units – area.</p> <p>MNU 1-11b</p>	<p>I can use my knowledge of the sizes of familiar objects or places to assist me when making an estimate of measure.</p> <p>MNU 2-11a</p> <p>I can use the common units of measure, convert between related units of the metric system and carry out calculations when solving problems.</p> <p>I know how to engage in discussion about how and why measurement is used in everyday life.</p> <p>I know how scale can be used to help me represent objects in drawings, plans and maps.</p> <p>MNU 2-11b</p> <p>I can use the measurements of everyday items to help me estimate.</p> <p>I know how to estimate and measure items and then check to see how close they were – capacity and liquid volume; weight; length.</p> <p>MNU 2-11a/MNU 2-11b</p> <p>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.</p> <p>I know how to explore the area and perimeter of 2D shapes and the volume of solid 3D objects – area and perimeter of squares and rectangles; of compound shapes using squares and rectangles and triangles; volume of solid objects and their surface area.</p> <p>MNU 2-11c</p> <p>I can interpret a problem involving measures and find a solution.</p> <p>MNU 2-11a/MNU 2-11b/MNU 2-11c</p>
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<p>PATTERNS & RELATIONSHIPS</p>	<p>I can recognise, copy and continue a pattern.</p> <p>I can create my own patterns in a variety of ways – singing, playing instruments, using my body, art, block play, weaving.</p> <p>I know that numbers create patterns.</p> <p>MTH 0-13a</p>	<p>I can describe, continue and make patterns using shape and colour etc.</p> <p>I understand odds and evens; time tables.</p> <p>I can design a pattern using isometric paper.</p> <p>MTH 1-13a</p> <p>I can describe and continue simple number sequences within 100.</p> <p>I can estimate the place of a number on a number line.</p> <p>MTH 1-13b</p>	<p>I can look at a complex number sequence, identify the rule being used and be able to apply it to carry on/complete the sequence.</p> <p>I can continue, identify and explain a sequence involving square numbers; triangular numbers; involving prime numbers.</p> <p>I can continue, describe and understand more complex linear patterns.</p> <p>MTH 2-13a</p>
<p>EXPRESSIONS & EQUATIONS</p>		<p>I can compare and describe statements using = and \neq</p> <p>I know and can use =, \neq, >, & <</p> <p>MTH 1-15a</p> <p>I can find missing number in statements (eg $3+\square=6$, $\square+2=8$)</p> <p>I can compare and describe $3+2=1+\square$</p> <p>I can replace a symbol with a number in equations to 20/100/1000.</p> <p>MTH 1-15b</p>	<p>I can find the output given input and a function.</p> <p>I can find the missing numbers and/or operations in more complex statements.</p> <p>I can find the function given the input and output; find the input given the function and output.</p> <p>MTH 2-15a</p>

<p>PROPERTIES OF 2D & 3D SHAPES</p>	<p>I can talk about shapes and objects around me.</p> <p>I can create a model using 3D objects and talk about what I have made.</p> <p>I am beginning to see the link between 3D objects and 2D shapes.</p> <p>MTH 0-16a</p>	<p>I can explore how different shapes fit together to make a tiling pattern.</p> <p>I can create a picture or model using a wide variety of 3D objects or 2D shapes.</p> <p>I can explore and talk about a range of 3D objects and 2D shapes.</p> <p>I can name 3D objects and 2D shapes and can sort them according to their properties 2D shapes and the link to 3D objects.</p> <p>MTH 1-16a</p> <p>MTH 1-16b</p>	<p>I can explore further a variety of 3D objects –flat and curved surfaces.</p> <p>I can explore how simple 3D objects can be constructed from a net of 2D shapes.</p> <p>I know how to create new shapes and patterns by reflecting and rotating lines and shapes.</p> <p>MTH 2-16a.</p> <p>MTH 2-16b</p> <p>MTH 2-16c</p>
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<p>ANGLE, SYMMETRY & TRANSFORMATION</p>	<p>I can use the language of position and turning to talk about where something is and give directions.</p> <p>MTH 0-17a</p> <p>I can make a symmetrical pattern with different materials.</p> <p>MTH 0-19a</p>	<p>I can describe the position of a person or object in my own way.</p> <p>I can give and follow directions using simple language of movement and can record these in their own way.</p> <p>I can give and follow directions using an extended range of vocabulary and can record these in a variety of ways.</p> <p>I can use the compass points to help me locate positions and follow directions.</p> <p>I know how to use right angles to help me describe turns.</p> <p>I can use my knowledge of right angles to help me compare and describe the angles in 2D shapes.</p> <p>I can record and interpret a route or journey using pictures, symbols and maps</p> <p>MTH 1-17a</p> <p>I know how explore different grid systems and can use them to describe and locate positions.</p> <p>MTH 1-18a</p> <p>I can identify and mark lines of symmetry on a range of different shapes.</p> <p>I can make my own symmetrical pictures and patterns and can recognise when a shape or pattern is symmetrical.</p> <p>I can make my own symmetrical pictures and patterns and can recognise when a shape or pattern is symmetrical.</p> <p>MTH 1-19a</p>	<p>I know how to describe and make journeys using the eight compass points.</p> <p>I know how to describe and make journeys using the eight compass points.</p> <p>MTH 2-17a/MTH 2-17b/MTH 2-17c</p> <p>I can investigate how to estimate, create and measure angles – Classifying angles using knowledge of right angles; Estimating and measuring with degrees; Creating and drawing angles.</p> <p>MTH 2-17a/MTH 2-17b</p> <p>I know how to explore how right angles can be measured in degrees and how this links to fractions and compass points</p> <p>MTH 2-17c</p> <p>I know that scale is used to produce maps, plans and diagrams.</p> <p>I can use scale to interpret maps, plans and diagrams.</p> <p>MTH 2-17d</p> <p>I can read and use a coordinate system to locate a point on a grid; to plot a point on a grid.</p> <p>I can record locations using coordinates</p> <p>MTH 2-18a</p> <p>I know how to create shapes and patterns by reflecting and rotating lines and shapes.</p> <p>MTH 2-19a</p>
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<p>DATA & ANALYSIS</p>	<p>I can collect objects and ask questions to gather information, organising and displaying my findings in different ways</p> <p>I can ask questions to help gather information and display findings in different ways.</p> <p>MNU 0-20a</p> <p>I can match objects, and sort using my own and others' criteria, sharing my ideas with others.</p> <p>I can sort when playing and in everyday activities.</p> <p>I can sort in a variety of different ways according to own and others' criteria.</p> <p>MNU 0-20b</p> <p>I can use the signs and charts around me for information, helping me plan and make choices and decisions in my daily life.</p> <p>I can create and 'read' signs and charts.</p> <p>MNU 0-20c</p>	<p>I have explored a variety of ways in which data is presented and can ask and answer questions about the information it contains.</p> <p>I know how to explore and gather examples of the different ways that information is collected and presented in their world and how it helps them.</p> <p>MNU 1-20a</p> <p>I have used a range of ways to collect information and can sort it in a logical, organised and imaginative way using my own and others' criteria.</p> <p>MNU 1-20b</p> <p>Using technology and other methods, I can display data simply, clearly and accurately by creating tables, charts and diagrams, using simple labelling and scale.</p> <p>MTH 1-21a</p> <p>I can sort and organise objects based on own and others' criteria and talk about what was done.</p> <p>I can create and use own questions to find out information and display findings in different ways.</p> <p>I know how information can be sorted and displayed in different ways, talking about what was done – One or two criteria: Venn, Carroll and tree diagrams.</p> <p>I can devise and use simple questionnaires to collect information</p> <p>I can select and use the most appropriate way to display information</p> <p>MNU 1-20a/MNU 1 – 20b/ MTH 1 – 21a</p>	<p>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.</p> <p>MNU 2-20a</p> <p>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.</p> <p>I know how to explore and design questionnaires to help them answer questions and solve problems.</p> <p>MNU 2-20b</p> <p>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.</p> <p>MTH 2-21a</p> <p>I know how to explore and gather examples of the different ways that information is collected and presented in my world and how it helps me.</p> <p>MNU 2-20b/MTH 2-21a</p> <p>I know how to display information in pictograms, bar and bar line graphs and understand the impact of scale on these.</p> <p>I can sort data using Venn, Carroll and tree diagrams.</p> <p>I can interpret information presented in a pie chart.</p> <p>I can interpret and create line graphs.</p> <p>MNU 2-20a/MTH 2-21a</p>
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<p>IDEAS OF CHANCE & UNCERTAINTY</p>	<p>I can guess/ predict Heads and tail; how many times the dice will land on '6' in a minute</p> <p>I can use language to describe likelihood of events occurring.</p> <p>I can describe events using language like: likely, probable, unlikely; certain, never; possible, impossible.</p> <p>I can participate in discussions about life regarding the 'chances of x happening'</p> <p>MNU 1-22a</p>	<p>I can list all the possible outcomes of an event, such as rolling a die.</p> <p>I can assign a numerical value to the likelihood of the occurrence of simple events understanding, for example: equal chance; fifty-fifty; one in two or two in three; percentage chance.</p> <p>I am aware of how the implications of chance are used in daily routines, decision making and the media</p> <p>I understand the meaning of fair, unfair and bias.</p> <p>MNU 2-22a</p>
<p>MATHEMATICS – IT'S IMPACT ON THE WORLD, PAST, PRESENT AND FUTURE</p>	<p>I can discuss the important part numbers play in the world.</p> <p>I can read and write Roman Numerals to 5/10/20.</p> <p>I know our numbers are Arabic.</p> <p>MTH 1-12a</p>	<p>I can name various ways that mathematics has impacted on the world and discuss these.</p> <p>I know that maths is incorporated in some everyday objects e.g. computer, games console.</p> <p>I know how Maths has played its part in advances and inventions and can give examples.</p> <p>MTH 2-12a</p>