



Renfrewshire
Council

Progression and Support Document
First Level – Pathway 2

Rationale

This series of Progression and Support documents, including Pathways and Bundling Advice provides a progression of skills through a level. Regular reinforcement of concepts and promotion of Numeracy Across Learning is encouraged. The Pathways are not intended to be prescriptive or restrictive. Practitioners should identify when opportunities occur within contexts across the curriculum and plan for this to demonstrate relevance. The overall aim is to provide a shared standard of expectations and to ensure progression and depth within planning.

The Progression and Support documents focus on the skills required to achieve concepts within an outcome and detail the mental agility strategies associated with the learning within each experience and outcome. Suggestions for formative assessment and summative assessment are provided and some possible resources are listed, but this list is by no means exhaustive.

It is hoped that these Progression and Support documents provide a clear framework and the necessary support so that practitioners can feel confident in planning engaging, well-paced and suitably challenging learning experiences, which involve a variety of methodologies. Ultimately our goal is to raise attainment for all our learners and these documents are just one part of that journey. All our learners should be given opportunities that will allow them to become confident and numerate, build their skills in a variety of contexts and allow them to reach their own targeted positive destinations.

Many of the documents consulted in the process of creating the Support and Progression documents can be found on the Education Scotland website. These include:

- Numeracy and Mathematics: Experiences and Outcomes
- Mathematics: Principles and Practice
- Numeracy Across Learning: Principles and Practice
- National Numeracy and Mathematics Progression Framework
- Numeracy and Mathematics Benchmarks
- CfE Statement for Practitioners

In addition to this, current planning documents that are being used across the authority, progression documents from other local authorities across Scotland and a variety of resources were consulted.

Renfrewshire Council
Numeracy and Mathematics Progression and Support - First Level Pathway 2
Bundling Advice

There are many possible ways to bundle Numeracy and Mathematics Experiences and Outcomes depending on the skills that are being explored and the contexts for learning that are relevant to the children that the learning is being planned for.

The following is **one example** of how to bundle the Experiences and Outcomes according to the skills in this pathway. Choosing bundles of outcomes based on relevant contexts for learning is always the best practice and should be explored whenever possible. It can also be appropriate to bundle Numeracy and Mathematics across curricular areas if there is a clear opportunity to do so. There is exemplification of one of these bundles for further clarification and to demonstrate the learning opportunities that link these particular Experiences and Outcomes as a bundle in this instance.

These bundles can be approached in whichever order is most appropriate. Some of the Experiences and Outcomes have not been bundled as links between outcomes were too tenuous. Bundling without clear and strong links is not beneficial and it may be the case that some Experiences and Outcomes are better taught discretely.

There should be an element of number work/manipulating number every day, regardless of any other Numeracy and Mathematics learning that is planned for. This will provide regular opportunities to reinforce and challenge learning across the key numeracy outcomes which are indicated in **bold** below. At the beginning of a new pathway, the regular number work/manipulation of number will be based on reinforcement of the skills from the previous pathway. As the learning progresses, introduction of learning to develop the new skills within the current pathway should be introduced and progressed.

Bundling of Experiences and Outcomes First Level Pathway 2	Opportunities across the curriculum
Estimation and rounding MNU 1-01a Number and number processes MNU 1-03a Money MNU 1-09a & MNU 1-09b Expression and equations MTH 1-15b	
Number and number processes MNU 1-02a Expression and equations MTH 1-15a	
Mathematics – its impact on the world, past, present & future MTH 1-12a Patterns & relationships MTH 1-13b	
Properties of 2D shapes & 3D objects MTH 1-16a Properties of 2D shapes & 3D objects MTH 1-16b Pattern & relationships MTH 1-13a Angle, symmetry & transformation MTH 1-19a	
Measurement MNU 1-11a (length, weight and volume & capacity)	
Measurement MNU 1-11b Angle, symmetry & transformation MTH 1-17a Angle, symmetry & transformation MTH 1-18a	
Fractions MNU 1-07a & MNU 1-07b Time MNU 1-10a	
Time MNU 1-10b	
Time MNU 1-10c	Can be explored and reinforced effectively in P.E. lessons.
Data & analysis MNU 1-20a & 1-20b, MTH 1-21a	Can be explored and reinforced effectively through contexts, i.e. class novels – Venn diagram to compare words to compare characters. Also can alternatively bundle with MTH 1-16a to explore shape properties to use as data set or with Patterns & relationships MTH 1-13b where patterns are explored and data analysed, i.e. organising numbers based on multiples facts.
Ideas of chance & uncertainty MNU 1-22a	

As stated above, this is only one possible way to bundle the Experiences and Outcomes for this pathway. Different contexts for learning across the curriculum will raise opportunities to bundle in different ways. Consideration should be given to bundling in relevant contexts and to using opportunities across the curriculum to reinforce Numeracy and Mathematics skills.

Bundling within Numeracy and Mathematics

The following explains why these experiences and outcomes bundle sensibly.

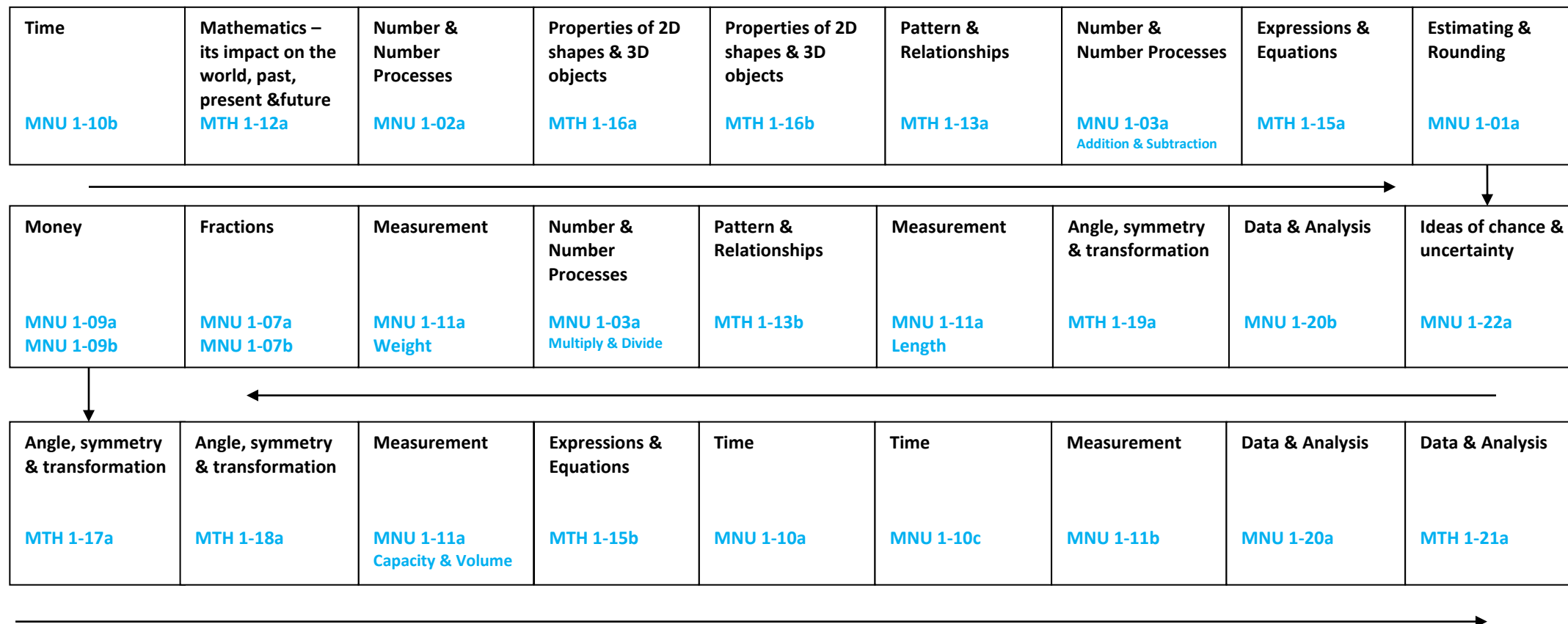
Bundle	Reasons bundle was chosen
Number and number processes MNU 1-02a Expression and equations MTH 1-15a	<p>In Number and number processes MNU 1-02a, numbers to 1000 in terms of place value. This includes Counting, Ordering, Reading and Writing Numbers. Naturally, in the process exploring these elements, numbers and their values will be compared. This is where Expression and equations MTH 1-15a can be blended in by introducing symbols to show comparison of numbers</p> <p>As stated previously, there are numerous ways to bundle the experiences and outcomes, this is only one way. If there is a particular context being explored in class, i.e. social studies, science etc., it may be sensible to bundle differently.</p>

Bundling Across the Curriculum

The following is an example of bundling experiences and outcomes from across the curriculum, within a context.

Bundle and Context for Learning	Reasons bundle was chosen
Context is a class shared story – ‘Gigantosaurus’ by Jonny Duddle Using what I know about the features of different types of texts, I can find, select, sort and use information for a specific purpose. LIT 1-14a Inspired by a range of stimuli, I can express and communicate my ideas, thoughts and feelings through activities within art and design. EXA 1-05a	<p>Naturally when discussing a text in class, characters or settings will be discussed and compared. This is an opportunity to explore sorting as you compare words to describe two different characters for example, using a Venn Diagram. Depending on the text, other sorting activities could take place, i.e. ‘Gigantosaurus’ by Jonny Duddle – providing words to describe the characters Bonehead, Tiny, Finn and Bill then sorting these using a Venn or Carroll Diagram MNU 1-20a/b. If the children are particularly interested in different dinosaur species, they could be given a range to sort and compare, at first by their own criteria, then by given criteria.</p> <p>Using Aiden Chamber’s Three Sharings, discuss the text then collate information based on the discussion which can then be displayed in a variety of ways, i.e. block graph of feelings about the text – ‘What words can we use to describe how we felt when Bonehead kept crying wolf?’, tally of connections to own life – ‘When have you felt like this before?’ MNU 1-20a/b & MTH 1-21a if technologies are used.</p> <p>As dinosaur footprints feature largely in the book illustrations, the children could become illustrators and design their own dinosaur footprints with media of their own choice. The footprint could then be explored in a variety of ways, i.e. finding the area, comparing to other footprints, ordering sizes, measuring etc. MNU 1-11a & MNU 1-11b</p> <p>These are a few examples of how to plan for Numeracy and Mathematics across the curriculum by bundling relevant outcomes. As you can see, many of the discussion points would have taken place anyway. Considering the above experiences and outcomes together, extends the learning and utilises Numeracy and Mathematics in a meaningful way.</p>

First Level Progression and Support Pathway Two



Please note that MTH 1-07c is omitted from this Pathway.

The above is an overview of the Experiences and Outcomes contained in First Level Pathway 2. It is best practice to bundle together Es & Os for teaching and learning. This can happen within the curricular area of Numeracy and Mathematics or Numeracy and Mathematics Es & Os can be bundled with other curricular Es & Os. Some Es & Os may be taught in isolation if bundling is not appropriate with the particular contexts for learning that are being explored as tenuously bundled Es & Os are not advised as relevance and depth of learning would be weak. **Advice on bundling is included within this document.**

How to Use Progression and Support Documents to Support Planning

The following annotation explains how the Progression and Support Documents can be used to support planning.

The Experience and Outcome.

The benchmark(s) to be achieved by the end of the level.

Topic & CfE Outcome - Multiples, factors and primes			
Having explored the patterns and relationships in multiplication and division, I can investigate and identify the multiples and factors of numbers. MTH 2-05a			
Benchmarks			
- Identifies multiples and factors of whole numbers and applies knowledge and understanding of these when solving relevant problems in number, money and measurement.			
Mental Strategies	Skills	Possible Resources	Assessment
<p>Recall Recite and recall all multiplication facts and corresponding division facts</p> <p>Recognise the link between 2, 4 and 8 times tables</p> <p>Recognise the link between 3, 6 and 9 times tables</p> <p>Recognise the link between 2, 5 and 10 times tables</p>	<p>I can use the term 'multiple' correctly</p> <p>I can recognise number patterns involving multiples of the 2 – 10 times tables, e.g. 2, 4, 6, 8... 5, 10, 15...</p> <ul style="list-style-type: none"> I can recite my 2, 4 and 8 times-tables I can recall individual multiplication and division facts in my 2, 4 and 8 times-tables I can recite my 5 and 10 times-tables I can recall individual multiplication and division facts in my 5 and 10 times-table I can recite my 3, 6 and 9 times-tables I can recall individual multiplication and division facts in my 3, 6 and 9 times-tables I can recite the 7 times-table I can use the link between times-tables to help me recall my facts, e.g. doubling and halving I can find the lowest common multiple of up to 3 numbers 	<p>HAM Teaching Cards MD 1.7a, MD 1.7b, MD 1.7c (Revision)</p> <p>TJ Level C Ch 13 Ex 2 pg 152</p> <p>TJ 2a Ch 17 Ex 1 pgs 168 – 169</p> <p>http://www.mathsisfun.com/numbers/maths-trainer-multiply.html</p> <p>http://www.topmarks.co.uk/Flash.aspx?f=carrollv7</p>	<p>Write HAM Question Bank MD 1.7a, MD 1.7b & MD 1.7c</p> <p>Do Call out multiples of 2, 4 or 8 and, for each, ask children to write a times-tables fact with that answer on their mini-whiteboards. Discuss the different facts written for each number, e.g. 24 could be 3×8, 6×4, etc. Encourage children to explain how and why these facts are related, i.e. that multiplication is commutative.</p> <p>Do One child sits on a chair and the others line up facing the child's on the chair. Call out a multiple, e.g. 24, the first to respond with a correct fact using the multiple wins the seat.</p>

Mental strategies that are associated with the learning taking place in the Experience and Outcome.

This lists the skills that are to be achieved in this section of the Experience and Outcome. The **bold type** is the overall skills that should be developed and the bullet points are the skills broken down further.

Some possible scheme based resources that could be used. This is not exhaustive. Best practice is to use a **Concrete – Pictorial – Abstract** approach that will involve a variety of resources and methodologies.

Suggested formative and summative assessments that could be used. Again, this is not exhaustive and assessment should take place when relevant and in the most appropriate style for the learner.

Topic & CfE Outcome - Estimating and Rounding

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**

Benchmarks

- Uses strategies to estimate an answer to a calculation or problem, for example, doubling and rounding.
- Rounds whole numbers to the nearest 10 and 100 and uses this routinely to estimate and check the reasonableness of a solution.

Mental Strategies	Skills	Possible Resources	Assessment
<p>Recall</p> <p>Number bonds to 10</p> <p>Number bonds to 20</p> <p>Complementary Addition - What has to be added to a single digit number to make 10, i.e. $3 + \diamond = 10$ $\diamond + 7 = 10$ and use this knowledge to decide on the nearest 10</p> <p>Identify which number is the tens and which number is the ones in a two digit number</p> <p>Skills (mentally, with jottings and materials if needed)</p> <p>Use an empty number line to find which 10 a number is closest to</p>	<p>I can round numbers to the nearest 10, up to 1000</p> <p>I can confidently estimate where a number would lie on a blank number line, up to 100</p> <p>I have explored why estimating and rounding is an important skill in real-life</p> <ul style="list-style-type: none"> • I can use vocabulary of estimation - about, nearly, roughly, estimated, approximately • I can explain what rounding to the nearest 10 means • I can decide whether to round up or down to the nearest 10 by looking at the ones digit • I know that when rounding to the nearest 10, if the ones digit is 4 or less I should round down to the previous multiple of 10 and if it is 5 or above I should round up to the next multiple of 10 • I can round to the nearest 10 to find the approximate answer to a calculation – 59 and 29 will total 90 approximately • I can check my answers using another method • I have experience of rounding 3 digit numbers to the nearest 10 • I can give examples of numbers which are rounded to a given multiple of 10 	<p>HAM Teaching Card NP 1.9a</p> <p>H4 Teacher's Notes pgs 27 – 29</p> <p>H4 Tbk pgs 2 – 3</p> <p>TJ Level B Ch 1 Ex 3 pg 18</p> <p>TJ 1a Ch 1 pg 17 (can be used as a rounding activity)</p> <p>S.E.A.L. Approaches as per Counting-on planner</p>	<p>Write</p> <p>HAM Question Bank NP 1.9a</p> <p>Do</p> <p>Children draw a 3×3 grid on their mini whiteboard and fill each space with nine different 2-digit numbers. Call out a multiple of 10. If they have a number which rounds to that multiple, they cross it out. Keep going until someone is the first to cross off a row, and then a full house.</p> <p>Do and Say</p> <p>Give children examples of food packets, bottles etc. and ask them to round the content value to the nearest ten, i.e. a packet of crisps with 18g would round to 20g.</p>

Topic & CfE Outcome - Number and Number Processes

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**

Benchmarks

- Reads, writes, orders and recites whole numbers to 1000, starting from any number in the sequence.
- Demonstrates understanding of zero as a placeholder in whole numbers to 1000.
- Uses correct mathematical vocabulary when discussing the four operations including, subtract, add, sum of, total, multiply, product, divide and shared equally.
- Identifies the value of each digit in a whole number with three digits, for example, $867 = 800 + 60 + 7$.
- Counts forwards and backwards in 2s, 5s, 10s and 100s.

Mental Strategies	Skills	Possible Resources	Assessment
<p>Recall</p> <p>Number bonds to at least 10, including subtraction facts, i.e. $3 + 4 = 7$, $4 + 3 = 7$, $7 - 4 = 3$, $7 - 3 = 4$</p> <p>Number pairs with totals to 20 (then 100), building on knowledge of number bonds to 10, i.e. $3 + 7 = 10$, $13 + 7 = 20$</p> <p>Number pairs with multiples of 10 with totals to 60 then 100, i.e. $40 + 20 = 60$, $70 + 30 = 100$</p> <p>Complementary addition - Number pairs with two digit numbers to make the next multiple of 10, i.e. $52 + \Delta = 60$</p> <p>Addition doubles for multiples of 10 with totals up to 200, i.e. $40 + 40 = 80$</p> <p>Ordinal numbers to 20th and language of comparison before, after etc</p> <p>Know numbers before, after and between from any number to 1000</p> <p>Identify the place value of each digit in a number</p> <p>Skills (mentally, with</p>	<p>For whole numbers to 1000</p> <ul style="list-style-type: none"> • Count • Order • Read • Write • Place Value to 999 <p>I can count on and back in sequence and apply this to accurately count a group of objects and know if an answer makes sense</p> <p>I can use numbers to describe the order of items - ordinal numbers</p> <p>I can discuss the digits in a number, their position, their value and know that zero is important as a place holder – hundreds, tens and ones (partitioning)</p> <p>I can count on and back in steps of 1, 10 and 100 and can describe how this changes the digits in a number</p> <p>I can compare numbers and put them in order – up to 1000</p> <p>I can identify numbers before/after/in-between up to 1000</p> <p>I can write number names in words to at least 100</p> <p>Use ordinal numbers up to 20th</p> <ul style="list-style-type: none"> • I can count on and back in sequence from a given number without missing any numbers to at least 1000 • I can count to 1000, using a number line or track to help count (for support as and when it is needed), saying numbers out loud • I can show understanding that most of the number names can be changed to an ordinal number by adding 'th' • I can talk about the digits which make up a number and work out if they stand for a group of ones, tens or hundreds • I can show a number on a number line and talk about its position, i.e. 64 is 60 and 4 more • I can use a range of concrete materials to show how numbers to 1000 are constructed • I demonstrate understanding that the digit zero is important to keep a place in a number when there are no ones, tens or hundreds in that column • I can put a number into a place-value frame with the digits in the correct position • On seeing a number written in digits, I can read it out correctly and work out the value of each digit in its position (hundreds, tens and ones) • On hearing a number read aloud, I can work out how to write the number in digits (hundreds, tens and ones) • I can describe what happens to the different digits in a number 	<p>HAM Teaching Cards NP1.4b , NP1.5, NP1.7b</p> <p>H4 Teacher's Notes pgs 34 – 46</p> <p>H4 Number Wbk pgs 1 – 6</p> <p>H4 Tbk pgs 1, 4 – 5 (Revision of place value to 99)</p> <p>TJ Level B Ch 1 Ex 1 Ex 2 pgs 11 – 17</p> <p>TJ 1a Ch3 Ex 1 Ex 2 pgs 29 – 35</p> <p>http://www.mathsisfun.com/place-value.html</p> <p>http://nrich.maths.org/152</p> <p>http://www.mathsisfun.com/numbers/ordinal-game.php</p> <p>S.E.A.L. Approaches as per Counting-on planner</p>	<p>Write HAM Question Bank NP1.4b, NP1.5, NP1.7b</p> <p>Write TJ 1a Ch 3 The 3 R's pg 36</p> <p>Write TJ Level B Ch 1 Topic in a Nutshell pgs 19 – 20</p> <p>Do The aim is to make the largest possible 3-digit number. Each child draws an HTO place-value frame. The children take turns to roll a dice and write the number in one of the columns in the frame. Once written, they cannot change the position of a digit. They continue until all children have made a 3-digit number. They compare numbers – whoever has the biggest number wins 1 point. They repeat, until one child has won 10 points. This game has an element of luck but children also need to think logically about where to write their digits.</p> <p>Say Children take it in turns, or in groups, explain to the class how to order a selection of 3-digit numbers. Draw attention to good descriptions of how the digits should be compared, starting by comparing the hundreds digit.</p>

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<p>jottings and materials if needed)</p> <p>Count on and back in 1s, 2s, 5s and 10s to 1000 from any number</p> <p>Partition numbers, i.e. know that 318 is 3 hundreds, 1 ten and 8 ones</p> <p>Put up to 3 digit numbers in order by looking at place value</p> <p>Count on and back in steps of 100 from any number up to 1000</p>	<p>when adding on in ones, tens and hundreds</p> <ul style="list-style-type: none"> • I can split a number and say how many ones, tens and hundreds there are • I can compare numbers by finding them on a number line or number square • I can compare and order 3-digit numbers by looking at the hundreds digit first, then the tens and then the ones digit • When there are more than two numbers, I can place two in order then compare the third number with them to see if it goes before, after or between • I can write number names in words to at least 100 		
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Topic & CfE Outcome - Numbers and Number Processes

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**

Benchmarks

- Demonstrates understanding of the commutative law, for example, $6 + 3 = 3 + 6$ or $2 \times 4 = 4 \times 2$.
- Solves addition and subtraction problems with three digit whole numbers.
- Adds and subtracts multiples of 10 or 100 to or from any whole number to 1000.
- Solves two step problems.

Mental Strategies	Skills	Possible Resources	Assessment
Recall Number bonds to at least 10, including subtraction facts, i.e. $3 + 4 = 7$, $4 + 3 = 7$, $7 - 4 = 3$, $7 - 3 = 4$ Number pairs with totals to 20 (then 100), building on knowledge of number bonds to 10, i.e. $3 + 7 = 10$, $13 + 7 = 20$ Number pairs with multiples of 10 with totals to 60 then 100, i.e. $40 + 20 = 60$, $70 + 30 = 100$ Complementary addition - Number pairs with two digit numbers to make the next multiple of 10, i.e. $52 + \Delta = 60$ Addition doubles for multiples of 10 with totals up to 200, i.e. $40 + 40 = 80$ Ordinal numbers to 20 th and language of comparison before, after etc Know numbers before, after and between from any number to 1000 Identify the place value of each digit in a number	I have explored adding and subtracting by using concrete materials and pictorial representations, i.e. ten frames, rekenreks, number lines 100 square, drawings etc. I can count on and back using different strategies I can add and subtract mentally for numbers 0 – 100 I can use written format for addition and subtraction of numbers up to 100 I can add and subtract mentally for 1 digit numbers to and from numbers with 2 digits I can use written format for numbers with 2 digits added to or subtracted from 2 digits with or without bridging <ul style="list-style-type: none"> • I know and can apply extended addition and subtraction vocabulary • I can use and explain the connection between addition and subtraction and can work out related facts • I can recall my addition and subtraction bonds quickly and accurately and can use this to work out new facts, i.e. $6 + 4 = 10$ $16 + 4 = 20$ • I can use an empty number line and partitioning to work out addition and subtraction calculations • I can use number facts and mental strategies to work out addition and subtraction calculations for more than two numbers and 1 and 2-digit numbers • In a written format, I can add horizontally and vertically within 100, 2 digit whole numbers to 2 digit whole numbers within 100, i.e. $44 + 32$ (no bridging through 10) • In a written format, I can add and subtract horizontally and vertically, 2 digit whole numbers to/from 2 digit whole numbers, using decomposition and partitioning within 100 (bridging through 10) • I can record answers in standard written format • I can layout calculations correctly on squared paper • I can create and complete number sequences by repeatedly adding or subtracting a number – Steps of 10 and 5, i.e. 18, 28, 38 and 7, 12, 16 • I can use pictures, jottings and models to work out and record my addition and subtraction calculations • I can apply all learnt skills in word problems • I can answer questions which use a variety of vocabulary, e.g. How many more/less is...? What is the difference between...? What is the sum of...? <p>Written algorithms for addition and subtraction should not be explored until all appropriate strategies have been thoroughly explored and children are comfortable in selecting these strategies for completing calculations. If written algorithms are taught too soon, the learner will rely on the process they have</p>	Add and Subtract HAM Teaching Cards AS1.4b , AS1.5 , AS1.6 , AS1.7b , AS1.7c, AS1.8a , AS 1.8b , AS1.9a, AS1.10a H3 Teacher's Notes pgs 52 – 59, 64 – 76, 78 – 81 H3 Number Wbk 1 pgs 21 – 26, 31 – 34 H3 Tbk pgs 1 – 2, 6 – 16 Addition TJ Level B Ch 3 Ex 1 Ex 2 Ex 3 Ex 4 Ex 5 pgs 27 – 36 TJ 1a Ch 5 Ex 1 Ex 2 Ex 4 Ex 5 pgs 47 – 56 Subtraction TJ Level B Ch 4 Ex 1 Ex 2 Ex 3 Ex 4 pgs 38 – 47 TJ 1a Ch 7 Ex 1 Ex 2 pgs 68 – 71 TJ 1a Ch 9 Ex 1 Ex 2 pgs 81 – 84 http://www.mathsisfun.com/numbers/a	Write HAM Question Bank AS1.5, AS1.6, AS1.7b and c, AS1.8a, AS1.8b, AS1.9a, AS1.10a Write TJ Level B Ch 3 Topic in a Nutshell pg 37 Write TJ Level B Ch 4 Topic in a Nutshell pg 48 Say On the board write: 4, 8, 5, 6, 3, 9, 7. With a partner, children choose a pair of numbers, add them, and note the total. They do this a couple of times and discuss. Then they try to find a way of making the same total many times using different pairs of numbers, e.g. $8 + 5 = 13$ and $7 + 6 = 13$ in as many different ways as possible, including adding three numbers, e.g. $3 + 4 + 6 = 13$. Which total can be made in the most ways?

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<p>Skills (mentally, with jottings and materials if needed)</p> <p>Count on and back in 1s, 2s, 5s and 10s to 1000 from any number</p> <p>Put up to 3 digit numbers in order by looking at place value</p> <p>Count on and back in steps of 100 from any number up to 1000</p> <p>Add and Subtract a pair (or more) of single digit numbers, including bridging 10, i.e. 5 + 8, 12 - 7</p> <p>Subtract any single digit number from a multiple of 10, i.e. 60 - 5</p> <p>Add or subtract a single digit number to or from a two digit number, i.e. 23 + 5, the bridging the tens boundary, i.e. 52 - 7</p> <p>Add or subtract multiple of 10 to or from a two digit number up to 100 (then beyond), i.e. 27 + 60, 72 - 50</p> <p>Making Tens - Add or subtract near tens to or from a one or two digit number within 100, e.g. 6 + 9 as 6 + 10 - 1, 33 - 11 as 33 - 10 - 1</p> <p>Add near doubles within totals of 100, e.g.</p>	<p>learned rather than gaining an understanding of what is happening when they add or subtract. Our aim is to foster conceptual understanding instead of learning of procedures without understanding.</p>	<p>ddition-column.html</p> <p>http://www.mathsisfun.com/numbers/subtraction-regrouping.html</p> <p>S.E.A.L. Approaches as per Counting-on planner</p>	
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<p>13 + 14, 39 + 40 Add two digit numbers to two digit numbers, i.e. 23 + 22, then bridging the 10s boundary, i.e. 27 + 35</p> <p>Use number bonds to help add and subtract 1-digit numbers from 2-digit numbers; also bridging 10, i.e. I know 2 + 3 = 5 so I know 52 + 3 = 55</p> <p>Use knowledge of place value to partition numbers for addition and subtraction, i.e. 24 + 27 = 20 + 20 + 7 + 4</p> <p>Chunking - Add or subtract in chunks of friendly numbers, i.e. 66 + 43 = 66 + 40 + 3 An empty number line can be used to visualise this</p> <p>Rounding and adjusting - in addition and subtraction round one of the numbers to the nearest 10 then deal with the second number. Remember to adjust at the end, i.e. 34 + 18 = 34 + 20 - 2</p> <p>Add several small numbers, starting with the largest, or by reordering to find pairs that equal 10 or are near tens, i.e. 12 + 23 + 8 + 6 = 12 + 8 + 23 + 6</p>			
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Topic & CfE Outcome - Numbers and Number Processes

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 continued**

Benchmarks

- Applies strategies to determine multiplication facts, for example, repeated addition, grouping, arrays and multiplication facts.
- Applies strategies to determine division facts, for example, repeated subtraction, equal groups, sharing equally, arrays and multiplication facts.
- Uses multiplication and division facts to solve problems within the number range 0 to 1000.
- Multiplies and divides whole numbers by 10 and 100 (whole number answers only).
- Applies knowledge of inverse operations (addition and subtraction; multiplication and division).
- Solves two step problems.

Mental Strategies	Skills	Possible Resources	Assessment
Recall Doubles of all numbers to 20 and their corresponding halves, i.e. Double 13, Half of 18 Doubles on all multiples of 10 to 50 and their corresponding halves, i.e. Double 40 Multiplication and corresponding division for 2, 5 and 10 times tables (build 3 and 4 times tables in after initial teaching) Odd and even numbers to 100 Recall whether a number will be divisible by two by considering whether it is even or odd Skills (mentally, with jottings and materials if needed) Double any multiple of 5 up to 50, i.e. Double 35 Halve any multiple of 10 up to 100, i.e. Halve 90 Find a half of even numbers to 40 Find the total number of objects when they are organised into groups of 2, 5 or 10 (build up to groups	I have had opportunities to explore concrete materials and pictorial representations in relation to grouping and sharing, building the concepts of multiplying and dividing I can count in multiples using different strategies including using arrays as a visual representation I can share different quantities using a variety of strategies I have explored repeated addition using arrays as a visual aid I can multiply mentally by 2, 3, 4, 5 and 10 times tables I can recognise and use the x (multiplication) symbol I have explored repeated subtraction using arrays as a visual aid I can use written format for single digit multiplication I can recognise and use the ÷ (division) symbol <ul style="list-style-type: none"> • I can use extended multiplication vocabulary • I can recite forward and back number sequences, including those up to 100 and counting in 2s, 5s and 10s • I can count in 10s, 5s, 4s, 3s and 2s, to form the sequence for the 10, 5, 4, 3 and 2 times tables • I can confidently recall multiplication and division facts for 2, 3, 4, 5 and 10 times tables • I can recall table facts using commutative property – if I know one table fact, I know 2, i.e. $2 \times 3 = 6$ and $3 \times 2 = 6$ • I can generate the 4 times table by doubling the 2 times table and conversely generate the 2 times table by halving the 4 times table • I can generate the 10 times table by doubling the 5 times table and conversely generate the 5 times table by halving the 10 times table • I can multiply horizontally and vertically using times table facts • I can use extended division vocabulary • I can display equal groups in different ways and can write number sentences about them (10 lots of 3) • I can solve division problems by grouping and sharing; with and without remainders • I can put equal groups into an array • I can compare arrays and know which are the same, i.e. 3 rows of 4 and 4 rows of 3 • I can use my times tables knowledge to solve division problems e.g. $20 \div 5 = 4$ (with and without remainders) (2-digits divided by 1-digit) • I can multiply and divide by 10 and 100 in my head • I can layout calculations correctly on squared paper • I can apply all learnt skills in word problems 	Multiply and Divide HAM Teaching Cards MD1.4, MD1.5a, MD1.5b, MD1.6, MD1.7a, MD1.7b, MD1.8 Multiplication H3 Teacher's Notes pgs 84 – 104 H3 Tbk pgs 17 – 20 H3 Number Wbk 2 pgs 1 – 19 TJ Level B Ch 7 Ex 1 Ex 2 Ex 3 Ex 4 Ex 5 Ex 6 Ex 7 Ex 8 pgs 64 – 78 TJ 1a Ch 12 Ex 1 Ex 2 Ex 3 Ex4 pgs 104 – 111 S.E.A.L. Approaches as per Counting-on planner Division H3 Teacher's Notes pgs 112 – 116 H3 Number Wbk 2 pgs 25 – 30 H3 Tbk pgs 20 – 22 TJ Level B Ch 9 Ex 1 Ex 2 Ex 3 Ex 4 Ex 5	Multiply and Divide Write HAM Question Bank MD 1.6, MD 1.7a, MD 1.7b, MD 1.8 Write TJ 1a Ch 12 The 3 R's pg 112 Write TJ Level B Ch 7 Topic in a Nutshell pg 79 Write TJ Level B Ch 9 Topic in a Nutshell pg 118 Write TJ 1a Ch 14 The 3R's pg 129 Do Children choose a multiple of 5, e.g. 40. They take this number of counters, connecting cubes, pegs, etc. and arrange them in as many different arrays as possible, recording them all. How many can they find? Do The children work in pairs. One child creates an array and the other child states the facts that they can get from the array, **** **** **** 'There are 12 counters in the array. 4 columns and 3 rows. You could say that this is 3×4 or 4×3 .'

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<p>of 3 and 4 also)</p> <p>Find unit fractions of numbers and quantities, e.g. $\frac{1}{2}$ of 20, $\frac{1}{4}$ of 16 using known table facts</p> <p>Partitioning in multiplication - multiply the tens, multiply the ones then add, i.e. $12 \times 5 = (10 \times 5) + (2 \times 5)$</p> <p>Divide by grouping and sharing</p>	<p>Written algorithms for multiplication and division should not be explored until all appropriate mental strategies have been thoroughly explored and children are comfortable in selecting these strategies for completing calculations. If written algorithms are taught too soon, the learner will rely on the process they have learned rather than gaining an understanding of what is happening when they multiply or divide. Our aim is to foster conceptual understanding instead of learning of procedures without understanding.</p> <p><u>Important Reminder</u></p> <p>* Do not teach that when multiplying by 10 “add a zero to the end” as is stated in some textbooks as this shortcut does not develop conceptual understanding of what happens when a number is multiplied by 10. Teach that when a number is multiplied by 10, the number becomes ten times larger so each digit moves one column to the left with zero being inserted into the now vacant ones column as a place holder if needed.</p> <p>* Similarly, do not teach that when dividing by 10 “simply remove a zero” as stated in some textbooks as this shortcut does not develop conceptual understanding and can indeed cause greater confusion when the whole number being divided does not end in a zero or later in Second Level when decimals are being divided by 10. Teach that when a number is divided by 10, the number becomes ten times smaller so each digit moves one column to the right.</p> <p>Apply similar methodology to teaching multiplication and division by 100.</p>	<p>Ex 6 Ex 7 Ex 8 Ex 9 Ex 10 Ex 11 pgs 90 – 117</p> <p>TJ 1a Ch 7 Ex 1 Ex 2 Ex 3 Ex 5 Ex 6 pgs 120 - 128</p> <p>TJ 1a Ch 18 Ex 1 Ex2 Ex3 pgs 151 – 159</p> <p>http://www.mathsisfun.com/numbers/division-remainder.html</p>	
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Topic & CfE Outcome - Fractions, decimal fractions and percentages

Having explored fractions by taking part in practical activities, I can show my understanding of:

- 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 and**

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**

Benchmarks

- Explains what a fraction is using concrete materials, pictorial representations and appropriate mathematical vocabulary.
- Demonstrates understanding that the greater the number of equal parts, the smaller the size of each share.
- Uses the correct notation for common fractions to tenths, for example, $\frac{1}{2}$, $\frac{2}{3}$ and $\frac{5}{8}$
- Explains the role of the numerator and denominator.
- Uses known multiplication and division facts and other strategies to find unit fractions of whole numbers, for example, $\frac{1}{2}$ or $\frac{1}{4}$

Mental Strategies	Skills	Possible Resources	Assessment
<p>Recall</p> <p>Understand that a single item can be shared into equal parts and each part is a fraction</p> <p>Understand that a group of items can be split into equal parts with each equal part being called a fraction of the quantity</p> <p>Recall whether a number will be divisible by two by considering whether it is even or odd</p> <p>Skills (mentally, with jottings and materials if needed)</p> <p>Find unit fractions of numbers and quantities, e.g. $\frac{1}{2}$ of 20, $\frac{1}{4}$ of 16 using known table facts</p>	<p>I have explored the concept of sharing an item or collection fairly, using concrete materials and by using pictorial representation to develop conceptual understanding of equality and that fractions are equal shares</p> <p>I understand that a single item can be shared into equal parts and each part is a fraction</p> <p>I can describe and record halves and quarters in a variety of ways and locate them on a number line</p> <p>I can find a half and a quarter of a quantity and have explored this concept by using concrete materials and pictorial representations</p> <p>Please ensure that children are given the opportunity to split shapes into fractional parts for themselves as this builds a better conceptual understanding of fractional parts. Always being given pre-divided shapes limits the ability to visualise where the shapes could split equally</p> <ul style="list-style-type: none"> • I can use number facts to find half on a number line • I can demonstrate that a half has a place on the number line halfway between 0 and 1 • I can count in halves and record this on a number line • I can use number facts to find a quarter of a number <p>I can demonstrate and understand that a quarter has a place on the number line halfway between 0 and $\frac{1}{2}$</p> <ul style="list-style-type: none"> • I can count in quarters and record this on a number line <p>I understand what tenth means</p> <p>I can create and identify tenths of a shape and find tenths of a number</p> <p>I can describe and record tenths in a variety of different ways and locate them on a number line</p> <p>I understand what fifth means</p> <p>I can create and identify fifths of a shape and find fifths of a number</p> <p>I can describe and record fifths in a variety of different ways and locate them on a number line</p> <ul style="list-style-type: none"> • I understand that shapes or objects can be shared into 10 equal parts 	<p>HAM Teaching Cards F1.1b, F1.3a, F1.4a</p> <p>H3 Teacher's Notes pgs 118 – 121</p> <p>H3 Number Wbk 2 pgs 31 – 34</p> <p>TJ Level B Ch Ex 3 Ex 4 pgs 145 – 150</p> <p>TJ 1a Ch 16 Ex 1 pgs 141</p> <p>TJ 1a Ch 21 Ex 1 Ex 2 pgs 180 – 184</p> <p>H4 Teacher's Notes pgs 154 – 155</p> <p>H4 Tbk pg 60</p>	<p>Write</p> <p>HAM Question Bank F1.1b, F1.3a and F1.4a</p> <p>Write</p> <p>TJ Level B Topic in a Nutshell pg 151 Q5</p> <p>Write</p> <p>TJ 1a Ch 21 The 3R's pg 185</p> <p>Say and Do</p> <p>Give the children tenths fractions circles. Children twist the tenths fraction circles to show given numbers of tenths, e.g. seven tenths or two tenths. Ask questions about the fractions. How many tenths are in a half? If you have four tenths in one colour, how many are in the other colour?</p> <p>Say and Do</p> <p>Make a stick from 10 coloured cubes so that, e.g. three cubes are blue, one cube is yellow and six are red. Ask children in pairs to write statements about what fraction of the stick each colour is, e.g. three tenths of the cubes are blue or $\frac{3}{10}$ is blue. Invite a child to make another stick of 10 cubes to explore in the same way.</p> <p>Write and Do</p> <p>Ask children to use their whiteboards to work out which of the statements you read out are true and which are false. Use statements such as half of 18 is 9, 24 halved is 11, 26 split in half is 18. Children can draw jottings on their whiteboards to check. This is a good way of reinforcing that we can learn from mistakes add promotes a</p>

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	<ul style="list-style-type: none"> • I understand that 10 tenths of a shape are exactly the same size • I can identify one tenth of a shape by counting and colouring • I can find a tenth of a number of objects by sharing into 10 equal groups • I can record tenths in pictures, words and notation • I can make the link between pictures of tenths and the way I write them ($\frac{1}{10}$, $\frac{2}{10}$, $\frac{3}{10}$) • I understand that 10 tenths is the same as one whole • I can demonstrate that shapes or objects can be shared into five equal parts • I can demonstrate and understand that 5 fifths of a shape are exactly the same size • I can identify a fifth of a shape by counting and colouring • I can find a fifth of a number of objects by sharing into five equal groups • I can record fifths in pictures, words and notation • I can make the link between pictures of fifths and the way it is written • I can demonstrate and understand that 5 fifths is the same as one whole 		<p>Growth Mindset.</p> <p>Say Children stand in a circle and you stand in the middle. Call out a child's name, and say an even number. Throw the ball or bean bag to them, they say half of the number and throw the ball back to you. Repeat, moving to the child to their right. Continue until you have gone round the whole circle. Children can then work in a group taking turns to be the person in the middle. You can change the fraction that you are working with to increase the challenge, and/or randomly select the children instead of going around the circle.</p> <p>Do Children work with a partner. Give the children a set number of cubes and ask them to share equally with each other so that they both get half the total amount. Change the fraction for further challenge.</p> <p>Do Children draw a six square bingo grid on their whiteboards and fill the boxes with six numbers that are products of dividing by 2. Call out numbers that are multiples of 2. Children hear the number you call and half it. If the halved number appears on their board they cross it out. The winner is the first child to cross out all six numbers.</p>
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Topic & CfE Outcome - Money

I can use money to pay for items and can work out how much change I should receive. **MNU 1-09a** and

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**

Benchmarks

- Identifies and uses all coins and notes to £20 and explores different ways of making the same total.
- Records amounts accurately in different ways using the correct notation, for example, 149p = £1.49 and 7p = £0.07.
- Uses a variety of coin and note combinations, to pay for items and give change within £10.
- Applies mental agility number skills to calculate the total spent in a shopping situation and is able to calculate change.
- Demonstrates awareness of how goods can be paid for using cards and digital technology.

Mental Strategies	Skills	Possible Resources	Assessment
Recall Number bonds to 100 Skills (mentally, with jottings and materials if needed) Counting back from £1 Use counting on to calculate the difference between numbers Number line addition and subtraction to and from 100 Add several small numbers, starting with the smallest, or by reordering to find pairs that equal 10 or are near tens, i.e. $14p + 13p + 6p + 5p = 14p + 6p + 13p + 5p$ Add and Subtract a pair (or more) of single digit numbers, including bridging 10, i.e. $5 + 8, 12 - 7$ Subtract any single digit number from a multiple of 10, i.e. $60 - 5$ Add or subtract a single digit number to or from a two digit number, i.e. $23 + 5$, the bridging the tens boundary, i.e. $52 - 7$ Add or subtract multiple of 10 to or from a two digit number up to 100	I can talk about how and why money is used in everyday life and act out related scenarios I can recognise all coins and notes I can use coins up to at least £1 to pay for items I can choose appropriate coins and notes to give an estimate and check change given when there is not the exact amount to pay for something I have some knowledge of different methods of payment, i.e. apple pay, contactless, debit/credit cards, gift cards, vouchers I can work out change from at least £1 I can compare costs and work out what can be afforded I can work out the total cost, how I should pay and any change I should receive when buying several items (to £1) I can split a total equally to find the cost of one item <ul style="list-style-type: none"> • I have a sense of how much things cost • I can talk about the different ways that people pay for things and the cards they use • I can discuss how different countries use different notes and coins to pay for things • I can identify all coins and notes and discuss their features • I can compare two prices (to at least £1) and work out which can be afforded with a given amount of money • I can select appropriate coins to pay for an item up to the value of £2 • I can calculate the change for items up to 50p then £1 by counting on • I can calculate change up to at least £1 • I can find the total cost of 2 or 3 items up to the value of £1 and select coins that can be used to pay • I can say whether change will be required • I can calculate change by counting on • I can use the total of 2 or more items to find the cost of one by using division facts (up to £1) • I can estimate the total of several coins and notes and can then count to check how close my estimate was • I can read prices using £ and p • I can compare the amount of money I have with the cost of an item and can work out whether I can afford it • I can compare the cost of two items and can discuss which is more expensive and which is cheaper • I can compare and order the cost of several items and can discuss their values in comparison to each other • I can compare and order written amounts of money • I can work out simple price differences • I can estimate and then work out the price difference between 	HAM Teaching Cards MF 1.2, 1.4 H2 Teacher's Notes pgs 71 – 73 H2 Number Wbk pgs 21 – 23 H3 Teacher's Notes pgs 60 – 63, 76 – 79 H3 Number Wbk 1 pgs 27 – 30, 35 – 38 H3 Tbk pgs 6 – 8, 13 – 14 H4 Teacher's Notes pgs 142 – 144 H4 Tbk pg 52 TJ Level B Ch 6 Ex 1 pgs 55 – 57 TJ 1a Ch 8 Ex 1 Ex 2 pgs 75 – 79	Write HAM Question Bank MF 1.4 Write TJ 1a Ch 8 The 3 R's pg 80 Write TJ Level B Ch 6 Topic in a Nutshell pg 63 Q1, 2 Say and Write Display or write down a selection of coins where there are multiples of one of the coins, for example, three 10p coins and one 2p coin. The children work out the total and write it on their whiteboard, and show at the same time. Ask a child to explain how they reached their answer. Repeat for different numbers and types of coins. Highlight that you are working on the skill of 'skip' counting or repeated addition. Say and Do Allow each child to select a number of coins. They hold them in their hands and walk around the room whilst music plays. When the music stops, the children find the closest person to talk to and work out how much the opposite person is holding in their hand. They confirm each other's totals, helping each other if they have not found the correct total. Repeat until they have worked with several different children. Say and Do Discuss if it is always going to be possible to pay with the fewest coins. Establish that it isn't because you might not have that particular combination of coins. Write an amount on a whiteboard e.g. 32p and ask children to work in small groups to find as many different ways as they can to

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<p>(then beyond), i.e. 27 + 60, 72 - 50</p> <p>Making Tens - Add or subtract near tens to or from a one or two digit number within 100, e.g. 6 + 9 as 6 + 10 - 1, 33 - 11 as 33 - 10 - 1</p> <p>Add near doubles within totals of 100, e.g. 13 + 14, 39 + 40</p> <p>Add two digit numbers to two digit numbers, i.e. 23 + 22, then bridging the 10s boundary, i.e. 27 + 35</p> <p>Use number bonds to help add and subtract 1-digit numbers from 2-digit numbers; also bridging 10, i.e. I know 2 + 3 = 5 so I know 52 + 3 = 55</p> <p>Use knowledge of place value to partition numbers for addition and subtraction, i.e. 24 + 27 = 20 + 20 + 7 + 4</p> <p>Chunking - Add or subtract in chunks of friendly numbers, i.e. 66 + 43 = 66 + 40 + 3 An empty number line can be used to visualise this</p> <p>Rounding and adjusting - in addition and subtraction round one of the numbers to the nearest 10 then deal with the second number. Remember to adjust at the end, i.e. 34 + 18 = 34 + 20 - 2</p>	<p>two items using my addition and subtraction strategies (e.g. counting on or using known number facts)</p> <p>I can find the total of coins and notes to work out how much money there is</p> <p>I can find different ways to pay an exact amount using a variety of coins and notes</p> <p>I can use a minimum number of coins to make given amount up to £1</p> <ul style="list-style-type: none"> • I can find the total of a group of the same type of coin or note by counting on in equal steps (1s, 2s, 5s, 10s, 20s and 50s) • I can find the total value of two or three coins or notes • I can compare and order the values of different groups of coins and notes • I can find the total of several coins or notes using sorting and counting on strategies • I can exchange coins and notes for a different set which has the same value (to at least £1) • I have explored how a total can be made in different ways • I can use the coins and notes I have to pay the exact amount for an item in a variety of ways including using the fewest coins 	<p>HAM Teaching Cards MF 1.3</p>	<p>make that amount. Give them a time limit. Find out all the different ways the groups found. How many did they find in total?</p> <p>Say and Write In pairs, children think of five of their favourite foods. They draw these on paper and give each a price. Encourage them to be realistic about the prices and to use a mixture of pounds and pence. Then they workout how to make each price using the fewest coins and notes possible.</p>
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Topic & CfE Outcome - Time

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**

Benchmarks

- Tells the time using half past, quarter past and quarter to using analogue and digital 12 hour clocks.
- Records 12 hour times using am and pm and is able to identify 24 hour notation, for example, on a mobile phone or computer.

Mental Strategies	Skills	Possible Resources	Assessment
Recall 1 hour = 60mins $\frac{3}{4}$ of an hour = 45mins $\frac{1}{2}$ an hour = 30mins $\frac{1}{4}$ an hour = 15mins Skills (mentally, with jottings and materials if needed) Order times from earliest to latest in both analogue and digital representations Count on and back to 60 Counting in fives When counting on or back an hour and a half, count the full hour then the half	I can engage in discussion about why time is important in our lives I can tell the time on digital and analogue clocks – o'clock, half past and quarter past I can identify earliest and latest times I can read, interpret and create timetables to help plan my own time <ul style="list-style-type: none"> • I can make informed choices about how to use time • I can talk about how and why different lengths of time would be compared • I can create and interpret different timelines • I can place important events of the year in the correct month in a calendar • I can recognise, show and read quarter past and quarter to times on analogue and digital clocks • I can explain how digital time is represented, i.e. which digits represent the hours and which represent the minutes that have passed by in the day • I know that there are 15 minutes in a quarter of an hour so quarter past an hour is the same as 15 minutes past an hour • I know there are 60 minutes in an hour and can use this fact to work out the minutes in half an hour, quarter of an hour and three quarters of an hour • I can match an analogue time and a digital time, knowing that the same time might be said in different ways, e.g. quarter past two = 2:15 • I can answer simple problems involving quarter past the hour - 1 hour before and 1 hour after • I can calculate simple durations and start and finish times (involving whole and half hours) • I can use the notation am and pm correctly 	HAM Teaching Cards T1.5b H3 Teacher's Notes pgs 134 – 145 H3 Measure, Shape and Handling Data Wbk pgs 1, 3 – 7 H3 Tbk pgs 27 – 29 TJ Level B Ch 13 Ex 2 Qu 3 – 4 Ex 3 Ex 4 pgs 155 – 161 TJ 1a Ch 4 Ex 4 Qu 2 – 3 pgs 44 – 45 (excluding quarter to questions in listed resources)	Write HAM Question Bank T1.5b Write TJ 1a Ch 4 The 3 R's pg 46 Write TJ Level B Ch 13 Topic in a Nutshell pg 162 Say and Do Each child in a pair has a clock. Give them a time difference, e.g. 1 hour and a half. They show two times which have that difference, e.g. half past 1 and 3 o'clock. Discuss the times children choose and how they worked it out. Do Each child has a clock and sets it to 12 o'clock. They take turns to roll the dice and count forward that number of steps in half-hour intervals. Children say the time as they land on each step. For example, if they roll a 4, they say, 'Half past 12, 1 o'clock, half past one, 2 o'clock.' You can change this to make it more challenging by making the intervals a quarter of an hour.

Topic & CfE Outcome - Time

I can use a calendar to plan and be organised for key events for myself and my class throughout the year. **MNU 1-10b**

Benchmarks

- Records the date in a variety of ways, using words and numbers.
- Uses and interprets a variety of calendars and 12 hour timetables to plan key events.
- Knows the number of seconds in a minute, minutes in an hour, hours in a day, days in each month, weeks and days in a year.
- Orders the months of the year and relates these to the appropriate seasons.

Mental Strategies	Skills	Possible Resources	Assessment
<p>Recall Recall all days of the week, months of the year and seasons in correct order</p> <p>Know numbers before, after and between in relation to dates, i.e. 'What will the date be tomorrow if it is the 12th today?'</p> <p>Skills (mentally, with jottings and materials if needed)</p> <p>Count on from one date to another in ones initially then progress to sevens for full weeks</p> <p>When working out durations count the numbers of hours first then the minutes, i.e. 3.15pm to 5.45pm 3.15pm to 5.15pm = 2 hours 5.15pm to 5.45pm = $\frac{1}{2}$ hour = 2 and $\frac{1}{2}$ hours altogether</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>I can use a calendar to plan for events throughout the year (months)</p> <p>I can read, interpret and create timetables to help me plan my own time</p> <ul style="list-style-type: none"> • I know how many days in a week, weeks in a year and months in a year • I can compare a range of different calendars • I can talk about why we need calendars and how we use them • I can write the date independently in number format • I can accurately record date giving the day and month. • I can categorise days and months in a variety of ways – seasons, number of days, events. • I am beginning to link the seasons to the months that are in each one • I can calculate dates using calendars, e.g. What will the date be in 2 weeks from the 14th of June? • I can identify given dates on a calendar and write these in different ways, e.g. 3rd January 2014 ; 3.1.15 ; 3/1/15 • I can answer simple questions which involve interpreting information in timetables • I can calculate simple durations and start and finish times (involving whole and half hours) 	<p>H3 Teacher's Notes pg 145</p> <p>H3 Tbk pgs 30</p> <p>TJ 1a Ch 4 Ex 1 Ex 2 pgs 37 – 40</p> <p>TJ 1a Ch 11 Ex 1 pgs 98 – 99</p> <p>http://www.mathsisfun.com/measure/calendar-12-months.html</p>	<p>Do Use a calendar and work together to mark important dates for the class on it. Examples might include holidays, birthdays, school trips, dates of talks or visitors, etc. Once the dates are written on the calendar, groups take turns to have the calendar and write 10 questions about it, e.g. 'How many days is it between Jack's and Liam's birthdays?' 'From today, how many weeks is it until our school trip?' 'Which term is the longest?' They also work out an answer key for their questions. They swap questions with another group who use the calendar to work out each other's answers and swap them back again to be checked.</p> <p>Make Cut up the months from a yearly calendar and give them to children. Challenge them to put the months in order and to stick these down on paper. Once they have done this, children ask 10 friends when their birthdays are and write these in the appropriate places. Next, ask them to work out how many days and weeks there are between their own birthday and those of some of their friends. Watch how they do this. Do they count each day, or do they count in weeks and add on any extra days?</p>

Topic & CfE Outcome - Time

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**Benchmarks**

- Knows the number of seconds in a minute, minutes in an hour, hours in a day, days in each month, weeks and days in a year.
- Selects and uses appropriate timers for specific purposes.

Mental Strategies	Skills	Possible Resources	Assessment
Recall 1 minute = 60secs $\frac{1}{2}$ minute = 30secs Skills (mentally, with jottings and materials if needed) Count on and back to 60	<p>I can measure how long it will take to do something using non-standard, then standard units, showing that I am developing 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 estimate using a variety of timers and units of time</p> <p>I understand how long a minute is and what can be done in this time</p> <ul style="list-style-type: none"> • I have compared how long it takes to do different tasks using direct comparisons and can talk about my findings • I have explored simple devices to measure time in minutes • I have explored what can be achieved in a period of standard time • I know that there are 60 minutes in an hour • I can choose appropriate units of time to measure the length of a task 	HAM Teaching Card T1.4 H3 Teacher's Notes pgs 135 – 136 H3 Measure, Shape and Handling Data Wbk pg 2	Do Children work with a partner to estimate how long they think certain tasks may take or how many times they can complete something in 1 minute, e.g. How many times can you write your name, skip, say the 2 times table etc. in 1 minute. Use a variety of time devices at each station and compare their effectiveness.

Topic & CfE Outcome - Measurement

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**

Benchmarks

- Uses knowledge of everyday objects to provide reasonable estimates of length, height, mass and capacity.
- Makes accurate use of a range of instruments including rulers, metre sticks, digital scales and measuring jugs when measuring lengths, heights, mass and capacities using the most appropriate instrument for the task.
- Records measurements of length, height, mass and capacity to the nearest standard unit, for example, millimetres (mm), centimetres (cm), grams (g), kilograms (kg), millilitres (ml), litres (l).
- Compares measures with estimates.
- Uses knowledge of relationships between units of measure to make simple conversions, for example, 1m58cm = 158cm.
- Reads a variety of scales on measuring devices including those with simple fractions, for example, $\frac{1}{2}$ litre.

Mental Strategies	Skills	Possible Resources	Assessment
Recall 1 metre = 100cm $\frac{1}{2}$ metre = 50cm	<p>I can make comparisons and order the measurements of different objects, using direct comparison and non-standard units of length</p> <p>I have explored the need for standard units, talking about the range of metric units of length</p> <p>I can estimate, measure and compare different quantities in length</p> <p>I can solve problems involving measures in length</p> <p>I can select and use appropriate units of measure when solving problems, knowing the importance of accuracy</p> <p>I can select and use appropriate measuring devices</p> <p>Length</p> <ul style="list-style-type: none"> • I have investigated the ways that the length of objects stay the same however they are arranged • I can explain why we need standard units of measure and know when it is appropriate to round • I can talk about some of the standard units of measuring length and know when each is appropriate • I can measure using centimetres and metres and show an awareness of other standard units for measuring length • I can select and use a range of equipment to measure items • I know that 1 metre = 100cm • I know that $\frac{1}{2}$ metre = 50cm • I can convert cm to m and m to cm • I can record measurements with cm and m accurately • I can interpret practical problems and decide which unit of measure to use • I can solve a variety of practical problems by estimating and measuring • I can explain results and record findings in a variety of ways • I have experienced using best practice when using measuring instruments 	HAM Teaching Card M1.3 H3 Teacher's Notes pgs 165 – 166 H3 Tbk pgs 34 – 35 Length HAM Teaching Card M1.4a H3 Teacher's Notes pgs 148 – 154 H3 Measure, Shape and Handling Data Wbk pgs 8 – 14 H3 Tbk pg 31 TJ Level B Ch 15 Ex 1 pgs 176 – 179 TJ 1a Ch17 Ex 2 Ex 3 Qu 1 – 3 pgs 144 – 148 http://www.mathsisfun.com/measure/metric-length.html	<p>Write HAM Question Bank M1.4a</p> <p>Write TJ 1a Ch 17 The 3 R's pg 150</p> <p>Do Children explore why units of measurement need to be standardised. Give children non-standard units such as counters, cubes, straws, etc. Children work with a partner and choose some objects to measure. They each choose a different measuring unit and use this to measure the same item. They record the lengths of their items in their chosen units. They repeat this several times with various items and measuring equipment, comparing the numbers of each used. Encourage children to discuss with their partner whether this is a good way to measure and any problems they notice. Then children prepare a reasoned argument to share.</p>

Topic & CfE Outcome - Measurement

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 continued**

Benchmarks

- Uses knowledge of everyday objects to provide reasonable estimates of length, height, mass and capacity.
- Makes accurate use of a range of instruments including rulers, metre sticks, digital scales and measuring jugs when measuring lengths, heights, mass and capacities using the most appropriate instrument for the task.
- Records measurements of length, height, mass and capacity to the nearest standard unit, for example, millimetres (mm), centimetres (cm), grams (g), kilograms (kg), millilitres (ml), litres (l).
- Compares measures with estimates.
- Uses knowledge of relationships between units of measure to make simple conversions, for example, 1m58cm = 158cm.
- Reads a variety of scales on measuring devices including those with simple fractions, for example, $\frac{1}{2}$ litre.

Mental Strategies	Skills	Possible Resources	Assessment
Recall 1 kg = 1000g $\frac{1}{2}$ kg = 500g	<p>I can make comparisons and order the measurements of different object, using direct comparison and non-standard units</p> <p>I have explored the need for standard units, talking about a range of metric units of weight</p> <p>I can estimate, measure and compare different quantities of weight</p> <p>I can solve problems involving measures</p> <p>I can select and use appropriate units of measure when solving problems, knowing the importance of accuracy</p> <p>I can select and use appropriate measuring devices</p> <ul style="list-style-type: none"> • I have investigated the ways that the weight of objects stay the same however they are arranged • I can explain why we need standard units of measure • I can talk about some of the standard units of weight and know when each is appropriate • I have a sense of standard units of weight and can use this to estimate and make comparisons e.g. more than 1kg, about 1kg and less than 1kg • I can measure using grams and kilograms and show awareness of other standard units for measuring weight • I can use a range of equipment to weigh common items and know when it is appropriate to round • I know that 1 kg = 1000g • I know that $\frac{1}{2}$ kg = 500g • I can record measurements using g and kg accurately • I can convert g to kg and kg to g • I can interpret practical problems and decide which unit of measure to use • I can solve a variety of practical problems by estimating and measuring • I can explain my results and record my findings in a variety of ways 	<p>Weight HAM Teaching Card M1.4b</p> <p>H3 Teacher's Notes pgs 162 – 164</p> <p>H3 Measure, Shape and Handling Data Wbk pgs 19 – 20</p> <p>H3 Tbk pg 33</p> <p>TJ Level B Ch 18 Ex 2 pgs 200 – 201</p> <p>TJ 1a Ch 22 Ex 2 pgs 189 – 190</p> <p>http://www.mathsisfun.com/measurement/metric-mass.html</p>	<p>Write HAM Question Bank 1.4b</p> <p>Do Children think of things that are lighter than one weight but heavier than another weight, e.g. between 200g and 1kg. They either find these objects and then draw them, or simply draw them. Weigh the objects to check predictions.</p>

Topic & CfE Outcome - Measurement

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 continued**

Benchmarks

- Uses knowledge of everyday objects to provide reasonable estimates of length, height, mass and capacity.
- Makes accurate use of a range of instruments including rulers, metre sticks, digital scales and measuring jugs when measuring lengths, heights, mass and capacities using the most appropriate instrument for the task.
- Records measurements of length, height, mass and capacity to the nearest standard unit, for example, millimetres (mm), centimetres (cm), grams (g), kilograms (kg), millilitres (ml), litres (l).
- Compares measures with estimates.
- Uses knowledge of relationships between units of measure to make simple conversions, for example, 1m58cm = 158cm.
- Reads a variety of scales on measuring devices including those with simple fractions, for example, $\frac{1}{2}$ litre.

Mental Strategies	Skills	Possible Resources	Assessment
Recall 1 l = 1000ml $\frac{1}{2}$ l = 500ml	<p>I can make comparisons and order the measurements of different objects, using direct comparisons and non-standard units of capacity and volume</p> <p>I have explored the need for standard units, talking about a range of metric units</p> <p>I can estimate, measure and compare different quantities in capacity and volume</p> <p>I can solve problems involving measures</p> <p>I can select and use appropriate units of measure when solving problems, knowing the importance of accuracy</p> <p>I can select and use appropriate measuring devices</p> <ul style="list-style-type: none"> • I have explored pouring an amount of liquid or sand into different containers and can see that, although it looks different, it is still the same amount • I can explain why we need standard units to measure and know when it is appropriate to round • I can talk about some of the standard units for measuring capacity and know when each is appropriate • I have a sense of standard units for measuring amounts and can use this to estimate and make comparisons e.g. more than 1 litre, less than 1 litre, about 1 litre • I can estimate capacity and volume amounts and check using a range of measuring equipment • I can measure using millilitres and litres and show an awareness of other standard units for measuring capacity and volume • I know that 1 litre = 1000ml • I know that $\frac{1}{2}$ litre = 500ml • I can use the abbreviations l and ml • I can record measurements with ml and l accurately • I can convert ml to l and l to ml • I can interpret practical problems and decide which unit of measure to use • I can solve a variety of problems by estimating and measuring • I can explain my results and record my findings in a variety of ways 	<p>Volume HAM Teaching Card M1.4c</p> <p>H3 Teacher's Notes pgs 159 – 160</p> <p>H3 Measure, Shape and Handling Data Wbk pgs 17 – 18</p> <p>TJ Level B Ch 18 Ex 4 pg 203</p>	<p>Write HAM Question Bank M1.4c</p> <p>Do Children fill a 500ml container with sand. They estimate the level of the sand if it were poured into a large bottle. Each child marks their estimate on the bottle, then they check by pouring the sand from the container into the bottle. Whose estimate was closest? They repeat for 1 litre and 1.5 litre containers, and a range of unmarked containers.</p>

Topic & CfE Outcome - MeasurementI can estimate the area of a shape by counting squares or other methods. **MNU 1-11b****Benchmarks**

- Uses square grids to estimate then measure the areas of a variety of simple 2D shapes to the nearest half square.
- Creates shapes with a given area to the nearest half square using square tiles or grids.
- Recognises that different shapes can have the same area (conservation of area).

Mental Strategies	Skills	Possible Resources	Assessment
Skills (mentally, with jottings and materials if needed) Choose the most effective method of counting the number of squares in an area	I can estimate, measure and compare different quantities in area I can make comparisons and order measurements of different objects, using direct comparison and non-standard units – area <ul style="list-style-type: none"> • I can explain what is meant by area in simple terms • I can talk about area using standard units • I can use cm^2 correctly • I have investigated how to find the area of different shapes using standard units (whole cm^2) • I can calculate the area of a square and rectangle by counting squares • I can explain what happens to the area of a shape when it changes position on the grid – it looks different but the area doesn't change. • I can select and use appropriate vocabulary to describe area e.g. area, surface, greater, smaller, compared to • I can calculate the area of a square or rectangle drawn on a grid by counting the squares 'contained'. • I can create different areas by drawing or creating outlines 	HAM Teaching Card M1.4d (Activities and pages linked to skills set i.e. not multiplying to find the area) H3 Teacher's Notes pgs 155 – 157 H3 Measure, Shape and Handling Data Wbk pgs 15 – 16 H3 Tbk pgs 32 TJ Level C Ch 12 Ex 5 Qu 1 – 2 pg 143 TJ 1b Ch 15 Ex 3 Qu 1 – 2 pg 179 http://www.mathsisfun.com/numbers/estimation-game.php	Write Challenge children to draw as many different shapes as they can with an area of 6 cm^2 . How many different shapes can they find? You might want to discuss whether the shapes are actually different or if they are the same shape but rotated. Specify other areas, so children can explore this concept. Can they predict how many different ways there will be? Encourage them to work logically and record their thinking, so they can be sure that they have found all the possibilities.

Topic & CfE Outcome - Mathematics – its impact on the world, past, present and future

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**

Benchmarks

- Investigates and shares understanding of the importance of numbers in learning, life and work.
- Investigates and shares understanding of a variety of number systems used throughout history.

Mental Strategies	Skills	Possible Resources	Assessment
<p>Recall Read and identify numbers beyond 100</p> <p>Skill (mentally, with jottings and materials if needed)</p> <p>Compare numbers - biggest and smallest beyond 100</p> <p>Order numbers from smallest to largest beyond 100</p> <p>Match number names to numbers (to 100)</p>	<p>I can talk about how numbers are used all around me</p> <p>I have investigate numbers 1 – 10 in various languages</p> <ul style="list-style-type: none"> • I can spot numbers in everyday life • I can give examples of numbers I might see in everyday life • I can discuss how numbers help me in my life • I can discuss different types of number I might see in everyday life 		<p>Make and Write Children produce a poster illustrating their findings</p>

Topic & CfE Outcome - Patterns and relationshipsI can continue and devise more involved repeating patterns or designs, using a variety of media. **MTH 1-13a****Benchmarks**

- Continues and creates repeating patterns involving shapes, pictures and symbols.
- Describes, continues and creates number patterns using addition, subtraction, doubling, halving, counting in jumps (skip counting) and known multiples.

Mental Strategies	Skills	Possible Resources	Assessment
Skills (mentally, with jottings and materials if needed) Count on and back in 1s, 2s, 3s, 4s, 5s and 10s to 1000 from any number	I can explore and continue different visual patterns or designs I can explore how visual patterns relate to number patterns I can describe and continue a range of different number sequences <ul style="list-style-type: none"> • I can explain the rule for simple counting patterns • I can discover the rule for more complicated number sequences such as 1, 2, 4, 7, 11... • I can apply the rule for a number sequence to extend the pattern 	TJ Level B Ch 16 Ex 1 Qu 2, 3 and Ex 2 pg 187 – 188 TJ 1a Ch 23 Ex 1 Qu 2 – 3 Ex 2 pg 195 – 196	Say Children sit in a circle and the teacher begins a number sequence, i.e. 0, 4, 8, 12... A ball is passed and the next child has to say the next number in the sequence and so on. The difficulty of the number sequence can be used to differentiate and provide challenge for learners who are ready for it.

Topic & CfE Outcome - Patterns and relationshipsThrough exploring number patterns, I can recognise and continue simple number sequences and can explain the rule I have applied. **MTH 1-13b****Benchmarks**

- Counts forwards and backwards in 2s, 5s and 10s from any whole number up to 1000.
- Describes patterns in number, for example, in the multiplication tables and hundred square.
- Describes, continues and creates number patterns using addition, subtraction, doubling, halving, counting in jumps (skip counting) and known multiples.

Mental Strategies	Skills	Possible Resources	Assessment
<p>Recall Odd and even numbers to 100 (then beyond)</p> <p>Read and identify numbers to 1000</p> <p>Skill (mentally, with jottings and materials if needed)</p> <p>Count on from, and back to zero in ones, twos, fives, or tens within 1000</p> <p>Compare numbers - biggest and smallest to 1000</p> <p>Order numbers from smallest to largest to 1000</p> <p>Count on from, and back in ones from a given one or two digit number, i.e. Count to 15 from 6</p> <p>Count on from, and back to zero in ones, twos, fives or tens, i.e. Count back in two's from 8</p>	<p>I can create and complete number sequences by repeatedly adding or subtracting a number – steps of 5 and 10 within a familiar number range</p> <p>I can recognise and explain the rule for number sequences containing:</p> <ul style="list-style-type: none"> - odd and even numbers - 2s, 5s and 10s - 3s and 4s <ul style="list-style-type: none"> • I can say 5 or 10 more and less than a number • I can use knowledge of number bonds to help create a pattern of 5s and 10s • I can put numbers from patterns in order • I can continue and complete a sequence in steps of 5 or 10 • I can spot a sequence and talk about different patterns it creates in its numbers • I can create and display a pattern in a range of different ways • I can solve problems which involve a sequence 	<p>HAM Teaching Cards AS 1.4b</p> <p>H3 Teacher's Notes pgs 87 – 88</p> <p>H3 Number Wbk 2 pgs 1 – 2</p> <p>TJ Level B Ch 16 Ex 3 pg 189 – 190</p> <p>TJ 1a Ch 23 Ex 3 pg 197</p>	<p>Write TJ 1a Ch 23 The 3 R's pg 198</p> <p>Write TJ Level B Ch 16 Topic in a Nutshell Pg 191</p> <p>Write and Say Set a start number and the size of each step, and challenge children to continue the pattern on or back in a set time limit. Use the same pattern again and see if they can continue the pattern further in the same time.</p> <p>Say Say a start number and specify jumps of 5 or 10. Ask children to predict if they will land on a particular number. If we start on 0 and count in 5s will we say 27? If they think yes, thumbs up and if not thumbs down. Count up in given steps (using materials or visual aids for support if required) and check if they were correct. Try with other start numbers. Ask children to explain their reasoning. This activity is also useful when the children are exploring timestables as they can spot patterns, i.e. answers in the 5 timestable have a 0 or 5 in the ones column, answers on the 2, 4, 8 and 10 times table are always even etc.</p>

Topic & CfE Outcome - Expressions & Equations

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**

Benchmarks

- Understands and accurately uses the terms 'equal to', 'not equal to', 'less than', 'greater than', and the related symbols ($=$, \neq , $<$, $>$) when comparing quantities.

Mental Strategies	Skills	Possible Resources	Assessment
<p>Recall Know what 'greater than', 'less than' and 'equal to' means and be able to give examples, i.e. '36 is greater than 15.' 'Tell me a number that is less than 21.'</p> <p>Skills (mentally, with jottings and materials if needed)</p> <p>Add or subtract a pair (or more) of single digit numbers to demonstrate knowledge of equality, i.e. $2 + 3 = 1 + 4$</p> <p>Add or subtract a single digit number to or from 10 up to 20, (bridging through ten) to demonstrate knowledge of equality, i.e. $11 + 5 = 17 - 1$</p> <p>Find the value of a missing number by applying inverse operations - $\Delta + 24 = 38$ $38 - 24 = 14$ $\Delta = 14$</p> <p>Find the value of a missing number by applying balancing - $\Delta + 24 = 38$ $\Delta + 24 - 24 = 38 - 24$ $\Delta = 14$</p>	<p>I can use symbols to help describe number relationships – beyond 100</p> <ul style="list-style-type: none"> • I can compare numbers to decide which is bigger or smaller – beyond 100 • I can recognise the 'greater than' sign ($>$) and 'less than' sign ($<$) • I can complete a statement by inserting $>$ or $<$ to make it true, e.g. $575 \dots 589$ • I can complete a statement by adding a number to make it true, e.g. $249 < \dots$ • I can find the value of missing symbols, e.g. $\Delta + 4 = 8$ • I can demonstrate that I know what 'not equal to' means by completing a statement using the \neq symbol, i.e. $2 + 3 \neq 4 + 2$ 	<p>HAM Teaching Cards NP 1.8b</p> <p>TJ Level B Ch 10 Ex 3 pg 121</p> <p>TJ 1a Ch 15 Ex 1 Ex 2 Ex 4 pgs 130 – 133</p> <p>http://www.mathsisfun.com/equal-less-greater.html</p> <p>S.E.A.L. Approaches as per Counting-on planner</p>	<p>Write HAM Question Bank NP 1.8b</p> <p>Say and Do Children write $<$ on a piece of paper. Ask two children to come out to the front to stand a small distance apart and each say a random number. Children decide which way round the sign needs to go in the middle and hold up their paper to show the correct sign.</p> <p>Write Write two numbers on the board with a box between them, e.g. $20 \square 30$. Children decide whether $<$ or $>$ will make the statement true. They write the full statement on their mini-whiteboard and hold it up, e.g. $20 < 30$.</p> <p>Say and Do Write a section of statements on the board, some of which are incorrect. Ask the children to find the incorrect statements and fix them.</p>

Topic & CfE Outcome - Expressions & Equations

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**

Benchmarks

- Applies understanding of the equals sign as a balance, and knowledge of number facts, to solve simple algebraic problems where a picture or symbol is used to represent a number, for example, $\blacklozenge + 17 = 30$ and $\blacklozenge \times 6 = 30$.

Mental Strategies	Skills	Possible Resources	Assessment
<p>Recall When looking for the operation applied in a function machine, know that if the number goes from smaller to larger the operation could be either + or \times and inversely, if the number goes from larger to smaller the operation could be either - or \div</p> <p>Skills (mentally, with jottings and materials if needed)</p> <p>Find the value of a missing number by applying inverse operations - $\Delta + 24 = 38$ $38 - 24 = 14$ $\Delta = 14$</p> <p>Find the value of a missing number by applying balancing - $\Delta + 24 = 38$ $\Delta + 24 - 24 = 38 - 24$ $\Delta = 14$</p>	<p>I can use a simple function machine involving adding, subtracting, multiplication and doubling or halving</p> <p>I can explain how to work out the answer</p> <ul style="list-style-type: none"> • I have investigated inverse operations and know that doing the 'opposite' in some calculations, e.g. $3 \times _ = 21$ so $21 \div 3$ would find the missing number 	<p>HAM Teaching Cards MC 1.9</p> <p>TJ Level B Ch 10 Ex 1 Ex 2 pgs 119 – 120</p> <p>http://nrich.maths.org/5651</p> <p>S.E.A.L. Approaches as per Counting-on planner</p>	<p>Write TJ Level B Ch 10 Topic in a Nutshell pg 124 Qu 1 – 3</p> <p>Write, Say and Do Children write a complete number sentence on their whiteboard using either a given operation or an operation of their choice. They cover one of the numbers with a sticky note. Then they walk around the room holding up their whiteboard; every time they meet someone they have to work out the other child's hidden number. Once they have said a number, the other child removes their sticky note to show if they were correct.</p>

Topic & CfE Outcome - Properties of 2D shapes and 3D objects

I have explored simple 3D objects and 2D shapes and can identify, name and describe their features using appropriate vocabulary. **MTH 1-16a**

Benchmarks

- Names, identifies and classifies a range of simple 2D shapes and 3D objects and recognises these shapes in different orientations and sizes.
- Uses mathematical language to describe the properties of a range of common 2D shapes and 3D objects including side, face, edge, vertex, base and angle.
- Identifies 2D shapes within 3D objects and recognises 3D objects from 2D drawings.

Mental Strategies	Skills	Possible Resources	Assessment
	<p>I can recognise/identify a range of 2D shapes and 3D objects</p> <p>I can name 3D objects and 2D shapes and sort them according to their properties</p> <p>I can identify 2D shapes within 3D objects</p> <p>I can describe 2D shapes using the terms of sides, edges and corners</p> <p>I can describe 3D objects using the terms of faces, edges and corners</p> <p>I can sort shapes according to more complex criteria</p> <p>I can use knowledge of right angles to help compare and describe the angles in 2D shapes</p> <ul style="list-style-type: none"> • I can identify and name some 3D objects using mathematical language • I can use the terms sides and corners when discussing 2D shapes • I can use the terms face, edge and corner when describing a 3D shape • I can name some mathematical properties of 3D objects • I can talk about the main properties of a 3D object • I can use the mathematical properties of 3D objects to sort them using my own and others' criteria • I can identify 3D objects from pictures of them • I can identify and name 2D shapes using mathematical language • I can name some mathematical properties of 2D shapes • I can talk about the main properties of a shape and draw or make different examples of it • I can use the mathematical properties of 2D shapes to sort them using my own and others' criteria • I can discuss and name the different 2D shapes which feature as faces of a 3D object • I have taken apart a 3D object to create a net and can talk about the shapes it creates • I can sort angles in shapes according to whether they are right angles or smaller/larger than a right angles 	<p>HAM Teaching Cards SPM 1.6a, SPM 1.6b</p> <p>2D Shape</p> <p>H3 Teacher's Notes pgs 180 – 182</p> <p>H3 Measure, Shape and Handling Data Wbk pg 29</p> <p>H3 Tbk pg 36</p> <p>TJ Level B Ch 8 Ex 2 Qu 8 – 12 pg 84 – 85</p> <p>TJ 1a Ch 13 Ex 2 Qu 9 – 15 pg 117 – 118</p> <p>3D Shape</p> <p>H3 Teacher's Notes pgs 169 – 172</p> <p>H3 Measure, Shape and Handling Data Wbk pg 21 – 24</p> <p>TJ 1a Ch 24 Ex 1 Qu 4 Ex 2 pgs 201 – 203</p>	<p>Write TJ 1a Ch 24 The 3 R's pg 204</p> <p>Say and Write Call out a property of a 3D object. It has a flat face. It has eight vertices. Children try to think of an object with this property and write it down on their whiteboard. They hold up their whiteboard or the shape if they have them in front of them to explore. Compare answers and discuss them. Did everyone choose the same object? Are there any others we could have said? Why did no one say a cube? If a child chooses an incorrect shape, use this as an opportunity to investigate further.</p> <p>Say Ask for a volunteer. Write the name of a shape on a whiteboard and show the rest of the class except your volunteer. The other children give clues about the object to the volunteer, but do not use its name. The volunteer tries to use the information they have been given to work out the shape name. You could let them ask questions of the other children to help them identify it.</p>

Topic & CfE Outcome - Properties of 2D shapes and 3D objectsI can explore and discuss how and why different shapes fit together and create a tiling pattern with them. **MTH 1-16b****Benchmarks**

- Identifies examples of tiling in the environment and applies knowledge of the features of 2D shapes to create tiling patterns incorporating two different shapes.

Mental Strategies	Skills	Possible Resources	Assessment
	<p>I can use a variety of 2D shapes to create a tiling pattern</p> <p>I can describe why some shapes fit together while others will not</p> <ul style="list-style-type: none"> • I can fit together lots of the same 2D shape or simple 3D object so there are no gaps or spaces between them • I can talk about why certain shapes do or don't fit together • I can create a tiling pattern by using the same shape • I can create a tiling pattern by selecting two or more appropriate shapes • I can spot tiling patterns and can talk about where I have seen tiling patterns in the environment 	<p>HAM Teaching Cards SPM 1.7</p> <p>H3 Teacher's Notes pgs 174 – 176</p> <p>H3 Measure, Shape and Handling Data Wbk pgs 25 – 26</p> <p>TJ Level B Ch 8 Ex 3 pgs 86 – 88</p> <p>TJ 1b Ch 9 Ex 1 Qu 1 – 10 pgs 94 – 96</p> <p>http://nrich.maths.org/5944</p>	<p>Write</p> <p>TJ Level B Ch 8 Topic in a Nutshell Qu 4 – 5 pg 89</p> <p>Write and Do</p> <p>Ask the children to find a partner. Give each pair a piece of paper which has been cut out in an unusual shape using straight lines. They try to cover it by drawing around a 2D shape of their choice repeatedly, leaving as few gaps as possible. They colour any gaps using a black pen. Bring the pairs together and look at how they managed the task. If appropriate, repeat the activity to see if they can reduce the number or size of gaps by covering their paper shape in a different way.</p> <p>Say, Write and Do</p> <p>Provide a selection of 2D shapes which can be used to draw around. Children sit in a circle with a sheet of paper in the middle. They take turns to pick a shape and draw around it on the paper, creating a pattern. Encourage them to choose shapes which leave the fewest number of gaps on the page.</p>

Topic & CfE Outcome - Angle, symmetry and transformationI can describe, follow and record routes and journeys using signs, words and angles associated with direction and turning. **MTH 1-17a****Benchmarks**

- Uses technology and other methods to describe, follow and record directions using words associated with angles, directions and turns including, full turn, half turn, quarter turn, clockwise, anticlockwise, right turn, left turn, right angle.
- Knows that a right angle is 90°.
- Knows and uses the compass points, North, South, East and West.
- Uses informal methods to estimate, compare and describe the size of angles in relation to a right angle.
- Finds right angles in the environment and in well-known 2D shapes.

Mental Strategies	Skills	Possible Resources	Assessment
	<p>I can give and follow directions using an extended range of vocabulary and record these in a variety of ways</p> <p>I can follow and give instructions for movement including quarter turns and know that a quarter turn is also known as a right angle turn</p> <p>I can recognise the name of the four main compass points</p> <p>I can use compass points to help locate positions and follow directions</p> <p>I can record and interpret a route or journey using pictures, symbols and maps</p> <ul style="list-style-type: none"> • I can talk about where in real life people might need to use compass points • I can use a compass to find north and use this to find south and then east and west • I can use my knowledge of turning to work out what compass point I will be facing after a particular turn or series of turns • I can use my knowledge of compass points to give, follow and record directions for journeys using a wide range of language • I know that an angle is another way of measuring a turn • I know that by creating a quarter turn I am moving through a right angle • I can record in my own way the movement that I have made to create a right angle including the start and end positions • I explored that right angles can be made by turning in different directions from different starting points • I recognise how a right angle is represented 	<p>HAM Teaching Cards SPM 1.13, SPM 1.14</p> <p>H3 Teacher's Notes pgs 178 – 180</p> <p>H3 Shape and Handling Data Wbk pgs 27 – 28</p> <p>H3 Tbk pg 36</p> <p>H4 Teacher's Notes pgs 261 – 263</p> <p>H4 Tbk pg 85</p> <p>TJ Level B Ch 14 Ex 2 pgs 165 – 169</p> <p>TJ 1a Ch 20 Ex 1 Ex 2 Qu 1 – 4 pgs 173 – 176</p>	<p>Write TJ Level B Ch 14 Qu 1 – 5 Topic in a Nutshell pgs 174 – 175</p> <p>Do Agree the direction of north within the classroom. Call out different instructions involving direction and turn. Face north. 'Make a quarter turn to your right.' Children move together to follow your instructions. Now ask children to show which direction they think they are facing.' Hands up if you think you are facing south... east...' You could turn this into a game of 'Simon says' so they should only turn if you prefix an instruction with 'Simon says'.</p> <p>Write and Do Draw a four point compass rose and a 6 × 6 grid on the board. Colour one square to show the starting square. Write different letters in several other cells. Give instructions using compass direction and numbers of squares, i.e. 'Three squares east.' Ask children to write the letter in the destination cell on their whiteboards and show at the same time.</p> <p>Write and Do Give each child a piece of squared paper and a bright colouring pen. Explain that you are going to give them instructions for drawing a route on squared paper. You will read out the instructions twice. First, they have to create the shape by stepping it out and physically turning. Then when the instructions are repeated they will draw the shape on their squared paper. Give simple instructions using the words 'up', 'down', 'along', 'turn', 'clockwise', 'anti-clockwise', 'right angle'. 'Draw</p>

			a line up the page along four squares. Stop, turn clockwise through one right angle and forward three. Stop, turn clockwise through one right angle and go forward six.' Pairs compare drawings. Repeat, giving more complex instructions.
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Topic & CfE Outcome - Angle, symmetry and transformation

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**Benchmarks**

- Identifies where and why grid references are used.
- Describes, plots and uses accurate two figure grid references, demonstrating knowledge of the horizontal and vertical location.

Mental Strategies	Skills	Possible Resources	Assessment
Recall The horizontal location point is noted before the vertical point	<p>I understand and apply that when using grid references the horizontal location is before the vertical location</p> <p>I can use grid references involving letters and numbers to plot points or identify positions on a grid</p> <p>I am beginning to explore different grid systems and can use them to describe and locate a point</p> <ul style="list-style-type: none"> • I can talk about where in real life I might need to interpret a grid to locate a position • I can describe a position within a grid 	<p>HAM Teaching Cards SPM 1.9 (No written tasks – games and activities only)</p> <p>TJ Level B Ch 14 Ex 6 pgs 170 – 173</p>	<p>Write TJ Level B Ch 14 Qu 6 – 7 Topic in a Nutshell pg 175</p> <p>Do Provide the children with an enlarged 8 by 8 grid reference grid or show one on the Smartboard. Ask all the children to write their name (or initials) on a sticky note. Then ask one child to place their note in a specified square. Stephen, place your name in B3. The other children watch and check that the child puts the note in the correct cell. Repeat with a few children. Then let children give instructions using grid references to each other to place other children's names on the grid using up the remaining spaces. 'Eva, please place Dan's name in E1.' You can link this to MNU 1-17a by using the grid to get the children to direct each other from one sticky note to another.</p>

Topic & CfE Outcome - Angle, symmetry and transformation

I have explored symmetry in my own and the wider environment and can create and recognise symmetrical pictures, patterns and shapes.

MTH 1-19a

Benchmarks

- Identifies symmetry in patterns, pictures, nature and 2D shapes.
- Creates symmetrical pictures and designs with more than one line of symmetry.

Mental Strategies	Skills	Possible Resources	Assessment
	<p>I can recognise symmetrical shapes by using a mirror or by folding</p> <p>I can draw a line of symmetry assisted by the use of a mirror</p> <p>I can complete the missing half of a simple symmetrical pattern or shape</p> <p>I can create symmetrical patterns on squared paper</p> <p>I can find lines of symmetry on shapes drawn on a square grid</p> <p>I can make my own symmetrical pictures and patterns and recognise when a shape or pattern is symmetrical</p> <ul style="list-style-type: none"> • I can predict what a symmetrical shape, model, picture or pattern will look like when completed • I can complete a shape, model, picture or pattern to make it symmetrical • I can spot symmetry in 3D patterns and use 3D objects to create symmetrical patterns • I can spot when a shape is not symmetrical and can describe why • I can use a mirror to check whether shapes, models, pictures or patterns are symmetrical • I can check for lines of symmetry by cutting out a shape and folding it to compare each half • I can check if a picture or pattern is symmetrical when it is drawn on squared paper by comparing both halves to check they are a reflection of each other 	<p>HAM Teaching Card SPM 1.8</p> <p>H3 Teacher's Notes pgs 186 – 189</p> <p>H3 Measure, Shape and Handling Data Wbk pgs 30 – 32</p> <p>H3 Tbk pgs 39 – 40</p> <p>TJ Level B Ch 2 Ex 1 Qu 5 Ex 2 pgs 24 – 25</p> <p>TJ Book 1a Ch 2 Ex 1 Ex 2 pgs 22 – 27</p>	<p>Write</p> <p>TJ Level B Ch 2 Topic in a Nutshell pgs 26</p> <p>Write</p> <p>TJ Book 1a The 3 R's Ch 2 pg 28</p> <p>Make</p> <p>Children write their name in capital letters on squared paper then draw a line underneath it. Then they draw the reflection of each letter underneath the line to create a symmetrical name plate. Investigate which letters are symmetrical. Challenge children to make words using specified numbers of symmetrical letters. Make a word which uses only symmetrical letters. Make a five-letter word which has two symmetrical letters and three which are not. Can they find any names/colours/ animal names which use only symmetrical letters? You could extend this to look at palindromes to create a symmetrical word, for example, TOOT.</p> <p>Do</p> <p>Ask the children to carefully draw a line down the middle of their whiteboard. After that, they have to draw half of a picture. They could draw an item or a shape. They then walk around the room with their board and when the music stops they go to the nearest person and they have to see if they can work out when the whole picture should be. Repeat several times.</p>

Topic & CfE Outcome - Data and analysis

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**

Benchmarks

- Asks and answers questions to extract key information from a variety of data sets including charts, diagrams, bar graphs and tables.

Mental Strategies	Skills	Possible Resources	Assessment
<p>Recall Vocabulary of 'more than', 'less than', 'in total', 'altogether' etc to help with understanding of questions</p> <p>If the top of a bar lies between two points on a scale, the interval will be a half, i.e. the bar's top is in the middle of 24 and 26 so the reading will be 25</p> <p>Skills (mentally, with jottings and materials if needed)</p> <p>Use addition and subtraction skills for analysing data, i.e., 'How many more children like strawberry ice cream than vanilla?' 'If 4 children walked to school, 7 children cycled and 3 got the school bus, how many children were there altogether?'</p> <p>Skip counting for the scale of an axis</p>	<p>I can complete a bar graph from given information and label axes appropriately</p> <p>I can interpret information from a bar graph</p> <p>I can use a frequency table</p> <ul style="list-style-type: none"> • I can sort into groups objects I have gathered or been given • I can organise these groups of objects onto a simple chart • I can help to create a pictogram to show information we have gathered • I understand that if each representation of an object within a group is of a similar size it is easier to compare them • I can gather and organise information to create my own pictogram • I understand that the same information from a pictogram can be presented in a block graph • I can gather and organise information to create my own block graph • I can ask and answer questions about pictograms and block graphs 	<p>HAM Teaching Card IH 1.4a</p> <p>H3 Teacher's Notes pgs 195 – 197</p> <p>H3 Tbk pg 41 – 43</p> <p>H3 Measure, Shape and Handling Data Wbk pgs 35 – 38</p> <p>TJ Level B Ch 11 Ex 1 Qu 2 – 6 Ex 2 Qu 4 – 5 Ex 3 Qu 3 pgs 126 – 133</p> <p>TJ 1a Ch 19 Ex 1 Qu 4 – 7 Ex 3 Qu 3 – 5 pgs 162 – 169</p>	<p>Write HAM Question Bank IH 1.4a</p> <p>Do Open a packet of sweets. Group the sweets by an appropriate criterion, for example, colour or flavour. Record with children the number of each colour/flavour. Work with children to use coloured cubes or counters to create a block graph to represent the numbers of each colour/flavour. Repeat this with a variety of items that the children group with their own criteria</p> <p>Do and Write Display a block graph showing favourite ice cream flavours: 8 chocolate, 4 strawberry, 2 vanilla, 2 don't like ice cream. Ask children questions about the block graph. 'Which is the most popular flavour?' 'How many more people liked strawberry than vanilla?' 'How many people were in the survey?' Children write their responses on their whiteboards and show all at the same time.</p>

Topic & CfE Outcome - Data and analysis

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

Benchmarks

- Selects and uses the most appropriate way to gather and sort data for a given purpose, for example, a survey, questionnaire or group tallies.

Mental Strategies	Skills	Possible Resources	Assessment
<p>Recall Vocabulary of 'altogether', 'difference', 'more than' and 'less than'</p> <p>Skills (mentally, with jottings and materials if needed)</p> <p>Use addition and subtraction find the total of items, i.e. 'There are 6 shapes with four or more sides and 2 shapes with less than four so there are 4 more shapes in that loop.'</p> <p>Counting in ones, twos, fives or tens to count collections</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 questions to find out information and display findings in different ways</p> <p>I can collect and record information using my own method, i.e. crosses, ticks, pictures, symbols</p> <p>I can use tally marks to represent quantity and total them at the end</p> <ul style="list-style-type: none"> • I can sort according to criteria and explain what was done • I can choose criteria for sorting • I can use simple Venn and Carroll diagrams to sort objects using chosen and given criteria • I can suggest different ways for grouping the same set of objects • I can show understanding of what needs to be found out and the kinds of questions to ask • I can show an awareness of the kinds of answers that may be given and how to record them • I can gather information through questioning in an organised way • I can record and display findings in different ways by using: crosses, ticks and simple pictograms • I have begun to explore the use of tally marks • I can organise groups of objects into a simple chart • I can create a pictogram to show information gathered • I can ask and answer questions about pictograms 	<p>HAM Teaching Cards IH 1.2, IH 1.3</p> <p>H3 Teacher's Notes pgs 192 – 194</p> <p>H3 Shape and Handling Data Wbk pgs 33 – 34</p> <p>TJ Level B Ch 11 Ex 1 Qu 2 – 6 pgs 125 – 127</p> <p>TJ 1a Ch 25 Ex 2 pgs 209 – 212</p>	<p>Write HAM Question Bank IH 1.4b</p> <p>Do Give pairs or trios some 3D objects and a hoop. Ask them to choose their own criterion for sorting the objects, placing those that meet the criterion inside the hoop and those that don't outside. Extend to using a two part Venn diagram for sorting.</p> <p>Say and Do Give children a selection of items and tell them the sorting criteria. Children to use marks (crosses, pictures, symbols and tallies etc) to record the number of each item. Each partner takes turns to ask questions about the information for the other partner to answer. You may or may not provide pre-made chart depending on the ability level.</p> <p>Say and Do Show children a sphere, cube, cuboid, cylinder, cone and pyramid and two hoops. 'How could you sort these objects using the hoops?' 'Take their suggestions and try some out.' If not already suggested, label the hoops 'Curved Faces' and 'Flat Faces'. Hold each object up one at a time and ask them which hoop it should go into. When you hold up the cone and cylinder they should be able to tell you to overlap the two hoops and put them in the middle because they meet both criteria.</p>

Numeracy and Mathematics Progression and Support - First Level Pathway 2

Topic & CfE Outcome - Data and analysis

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**

Benchmarks

- Uses a variety of different methods, including the use of digital technologies, to display data, for example, as block graphs, bar graphs, tables, Carroll diagrams and Venn diagrams.
- Includes a suitable title, simple labelling on both axes and an appropriate scale where one unit represents more than one data value in graphs.

Mental Strategies	Skills	Possible Resources	Assessment
	<p>I have extended my knowledge of graphs and their features</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>I can complete a blank bar graph without pre-labelled axes</p> <p>I can use computer packages to complete a blank bar graph without pre-labelled axes</p> <ul style="list-style-type: none"> • I can discuss and compare the key features of tables, charts, diagrams and graphs • I have explored different ways of presenting the same information, including by using computer packages and online resources 	<p>Link with MNU 1-20a and MNU 1-20b</p> <p>TJ Level B Ch 11 Ex 4 pgs 135 – 136</p> <p>TJ 1a Ch 25 Ex 1 Qu 2a – 2b pg 207</p>	<p>Write TJ Level B Ch 11 Qu 6 Topic in a Nutshell pg 138</p> <p>Make, Say and Do Give the children some information to organise, collate and display and ask them to display it in two different ways. Follow this up by discussing which display shows the information more clearly.</p>

Topic & CfE Outcome - Ideas of chance and uncertainty

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**

Benchmarks

- Uses mathematical vocabulary appropriately to describe the likelihood of events occurring in everyday situations including, probable, likely/unlikely, certain/uncertain, possible/impossible, and fair/unfair.
- Interprets data gathered through everyday experiences to make reasonable predictions of the likelihood of an event occurring.

Mental Strategies	Skills	Possible Resources	Assessment
	<p>I can talk about how likely something is to happen and justify my opinion</p> <p>I can use specific vocabulary to describe the likelihood of an event</p> <ul style="list-style-type: none"> • I can give examples of things that are likely to happen, not likely to happen (unlikely) or are impossible 		<p>Say</p> <p>Children sit in a circle and each takes a turn to add a part to a story, spoken out loud, about an unlikely day. This is an imaginative activity where anything goes. Encourage children to think about the everyday events in their day and what they could change to make an unlikely event. For example, they find their house has been flooded, they discover they can fly to school, they find their teacher has become an alien. They each add a little bit more, continuing the story before the next person takes over.</p>

Strategies

By the **END** of First Level, Learners should understand when to use and be able to apply the following strategies. Knowledge of, understanding and application of these strategies should be built **across** the level.

- * Explore and use correctly a variety of mathematical language related to addition, subtraction, multiplication and division
- * Emphasise the importance of using mental maths skills and recall in a variety of contexts, e.g. Time (number pairs to 60), Money

Addition and Subtraction

- * Emphasise the use of estimation and rounding in calculations
- * Re-order numbers when adding – put larger number first
- * Count on or back in 1s, 2s, 5s, 10s
- * Partitioning
- * Number Patterns
- * Using knowledge of number bonds to 10 and apply in more complicated calculations e.g. $60 - 7$ think $10 - 7 = 3$, $60 - 7 = 53$

Multiplication and Division

- * Emphasise the use of estimation and rounding in calculations
- * Use patterns of last digits e.g. 0 and 5 when counting in fives
- * Partition then recombine e.g. double 35 = double 30 + double 5
- * Using halving as inverse of doubling and doubling is equivalent to multiplying by 2
- * Use multiplication facts from the multiplication tables e.g. Recognise that there are 15 objects altogether because there are 3 groups of 5
- * Link multiplication and division facts to unit fractions e.g. Finding $\frac{1}{3}$ of 9 = $9 \div 3$
- * Recognise that when multiplying by 10 or 100, the digits move one or two places to the left and zero is used as a place holder, also applying the inverse