



**Renfrewshire**  
Council

**Progression and Support Document**  
**First Level – Pathway 3**



## **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 3**  
**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.

<b>Bundling of Experiences and Outcomes First Level Pathway 3</b>	<b>Opportunities across the curriculum</b>
<b>Estimation and rounding</b> MNU 1-01a <b>Number and number processes</b> MNU 1-03a Money MNU 1-09a & MNU 1-09b Expression and equations MTH 1-15b	
<b>Number and number processes</b> MNU 1-02a Expression and equations MTH 1-15a	
Mathematics – its impact on the world, past, present & future MTH 1-12a <b>Patterns &amp; relationships</b> 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	
<b>Fractions</b> MNU 1-07a & MNU 1-07b Fractions MTH 1-07c 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.

<b>Bundle</b>	<b>Reasons bundle was chosen</b>
<b>Number and number processes MNU 1-02a</b>  Expression and equations MTH 1-15a	<p>In <b>Number and number processes MNU 1-02a</b>, numbers to 1000 in terms of place value. This includes <b>Counting, Ordering, Reading and Writing Numbers</b>. Naturally, in the process exploring these elements, numbers and their values will be compared. This is where Expression and equations <b>MTH 1-15a</b> 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.

<b>Bundle and Context for Learning</b>	<b>Reasons bundle was chosen</b>
<b>Context is a class shared story – ‘Gigantosaurus’ by Jonny Duddle</b>  Using what I know about the features of different types of texts, I can find, select, sort and use information for a specific purpose. <b>LIT 1-14a</b>  Inspired by a range of stimuli, I can express and communicate my ideas, thoughts and feelings through activities within art and design. <b>EXA 1-05a</b>	<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. <b>‘Gigantosaurus’ by Jonny Duddle</b> – providing words to describe the characters Bonehead, Tiny, Finn and Bill then sorting these using a Venn or Carroll Diagram <b>MNU 1-20a/b</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? <b>MNU 1-20a/b &amp; MTH 1-21a</b> 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. <b>MNU 1-11a &amp; MNU 1-11b</b></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 Three

Time	Mathematics – its impact on the world, past, present & future	Number & Number Processes	Properties of 2D shapes & 3D objects	Properties of 2D shapes & 3D objects	Pattern & Relationships	Number & Number Processes	Expressions & Equations	Estimating & Rounding
MNU 1-10b	MTH 1-12a	MNU 1-02a	MTH 1-16a	MTH 1-16b	MTH 1-13a	MNU 1-03a Addition & Subtraction	MTH 1-15a	MNU 1-01a

Money	Fractions	Measurement	Number & Number Processes	Pattern & Relationships	Measurement	Angle, symmetry & transformation	Data & Analysis	Ideas of chance & uncertainty
MNU 1-09a MNU 1-09b	MNU 1-07a MNU 1-07b	MNU 1-11a Weight	MNU 1-03a Multiply & Divide	MTH 1-13b	MNU 1-11a Length	MTH 1-19a	MNU 1-20b	MNU 1-22a

Angle, symmetry & transformation	Angle, symmetry & transformation	Measurement	Expressions & Equations	Fractions	Time	Time	Measurement	Data & Analysis
MTH 1-17a	MTH 1-18a	MNU 1-11a Capacity & Volume	MTH 1-15b	MTH 1-07c	MNU 1-10a	MNU 1-10c	MNU 1-11b	MNU 1-20a

Data & Analysis
MTH 1-21a

The above is an overview of the Experiences and Outcomes contained in First Level Pathway 3. 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.**

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><b>Recall</b> 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><b>I can use the term 'multiple' correctly</b></p> <p><b>I can recognise number patterns involving multiples of the 2 – 10 times tables, e.g. 2, 4, 6, 8... 5, 10, 15...</b></p> <ul style="list-style-type: none"> <li>• I can recite my 2, 4 and 8 times-tables</li> <li>• I can recall individual multiplication and division facts in my 2, 4 and 8 times-tables</li> <li>• I can recite my 5 and 10 times-tables</li> <li>• I can recall individual multiplication and division facts in my 5 and 10 times-table</li> <li>• I can recite my 3, 6 and 9 times-tables</li> <li>• I can recall individual multiplication and division facts in my 3, 6 and 9 times-tables</li> <li>• I can recite the 7 times-table</li> <li>• I can use the link between times-tables to help me recall my facts, e.g. doubling and halving</li> <li>• I can find the lowest common multiple of up to 3 numbers</li> </ul>	<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><a href="http://www.mathsisfun.com/numbers/maths-trainer-multiply.html">http://www.mathsisfun.com/numbers/maths-trainer-multiply.html</a></p> <p><a href="http://www.topmarks.co.uk/Flash.aspx?f=carrollv7">http://www.topmarks.co.uk/Flash.aspx?f=carrollv7</a></p>	<p><b>Write</b> HAM Question Bank MD 1.7a, MD 1.7b &amp; MD 1.7c</p> <p><b>Do</b> 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 <math>3 \times 8</math>, <math>6 \times 4</math>, etc. Encourage children to explain how and why these facts are related, i.e. that multiplication is commutative.</p> <p><b>Do</b> 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.

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><b>Recall</b> Addition and Subtraction facts for all numbers to 20, i.e. <math>9 + 8</math>, <math>17 - 9</math>, drawing on knowledge of inverse operations</p> <p>Know which is the hundreds, tens and ones digits in a three digit number</p> <p><b>Skills</b> (mentally, with jottings and materials if needed)</p> <p>Use an empty number line to find which 10 or 100 a number is closest to</p>	<p><b>I can use rounding to the nearest 10 to estimate answers then check against accurate calculations</b></p> <p><b>I can round numbers up or down to the nearest 100, up to 1000</b></p> <p><b>I can estimate where a number would lie on a blank number line, up to 1000</b></p> <p><b>I have explored why estimating and rounding is an important skill in real-life</b></p> <ul style="list-style-type: none"> <li>• I can discuss and compare ideas of estimation with others</li> <li>• I can explain what rounding to the nearest 100 means</li> <li>• I can use a wide range of appropriate vocabulary to explain and compare amounts - more than, less than, least, most, accurate, approximate etc.</li> <li>• I can decide whether to round up or down to the nearest 100 by looking at the tens digit</li> <li>• I can explain to others the rule for rounding up or down to the nearest 100</li> <li>• I know that when rounding to the nearest 100, if the tens digit is 4 (40) or less I should round down to the previous multiple of 100 and if it is 5 (50) or above I should round up to the next multiple of 100</li> <li>• I can round to the nearest 100 for a range of different numbers</li> <li>• I can round 2 and 3 digit numbers to the nearest 10</li> <li>• I can round 3 digit numbers to the nearest 100</li> <li>• I can give examples of numbers which are rounded to a given multiple of a 100</li> </ul>	<p>HAM Teaching Card NP1.9b</p> <p>H4 Teacher's Notes pgs 44 – 46</p> <p>H4 Number Wbk pgs 7 – 8</p> <p>TJ 1b Ch 1 Ex 2 Ex 3 pgs 4 – 6</p> <p>TJ Level C Ch 5 Ex 5 pgs 60 – 65</p> <p>S.E.A.L. Approaches as per Facile planner</p>	<p><b>Write</b> HAM Question Bank NP1.9b</p> <p><b>Write</b> TJ 1b Ch 1 The 3 R's pg 7</p> <p><b>Do</b> Provide the children with a selection of catalogue pages, menus with prices and/or access to such information online. Children should select some of the items to create a poster with but should round to the nearest whole £. An alternative is to give the children a whole £ total on a piece of paper and they must find items that round to that whole £. They could record this by cutting out the items then writing the whole £ total beside it or by drawing the items they have found. The 100p in a £ fact is reinforced with this task. Discuss why many items are priced £7.99, £2.99, etc.</p> <p><b>Do</b> Ask children to measure a variety of items around the room by estimating its size then checking it with an appropriate measuring instrument that they have selected. Discuss the appropriateness of the instrument depending on what has been selected by the child. Ask the children to round to the nearest metre or nearest 10 cm depending on the items chosen.</p>



## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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><b>Recall</b></p> <p>Addition and Subtraction facts for all numbers to 20, i.e. <math>9 + 8</math>, <math>17 - 9</math>, drawing on knowledge of inverse operations</p> <p>Sums and differences of multiples of 10, within 1000, i.e. <math>50 + 80</math>, <math>120 - 90</math></p> <p>Pairs of two-digit numbers with a total of 100, i.e. <math>32 + 68</math> or <math>32 + \square = 100</math></p> <p>Number pairs with multiples of 5 with totals to 100, i.e. <math>65 + 35</math></p> <p>Recall numbers before and after to 1000</p> <p><b>Skills</b> (mentally, with jottings and materials if needed)</p> <p>Count on and back from a single digit number in 3s and 4s within 100, i.e. start at 2 and count in threes</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 276 is 2 hundreds, 7 tens and 6 ones</p>	<p><b>For whole numbers to 1000 children should be able to</b></p> <ul style="list-style-type: none"> <li>• Count</li> <li>• Order</li> <li>• Read</li> <li>• Write</li> <li>• Place Value</li> </ul> <p><b>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</b></p> <p><b>I can use numbers to describe the order of items - ordinal numbers</b></p> <p><b>I can discuss the digits in a number, their position, their value and know that zero is important as a place holder – thousands, hundreds, tens and ones (partitioning)</b></p> <p><b>I can count on and back in steps of 1, 10 and 100 and can describe how this changes the digits in a number</b></p> <p><b>I can compare numbers and put them in order to 1000</b></p> <p><b>I can identify numbers before/after/in-between to 1000</b></p> <p><b>I can identify numbers more than and less than a particular number up to 1000, i.e. What is 100 more than 530?</b></p> <p><b>I can write number names in words to 1000</b></p> <p><b>I can use ordinal numbers to 100<sup>th</sup> and beyond</b></p> <ul style="list-style-type: none"> <li>• I can count on and back in sequence from a given number without missing any number to 1000</li> <li>• I can say the ordinal numbers and write them in digits and words</li> <li>• I can talk about the digits which make up a number and work out if they stand for a group of ones, tens, hundreds or thousands</li> <li>• I can show a number on a number line and talk about its position, i.e. 104 is 100 and 4 more</li> <li>• On seeing a number written in words, I can read it out correctly and work out the value of each digit in its position (thousands, hundreds, tens and ones)</li> <li>• On hearing a number read aloud, I can work out how to write the number in digits (thousands, hundreds, tens and ones)</li> <li>• I can describe what happens to the different digits in a number when adding on in ones, tens and hundreds</li> <li>• I can split a number and say how many ones, tens, hundreds and thousands there are</li> <li>• I can use the terminology thousands, hundreds, tens and ones</li> </ul>	<p>HAM Teaching Card NP1.4c , NP1.6b , NP1.7c</p> <p>H5 Teacher's Notes pgs 35 – 39</p> <p>H5 Tbk pgs 7 – 8</p> <p>H5 Wbk pgs 2 – 3</p> <p>TJ 1b Ch 1 Revision of Whole Numbers Ex 1 pgs 1 – 3</p> <p><a href="http://www.mathsisfun.com/place-value.html">http://www.mathsisfun.com/place-value.html</a></p> <p><a href="http://nrich.maths.org/152">http://nrich.maths.org/152</a></p> <p><a href="http://www.mathsisfun.com/numbers/ordinal-game.php">http://www.mathsisfun.com/numbers/ordinal-game.php</a></p> <p>S.E.A.L. Approaches as per Facile planner</p>	<p><b>Write</b></p> <p>HAM Question Bank NP1.4c, NP1.6b, NP1.7c</p> <p><b>Say</b></p> <p>State a number to begin on and tell the children whether they are counting backwards or forwards, i.e. Starting with 230, count on in steps of 100 or Starting 700, count back in steps of 10. Children become counting ninjas and take their turn to state the next number in the sequence when it is their turn. They can create a ninja action to perform as they count Children continue calling out in sequence until they reach the end of the line when the numbers 'travel' back along the line, this time counting in the other direction. Discuss which digits stay the same and which digits change as they count on or back.</p> <p><b>Do</b></p> <p>The children work in groups of three for this task. Ask each child to write a digit on their whiteboard. This will be the number they keep for this round of questions. The children must arrange themselves based on the criterion you call out. You could turn it into a game by giving points for correct answers. Use the language of comparison and ordering in the criteria, e.g. Arrange yourselves into a number larger/smaller than 632, a number between 250 and 350, etc. If a group cannot make a number they do not get a point. If however they could have made a number but did not identify this, open it up to another group to use the numbers to gain a bonus point.</p>



## Numeracy and Mathematics Progression and Support - First Level Pathway 3

Put 3 digit numbers in order by looking at place value	correctly and identify constituent parts of numbers		
Count on and back in steps of 100 from any number up to 1000	<ul style="list-style-type: none"> <li>• I can compare and order numbers by looking at the digit with the highest value first and know that this is the digit in the furthest left position of the number</li> <li>• 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 them</li> <li>• I can write the number names in words to 1000</li> </ul>		
10, 100 more and less within numbers to 1000			
Write number names for numbers up to 1000			
Continue a sequence of 3 digit and 4 digit numbers			

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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
<p><b>Recall</b> Addition and Subtraction facts for all numbers to 20, i.e. <math>9 + 8</math>, <math>17 - 9</math>, drawing on inverse operations</p> <p>Sums and differences of multiples of 10, within 1000, i.e. <math>50 + 80</math>, <math>120 - 90</math></p> <p>Pairs of two-digit numbers with a total of 100, i.e. <math>32 + 68</math> or <math>32 + \square = 100</math></p> <p>Number pairs with multiples of 5 with totals to 100, i.e. <math>65 + 35</math></p> <p>Complementary addition - Number pairs with two digit numbers to make the next multiple of 100, i.e. <math>520 + \Delta = 600</math></p> <p>Addition doubles for multiples of 10 with totals up to 1000, i.e. <math>400 + 400 = 800</math></p> <p>Ordinal numbers to 100<sup>th</sup> 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><b>I have explored adding and subtracting by using concrete materials and pictorial representations, i.e. ten frames, rekenreks, number lines 100 square, drawings etc.</b></p> <p><b>I can count on and back using a variety of different strategies</b></p> <p><b>I can confidently add and subtract mentally for numbers 0 – 100, using a variety of strategies</b></p> <p><b>I can justify my choice of strategy, aiming to use the most effective method for each calculation</b></p> <p><b>I can add and subtract mentally for 1 digit numbers to or from whole numbers with up to 3 digits</b></p> <p><b>I can use written format for numbers with up to 2 digits added to or subtracted from 3 digits</b></p> <ul style="list-style-type: none"> <li>• I can confidently use and apply extended addition vocabulary confidently</li> <li>• I can estimate what I think an answer is going to be near and can check it after to see if my answer is sensible</li> <li>• I can select and use the most appropriate strategy for solving addition and subtraction problems</li> <li>• I can solve a calculation using more than one strategy and can talk about which one was easiest and quickest</li> <li>• I can use number facts and a variety of mental models to work out addition and subtraction calculations; at least 2-digit numbers and pairs of multiples of 10, 100 and 1000</li> <li>• In written format I can add and subtract horizontally and vertically, whole 2 and 3 digit numbers to whole 3 digit numbers within 1000 (no bridging through 10)</li> <li>• In written format I can add and subtract horizontally and vertically, whole 2 and 3 digit numbers to/from whole 3 digit using decomposition and partitioning within 1000, including bridging</li> <li>• I can create a complete number sequence by repeatedly adding or subtracting a number; in multiples of 10 and other helpful numbers</li> <li>• I can use pictures, jottings and models to work out and record my addition and subtraction calculations</li> <li>• I can apply all learnt skills in word problems</li> </ul> <p><b>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 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.</b></p>	<p><b>Add and Subtract</b> HAM Teaching Cards AS1.4c, AS1.8c, AS1.8d, AS1.9b, AS1.10b, AS1.11</p> <p><b>Addition</b>  H4 Teacher's Notes pgs 48 – 60  H4 Tbk pgs 7 – 10  TJ 1a Ch 5 Ex 3 Ex 4 Ex 5 Ex 6 Ex 7 pgs 51 – 59</p> <p><b>Subtraction</b>  H4 Teacher's Notes pgs 64 – 79  H4 Tbk pgs 11 – 17  H4 Wbk pg 9  TJ 1a Ch 7 Ex 3 pg 72 – 73  TJ 1a Ch 9 Ex 3 Ex 4 Ex 5 pgs 85 – 88  <a href="http://www.mathsisfun.com/worksheets/print.php?w=1755&amp;ID=15663&amp;OL=y">http://www.mathsisfun.com/worksheets/print.php?w=1755&amp;ID=15663&amp;OL=y</a>  <a href="http://www.mathsisfun.com/worksheets/print.php?w=34642&amp;ID=27204&amp;OL=y">http://www.mathsisfun.com/worksheets/print.php?w=34642&amp;ID=27204&amp;OL=y</a>  S.E.A.L. Approaches as per Facile planner</p>	<p><b>Write</b> HAM Question Bank AS1.8c, AS 1.8d, AS 1.9b , AS1.10b</p> <p><b>Write</b> TJ 1a Ch 5 The 3 R's pg 61</p> <p><b>Write</b> TJ 1a Ch 7 The 3 R's pg 74</p> <p><b>Write</b> TJ 1a Ch 9 The 3 R's pg 89</p> <p><b>Say</b> Carry out a 'Number Talk' focussing on the strategies within the pathway. Do this across the week but focus in on pre-set groups of children for assessment each day to ensure that you can assess them in a manageable way.</p> <p><b>Do and Say</b> On the board write calculations which involve adding two 2-digit numbers. Children show the answer using number fans. They can compare their answers and discuss their strategies with each other. Allow time for the children to talk about their strategies as this will show if they can demonstrate understanding. Extend to adding 2 and 3 digit numbers if appropriate.</p>

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

<p><b>Skills</b> (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>Count on and back from a single digit number in 3s and 4s within 1000, i.e. Start at 2 and count in 3s</p> <p>Add groups of small numbers by starting with the largest number or <b>reordering</b> to make pairs that are multiples of ten or near multiples, i.e.  <math>23 + 4 + 7 + 5 =</math>  <math>23 + 7 + 5 + 4</math></p> <p>Add groups of small numbers, i.e. <math>5 - 3 + 2</math></p> <p>Add or subtract two digit numbers which do not bridge 10s or 100s i.e. <math>34 + 65</math>, <math>68 - 35</math></p> <p>Add or subtract two digit numbers which bridge 10s, i.e. <math>28 + 55</math></p> <p>Add near doubles beyond totals of 100, i.e. <math>55 + 57</math>, <math>60 + 70</math></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 or subtract multiple of 10 or 100 to or from a three digit number up to 1000, i.e. <math>270 + 60</math>,</p>			
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## Numeracy and Mathematics Progression and Support - First Level Pathway 3

<p>720 - 50</p> <p><b>Making Tens -</b> Add or subtract near tens to or from a two or three digit number within 1000, e.g.  <math>16 + 19</math> as  <math>16 + 20 - 1</math>,  <math>133 - 111</math> as  <math>133 - 110 - 1</math></p> <p>Add near doubles within totals of 1000, e.g.  <math>130 + 140</math>,  <math>390 + 400</math></p> <p>Add two digit numbers to three digit numbers, i.e.  <math>123 + 22</math>, then bridging the 100s boundary, i.e.  <math>227 + 85</math></p> <p>Use knowledge of place value to <b>partition</b> numbers for addition and subtraction, i.e.  <math>244 + 27 =</math>  <math>200 + 40 + 20 + 7 + 4</math></p> <p><b>Chunking -</b> Add or subtract in chunks of <b>friendly numbers</b>, i.e.  <math>660 + 43 =</math>  <math>660 + 40 + 3</math>  An empty number line can be used to visualise this</p> <p><b>Rounding and adjusting -</b> 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.  <math>340 + 18 =</math>  <math>340 + 20 - 2</math></p>			
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**Renfrewshire Council**  
**Numeracy and Mathematics Progression and Support - First Level Pathway 3**

**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
<p><b>Recall</b></p> <p>Multiplication facts 2, 3, 4, 5 and 10 times tables and associated division facts. Build up to 6, 7, 8 and 9 after initial teaching</p> <p>Fact families for multiplication/division, i.e.</p> <p><math>2 \times 3 = 6</math>  <math>3 \times 2 = 6</math>  <math>6 \div 2 = 3</math>  <math>6 \div 3 = 2</math></p> <p>Doubles of multiples of 10 and 100 and their corresponding halves, i.e.</p> <p>Double 90</p> <p>Recall whether a number will be divisible by two by considering whether it is even or odd. Look at units digit to decide</p> <p>Odd and even numbers to 1000</p> <p><b>Skills</b> (mentally, with jottings and materials if needed)</p> <p>Double any multiple of 5 up to 100, i.e. 75</p> <p>Halve any multiple of 10 up to 200, i.e. halve 170</p> <p>Multiply one digit number or two digit numbers by 10 or 100, i.e.</p> <p><math>7 \times 100</math>,  <math>46 \times 10</math>,  <math>54 \times 100</math></p>	<p><b>I have had opportunities to explore concrete materials and pictorial representations in relation to grouping and sharing, building the concepts of multiplying and dividing</b></p> <p><b>I can count in multiples using different strategies including using arrays as a visual representation</b></p> <p><b>I can share different quantities using a variety of strategies</b></p> <p><b>I can multiply mentally by 6, 7, 8 and 9 times tables</b></p> <p><b>I can multiply by 100 and multiples of 10</b></p> <p><b>I can use the written format for multiplying 2-digit numbers by a single digit</b></p> <p><b>I can divide 2-digit numbers with remainders (by grouping)</b></p> <p><b>I can use multiplication and division in real-life contexts</b></p> <ul style="list-style-type: none"> <li>• I can use and apply extended multiplication vocabulary</li> <li>• I can put equal groups into an array as a means to visualise the multiplication</li> <li>• I can compare arrays and know which are the same, i.e. 3 rows of 4 and 4 rows of 3</li> <li>• I can count in 9s, 8s, 7s, and 6s, to form the sequence for the 9, 8, 7 and 6 times tables</li> <li>• I can recall multiplication and division facts for 6, 7, 8 and 9 times tables and I am becoming increasingly confident</li> <li>• I can find and discuss patterns within and between times-tables</li> <li>• I can recall multiplication and division facts for all tables- 2, 3, 4, 5, 6, 7, 8, 9 and 10</li> <li>• Using my knowledge of table facts and multiplying by ten, I can create new multiplication facts, e.g. (<math>3 \times 4 = 12</math> so <math>30 \times 4 = 120</math> so <math>300 \times 4 = 1200</math>)</li> <li>• Using my knowledge of table facts and multiplying by a hundred, I can create new multiplication facts, e.g. (<math>3 \times 4 = 12</math> so <math>300 \times 4 = 1200</math>)</li> <li>• I can double any 2-digit number by splitting it into tens and ones (e.g. <math>24 \times 2 = 20 \times 2</math> and <math>4 \times 2</math>)</li> <li>• In written format (algorithm) I can multiply 2 and 3 digit numbers by a single digit</li> <li>• I can use and apply extended division vocabulary</li> <li>• I know what the term remainder means</li> <li>• In written format (algorithm) I can divide 2 digit numbers mentally by a single digit (with and without remainders)</li> <li>• I can select and use the most appropriate strategy for solving multiplication and division problems.</li> <li>• I can use a calculator to solve multiplication and division problems</li> <li>• I can multiply horizontally and vertically using times table facts</li> <li>• I can lay out calculations correctly on squared paper</li> </ul>	<p><b>Multiply and Divide</b></p> <p>HAM Teaching Cards  MD1.5c, MD1.7c,  MD1.9a, MD1.9b,  MD1.10, MD1.11</p> <p><b>Multiplication</b></p> <p>H4 Teacher's Notes  pgs 82 – 108</p> <p>H4 Number Wbk  pgs 10 – 17</p> <p>H4 Tbk pgs 18 – 34</p> <p>TJ Level B Ch 7  (Revision)</p> <p>TJ 1b Ch 3</p> <p>Ex 1  Ex 2  Ex 3  Ex 4  Ex 5  Ex 6 pgs 21 – 30</p> <p>TJ 1b Ch 10</p> <p>Ex 1  Ex 2  Ex 3  Ex 4  Ex 5  Ex 6 pgs 101 – 113</p> <p>TJ 1b Ch 12</p> <p>Ex 1  Ex 2  Ex 3  Ex 4  Ex 5  Ex 6 pgs 123 – 135</p> <p>TJ Level C Ch 5</p> <p>Ex 1  Ex 3  pgs 50 – 53, 57</p> <p><a href="http://www.mathsisfun.com/timestable.html">http://www.mathsisfun.com/timestable.html</a></p>	<p><b>Multiply and Divide</b></p> <p><b>Write</b></p> <p>HAM Question Bank 1.7c, MD 1.9a &amp; b, MD 1.10</p> <p><b>Say</b></p> <p>Set the timestable to be practised. Children stand and as they take their turn to call out the next station in the sequence they can perform their Counting Ninja pose. Children continue calling out in sequence until they reach the end of the line. Repeat this for a range of different starting numbers. Count backwards with 2, 3, 4, 5 and 10 timestables.</p> <p><b>Do</b></p> <p>Give the children a number and ask them to create arrays for that total. It is appropriate to provide counters or cubes for the children to act this out.</p> <p><b>Do</b></p> <p>Give the children a number and ask them to build multiplication and division facts around it, i.e. 20 is the number so:</p> <p><math>4 \times 5 = 20</math>  <math>5 \times 4 = 20</math>  <math>20 \div 4 = 5</math>  <math>20 \div 5 = 4</math></p>

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

<p>Find the total number of objects when they are organised into groups of 2, 3, 4, 5 or 10 (build up to groups of 6, 7, 8 and 9 after initial teaching)</p> <p>Find unit fractions of numbers and quantities, e.g. <math>\frac{1}{2}</math> of 20, <math>\frac{1}{4}</math> of 16 using known table facts</p> <p>Partitioning in multiplication - multiply the tens, multiply the ones then add, i.e. <math>12 \times 5 = (10 \times 5) + (2 \times 5)</math></p> <p>Divide by grouping and sharing</p>	<ul style="list-style-type: none"> <li>I can apply all learnt skills in word problems</li> </ul> <p><b>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.</b></p> <p><b>Important Reminder</b></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><b>Division</b></p> <p>H4 Teacher’s Notes pgs 112 – 138</p> <p>H4 Number Wbk pgs 18 – 22</p> <p>H4 Tbk pgs 36 – 51</p> <p>TJ Level B Ch 9 (Revision)</p> <p>TJ 1b Ch 5 Ex 1 Ex 2 Ex 3 Ex 4 Ex 5 pgs 47 – 59</p> <p>TJ 1b Ch 14 Ex 1 Ex 2 Ex 3 Ex 4 Ex 5 Ex 6 Ex 7 Ex 8 Ex 9 pgs 145 - 168</p> <p>TJ Level C Ch 5 Ex 2 Ex 4 pgs 54 – 56, 58 – 59</p> <p><a href="http://www.mathsisfun.com/numbers/division.html">http://www.mathsisfun.com/numbers/division.html</a></p> <p><a href="http://www.mathsisfun.com/numbers/division-remainder.html">http://www.mathsisfun.com/numbers/division-remainder.html</a></p> <p>S.E.A.L. Approaches as per Facile planner</p>	
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## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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><b>Recall</b> Understand that a single item can be shared into equal parts and each part is a fraction</p> <p><b>Skills</b> (mentally, with jottings and materials if needed)</p> <p>Find unit fractions of numbers and quantities, e.g. <math>\frac{1}{2}</math> of 20, <math>\frac{1}{4}</math> of 16 using known table facts</p> <p>Order fractions with the same denominator using a number line</p>	<p><b>I have used a variety of materials to explore how whole items and groups of items can be shared equally</b></p> <p><b>I can explain the what the denominator and the numerator represent in terms of shares of a whole thing</b></p> <p><b>I can describe and record tenths in a variety of different ways and locate them on a number line</b></p> <p><b>I can describe and record fifths in a variety of different ways and locate them on a number line</b></p> <p><b>I can work with whole numbers and fractions together</b></p> <p><b>I can compare the size of different fractions and understand where they lie on a 0 – 1 number line</b></p> <p><b>I can identify fractions to tenths</b></p> <p><b>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</b></p> <ul style="list-style-type: none"> <li>• I can find a tenth of a number of objects by sharing into 10 equal pieces</li> <li>• I can use place value and number facts to find a tenth of a number, e.g. links between HTO, column value, adding, doubling, multiplying</li> <li>• I can demonstrate with knowledge and understanding the place that a tenth has on the number line</li> <li>• I can count in tenths and record this on a number line</li> <li>• I can use knowledge and understanding of number facts to find a fifth of a number</li> <li>• I can show that one fifth is the same as 2 tenths</li> <li>• I can demonstrate and understand the place that a fifth has on the number line</li> <li>• I can count in fifths and record this on a number line</li> <li>• I recognise that 1 fifth and 2 tenths, (2 fifths, 4 tenths etc) are the same place on a number line</li> <li>• I know that the numerator is the top digit in a fraction</li> <li>• I know that the denominator is the bottom digit in a fraction</li> </ul>	<p>HAM Teaching Cards F 1.3b, 1.4b</p> <p>H4 Teacher's Notes pgs 154 – 165</p> <p>H4 Wbk pgs 23 – 28</p> <p>H4 Tbk pgs 61 – 62</p> <p>TJ 1b Ch 16 Ex 1 pgs 185 – 187</p>	<p><b>Write</b> TJ Assessment Pack MNU 1-07a &amp; 1-07b</p> <p><b>Write</b> HAM Question Bank F 1.3b, 1.4b</p> <p><b>Write</b> TJ Level B Ch 12 Topic in a Nutshell pg 151</p> <p><b>Write and Do</b> Display a group of numbers, including fractions (with the same denominator) on the board. Ask children to draw an empty number line on their boards then order the numbers and fractions on the number line.</p> <p><b>Say</b> In a large open space identify three different areas for 'bigger than', 'smaller than' and 'equal to'. Call out or write two fractions on a board, e.g. <math>\frac{3}{4}</math> is _____ <math>\frac{5}{10}</math>. The children work out which phrase will complete the statement and move to that area.</p> <p><b>Say, Write and Do</b> Call out pairs of equivalent fractions and ask children to give a thumbs up for correct and thumbs down for incorrect e.g. <math>\frac{2}{4}</math> and <math>\frac{1}{2}</math>, or <math>\frac{4}{10}</math> and <math>\frac{2}{5}</math>.</p>



## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**Topic & CfE Outcome - Fractions, decimal fractions and percentages**

Through taking part in practical activities including use of pictorial representations, I can demonstrate my understanding of simple fractions which are equivalent. **MTH 1-07c**

**Benchmarks**

- Uses the correct notation for common fractions to tenths, for example,  $\frac{1}{2}$ ,  $\frac{2}{3}$  and  $\frac{5}{8}$ .
- Compares the size of fractions and places simple fractions in order on a number line.
- Uses pictorial representations and other models to demonstrate understanding of simple equivalent fractions, for example  $\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$ .
- 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  $\frac{2}{4}$ .

Mental Strategies	Skills	Possible Resources	Assessment
<b>Recall</b> Know simple equivalences, i.e. $\frac{1}{2} = \frac{2}{4}$  Know common percentages, i.e. 100% = 1 whole $50\% = \frac{1}{2}$  <b>Skills</b> (mentally, with jottings and materials if needed)  Work out 50% by halving	<b>Understand simple equivalences in fractions <math>\frac{1}{2} = \frac{2}{4}</math></b>  <b>I use concrete and visual representations to aid my understanding</b>  <b>I can explain the role of the denominator and numerator by relating it to my concrete and pictorial representations of a fraction</b>  <b>I can compare and order simple fractions – halves, quarters, fifths and tenths and other simple fractions (including equivalents)</b>  <b>I recognise that a relationship exists between fractions and simple percentages</b>  <ul style="list-style-type: none"> <li>• I can build a fraction wall to show halves, quarters, fifths and tenths</li> <li>• I can compare and order halves, quarters, fifths and tenths using the fraction wall</li> <li>• I can compare and order halves, quarters, fifths and tenths using concrete items and pictorial representations, e.g. pizza, objects, number lines</li> <li>• I can work out which simple fractions are equal</li> <li>• I can build a fraction wall to show other simple fractions, e.g. thirds, quarters, eighths, sixths, twelfths</li> <li>• I can compare and order these simple fractions using the fraction wall</li> <li>• I can compare and order these simple fractions using other items, e.g. pizza, objects, number lines</li> <li>• I can work out which of these simple fractions are equal</li> <li>• I understand that shapes or objects can be shared into 100 equal parts and each is called one hundredth</li> <li>• I can identify one hundredth of a shape by counting, cutting and colouring</li> <li>• I recognise the % sign and when it is used in real-life</li> <li>• I know that 100% = 1 whole and can use associated vocabulary to describe 100%, i.e. all, whole, everything</li> <li>• I know that <math>50\% = \frac{1}{2}</math></li> </ul>	HAM Teaching Cards F1.5, F1.6a, F1.6b  TJ 1b Ch 16 Ex 2 Ex 3 pgs 188 – 191	<b>Write</b> HAM Question Bank F1.5, F1.6a & F1.6b  <b>Write</b> TJ Assessment Pack 1-07c  <b>Say and Write</b> Call out pairs of fractions and ask children to write down whether they have the same or a different value, e.g. $\frac{1}{2} = \frac{2}{4}$ Children can use materials or drawing to explore whether the fractions are equivalent or not.  <b>Say and Write</b> List several words used in the lesson, e.g. fractions, equal, ordering, greater than, less than, equivalent, denominator, numerator, fraction wall. Ask children to write at least three sentences correctly using these words to help someone else understand them.  <b>Say, Write and Do</b> Each child writes a hundredth fraction on their whiteboard. Ask them to line up in order from smallest to largest fraction. If they find someone else with their fraction, one of them needs to change it so each child has a different fraction. Repeat as many times as you wish.

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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
<b>Recall</b> Number bonds to 100  <b>Skills</b> (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 <b>reordering</b> 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. $5 + 8, 12 - 7$  <b>Making Tens -</b> Add or subtract near tens to or from a one or two digit number within 100, e.g. $60 + 9$ as $60 + 10 - 1$ , $33 - 11$ as $33 - 10 - 1$ Add near doubles within totals of 100, e.g. $13 + 14, 39 + 40$  Add two digit numbers to two digit numbers, i.e. $23 + 22$ , then	<b>I can talk about how and why money is used in everyday life and act out related scenarios</b>  <b>I can recognise all coins and notes to £20</b>  <b>I can use all coins and notes up to £20 to pay for items</b>  <b>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</b>  <b>I can work out change from £10</b>  <b>I can compare costs and work out what can be afforded</b>  <b>I can work out the total cost, how I should pay and any change I should receive when buying several items (to £10)</b>  <b>I can split a total equally to find the cost of one item</b>  <b>I have begun to understand the use of the decimal point in relation to money</b> <ul style="list-style-type: none"> <li>• I can discuss how different countries use different coins and notes</li> <li>• I can show an understanding that different coins and notes have different values and I can sort and place them in order of value</li> <li>• I can compare two prices (up to the value of £10) and work out which can be afforded with a given amount of money</li> <li>• I can select appropriate coins and notes to pay for an item up to £10, then £20</li> <li>• I can calculate the change for items up to £5, then £10 by counting on</li> <li>• I can calculate change up to £10</li> <li>• I can find the total cost of 2 or 3 items up to the value of £20 and select coins and notes that can be used to pay</li> <li>• I can say whether change will be required</li> <li>• I can calculate change by counting on</li> <li>• I can use the total cost of 2 or more items to find the cost of one by using known division facts (up to £10)</li> <li>• I can estimate and then work out change using my addition and subtraction strategies (e.g. counting on or using known number facts)</li> <li>• I can estimate and then work out the price difference between two items using my addition and subtraction strategies (e.g. counting on or using known number facts)</li> <li>• If I cannot afford an item I can work out how much more I need to buy it using my addition and subtraction strategies (e.g. counting on or using known number facts)</li> <li>• I can choose my strategy for working out the value of a group of coins and notes</li> <li>• I can use a variety of strategies to find a total of several amounts of money with or without jottings or written</li> </ul>	HAM Teaching Cards MF 1.5, 1.6, 1.7, 1.8  H5 Teacher's Notes pgs 51 – 54  H5 Tbk pgs 13 – 14  TJ 1b Ch7 Revision of Money pg 75  TJ Level C Ch3 Ex 1 Ex 2 pgs 26 – 29  TJ 1b Ch 7 Ex 1 Ex 2 Ex 3 pgs 76 – 82	<b>Write</b> TJ 1b Ch 7 pgs 83 – 84  <b>Write</b> TJ Level C Ch 3 Topic in a Nutshell pgs 33 Q1 - 6  <b>Say and Do</b> Display 'deals' related to items, for example, for cartons of fruit juice: $3 \times 1$ litre for £2.50, $2 \times 1.5$ litre for £2.60, $6 \times 200$ ml for £2.60. Children discuss with a partner which is the best deal and why. Then take suggestions from the class, and see if everyone agrees.  <b>Say and Do</b> Give children a takeaway menu. Groups make up an order for two food items and a drink. They find the total and decide whether to pay with a £5 or £10 note. Then they work out how much change they should receive.

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

<p>bridging the 10s boundary, i.e.  <math>27 + 35</math></p> <p>Use knowledge of place value to <b>partition</b> numbers for addition and subtraction, i.e.  <math>24 + 27 =</math>  <math>20 + 20 + 7 + 4</math></p> <p><b>Chunking</b> - Add or subtract in chunks of <b>friendly numbers</b>, i.e.  <math>66 + 43 =</math>  <math>66 + 40 + 3</math>  An empty number line can be used to visualise this</p> <p><b>Rounding and adjusting</b> - 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. <math>34 + 18 =</math>  <math>34 + 20 - 2</math></p>	<p>calculations</p> <ul style="list-style-type: none"> <li>• I can convert between pounds and pence to help me make sense of calculations</li> <li>• I can use my table facts to work out the total cost of several items if I know the price of one</li> <li>• I can share out an amount between a number of people, estimating first what each person will receive</li> <li>• I can estimate and then work out how many of an item I can afford to buy</li> <li>• I can talk about everyday situations and the types of money calculations people have to do such as 'buy one, get one free' (BOGOF), discount and price increase</li> <li>• I can interpret a money problem and work out what kind of calculations I may need to do to solve it</li> <li>• I can talk about the different ways to solve a money problem</li> </ul> <p><b>I can find the total of coins and notes to work out how much money there is</b></p> <p><b>I can find different ways to pay an exact amount using a variety of coins and notes</b></p> <p><b>I can use minimum number of notes/coins to make given amount up to £20</b></p> <ul style="list-style-type: none"> <li>• I can find the total of a group of the same type of coins or notes by counting on in equal steps, i.e. 1s, 2s, 5s, 10s, 20s and 50s)</li> <li>• I can find the total value of several coins and notes to £20</li> <li>• I can estimate the total of several coins and notes then count to check how close the estimate is</li> <li>• I can exchange notes for a different set which has the same value to at least £20</li> </ul>		
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## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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
<b>Recall</b> 1 hour = 60mins $\frac{3}{4}$ of an hour = 45mins $\frac{1}{2}$ an hour = 30mins $\frac{1}{4}$ an hour = 15mins  12 o'clock after am is noon  12 o'clock after pm is midnight  <b>Skills</b> (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	<b>I can engage in discussion about why time is important in our lives</b>  <b>I can tell the time on digital 12 hour and analogue clocks using half past, quarter past and quarter to</b>  <b>I understand the difference between am and pm</b>  <b>I can work out time durations</b>  <b>I can put several times in order using am and pm</b>  <b>I can read, interpret and create timetables to help in planning my own time</b> <ul style="list-style-type: none"> <li>• I can match an analogue time and a digital time</li> <li>• I can tell the time on digital and analogue clocks using half past, quarter past and quarter to</li> <li>• I can recognise analogue and digital clocks and talk about their differences</li> <li>• 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</li> <li>• I can recognise and show time on analogue and digital clocks using half past, quarter past and quarter to using analogue and digital 12 hour clocks.</li> <li>• I can answer simple problems involving time using half past, quarter past and quarter to using analogue and digital 12 hour clocks and durations in hours and minutes</li> <li>• I can calculate simple durations and start and finish times involving whole, half and quarter hours</li> <li>• I can read from analogue and digital displays using am and pm.</li> <li>• I have begun to explore the link between the 12 hour and 24 hour clocks</li> </ul>	HAM Teaching Cards T1.5b  TJ 1a Ch 11 Ex 2 pgs 100 – 103  TJ 1b Ch 4 Ex 1 Ex 2 Ex 3 Ex 4 pgs 33 – 42  TJ Level B Ch 13 Ex 2 Ex 3 Ex 4 pgs 155 – 161  TJ 1a Ch4 Ex 4 Qu 2 pgs 44 – 45  TJ LevelC Ch4 Ex1 Qu 1 pg 35  <a href="http://nrich.maths.org/4806">http://nrich.maths.org/4806</a>	<b>Write</b> HAM Question Bank T1.5c  <b>Do</b> Practise addition and subtraction strategies in the context of time by giving children a time and asking them to work out how many minutes to the next hour. 'It is 45 minutes past 1. How many minutes to 2 o'clock?' Adapt for any times, including crossing an hour. 'How many minutes from 45 minutes past 5 to 30 minutes past 6?'  <b>Write and Do</b> Each child writes a digital pm time on their whiteboard. Then all children in each group put themselves in order from earliest to latest.  <b>Do</b> Split the class into two groups and ask one group to write a digital time on their whiteboard. The other group writes a time in words. Ask the group who have written the digital time to walk around the class and try to find a match to their time with the children who wrote the time in words. If they cannot find an exact match, they try to find the match that is closest. Get the children to show you their boards. Discuss any that stand out as being incorrect but don't correct the children, ask the children to offer corrections.

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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><b>Recall</b> Recall all days of the week, months of the year and seasons in correct order</p> <p>7 days in a week 12 months in a year 365 days in a year 366 days in a leap year</p> <p>Know numbers before, after and between in relation to dates, i.e. 'What will the date be tomorrow if it is the 12<sup>th</sup> today?'</p> <p><b>Skills</b> (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 = 2hours 5.15pm to 5.45pm = <math>\frac{1}{2}</math> hour = 2 and <math>\frac{1}{2}</math> hours altogether</p>	<p><b>I can engage in discussion about days, months and seasons and relate this to how they are shown on different calendars</b></p> <p><b>I can plan events throughout the year to the specific date</b></p> <p><b>I understand the concept of a leap year</b></p> <p><b>I can write the date in different formats</b></p> <p><b>I can read, interpret and create timetables to help me plan my own time</b></p> <ul style="list-style-type: none"> <li>• I know how many days there are in each month and how many days are in a year, including leap years</li> <li>• I can explain what happens to the number of days in a leap year</li> <li>• I can relate the months of the year to the seasons (Winter – Dec, Jan, Feb) (Spring – March, April, May) (Summer – June, July, Aug) (Autumn – Sep, Oct, Nov)</li> <li>• I can write the date in word and number format without support</li> <li>• I know the ordinal number for each month, e.g. January = 1<sup>st</sup> month, February = 2<sup>nd</sup> month etc.</li> <li>• I can calculate durations in days and weeks by using a calendar</li> <li>• I can use a simple calendar and/or diary to plan events (create a simple itinerary)</li> <li>• I can identify important personal dates (school/family events) and discuss how far away/ soon it will happen.</li> <li>• I can select and use diaries and calendars from a given range to help plan time effectively</li> <li>• I have explored a range of different timetables which people use to help them organise their time</li> <li>• I can answer simple questions which involve interpreting information in timetables</li> <li>• I can use a timetable to work out simple durations and start and finish times</li> <li>• I can create my own timetable to show how I or others organise my/their time</li> <li>• I can calculate simple durations and start and finish times (involving whole hours, half hours and 15 minute intervals)</li> </ul>	<p>HAM Teaching Card T1.6</p> <p>H4 Teacher's Notes pgs 212 – 217</p> <p>H4 Measure Wbk pgs 16 – 18</p> <p>TJ 1b Ch 8 Ex 1 pgs 85 – 87</p> <p>TJ Level C Ex 4 pg 46</p> <p><a href="http://nrch.maths.org/g/979">http://nrch.maths.org/g/979</a></p> <p><a href="http://www.mathsisfun.com/measure/calendar-between.html">http://www.mathsisfun.com/measure/calendar-between.html</a></p>	<p><b>Write</b> HAM Question Bank T1.6</p> <p><b>Write</b> TJ 1b Ch 8 The 3R's Qu 1 – 7 pg 91</p> <p><b>Make and Do</b> Children use brochures, leaflets etc. from a venue (e.g. Xscape) to plan a day trip for themselves and a friend. At this stage use hourly intervals however you could extend this for children who need further challenge. Challenge - work out how much the day would cost; give the children a budget to work from etc.</p> <p><b>Make and Do</b> Children plan a timetable for a party together. They have to fit a range of activities into the plan (e.g. games such as musical bumps, pass the parcel, pinning the tail on the donkey, hide and seek), along with other activities (e.g. football, a disco, a puppet show), as well as teatime. Children can begin by deciding on a start time and end time. Finally, they can make invitations that include the event times.</p> <p><b>Say and Write</b> Split the class into several groups. Project a timetable onto the interactive whiteboard or provide a photocopy for each group. In turn, ask each team a question about the information in the timetable. Children win 10 points for a correct answer. Continue playing for a set amount of time and see which team wins.</p>

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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
<b>Recall</b> 1 minute = 60secs $\frac{1}{2}$ minute = 30secs  <b>Skills</b> (mentally, with jottings and materials if needed)  Count on and back to 60	<p><b>I can measure how long it will take to do something using non-standard, then standard units of time, showing that I have a sense of how long a second, minute or hour lasts</b></p> <p><b>I can estimate what I can do in different lengths of time, checking my estimates using a variety of different timers and units of time</b></p> <ul style="list-style-type: none"> <li>• I can demonstrate that I have a sense of how long seconds, minutes and hours last</li> <li>• I can use a variety of digital timers to measure time taken to complete tasks</li> <li>• I can confidently use a variety of time devices</li> <li>• I can choose appropriate units of time to measure a task</li> <li>• I can confidently estimate, measure and compare how long it will take to do certain tasks or actions using appropriate standard time measurements – seconds, minutes and hours</li> </ul>	TJ 1b Ch 8 Ex 2 Ex 3 pgs 88 – 90	<p><b>Write</b></p> <p>TJ 1b Ch 8 The 3R's Qu 8 – 12 pg 92</p> <p><b>Do</b></p> <p>Estimate how many of a particular skill you can do in 1 minute, 5 minutes etc. Complete activity and compare results.</p>

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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
<b>Recall</b> 1 metre = 100cm $\frac{1}{2}$ metre = 50cm $\frac{1}{4}$ metre = 25cm  <b>Skills</b> (mentally, with jottings and materials if needed)  When reading scales, work out the value of increments of the scale by reading two main points then count the number of intervals. Divide the amount between two main points by the number of intervals	<b>I can estimate, measure and compare different quantities in length</b>  <b>I can use measurement skills to solve real-life problems</b>  <b>I can select and use appropriate units of measure when solving problems, knowing the importance of accuracy</b> <ul style="list-style-type: none"> <li>• I can interpret a practical problem and decide which type of measure to use</li> <li>• I can solve a variety of practical problems by estimating and measuring</li> <li>• I know when I need to be accurate and when to round</li> <li>• I can decide the correct unit to use in reaching my answer</li> <li>• I can explain my results and record my findings in a variety of ways</li> <li>• I am beginning to use scales in solving problems</li> </ul> <b>Length</b> <ul style="list-style-type: none"> <li>• I can measure length with increasing accuracy using cm and m</li> <li>• I know that <math>\frac{1}{4}</math> m = 25cm</li> <li>• I can estimate length with increasing accuracy using standard units e.g. less than <math>\frac{1}{4}</math> m, about <math>\frac{1}{4}</math> m and more than <math>\frac{1}{4}</math> m</li> <li>• I can select and use a range of equipment to measure items and know when to approximate</li> <li>• I can convert between metres and centimetres and vice versa</li> <li>• I can measure to the nearest cm</li> <li>• I can read a variety of scales accurately</li> <li>• I can measure objects and link to real life</li> <li>• I have experienced using best practice when using measuring instruments</li> </ul>	HAM Teaching Cards M1.5 (Elements across all measure)  H4 Teacher's Notes pgs 223 – 225  H4 Measure Wbk pgs 19 – 22  TJ 1a Ch 17 Ex 3 Q4 – 8 pg 149  <a href="http://www.mathsisfun.com/measure/metric-length.html">http://www.mathsisfun.com/measure/metric-length.html</a>  Add <a href="http://nrich.maths.org/1266">http://nrich.maths.org/1266</a>  <b>Length</b>  H4 Teacher's Notes pgs 178 – 182  H4 Measure Wbk pgs 1 – 4  TJ Level B Ch 15 Ex 3 Ex 4 pgs 180 – 184  TJ 1b Ch 15 Revision of Length pg 174  TJ 1b Ch 15 Ex 1 pgs 175 – 176	<b>Write</b> TJ Level B Ch 15 Topic in a Nutshell pg 185  <b>Do</b> Children work in pairs to measure parts of their body e.g. head span, hand span, height. The children should choose the correct equipment for each body part. This could be done at the start and end of the year to allow children to compare the differences in their measurements over the session.



## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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
<b>Recall</b> 1 kg = 1000g $\frac{1}{2}$ kg = 500g $\frac{1}{4}$ kg = 250g  <b>Skills</b> (mentally, with jottings and materials if needed)  When reading scales, work out the value of increments of the scale by reading two main points then count the number of intervals. Divide the amount between two main points by the number of intervals	<b>I can estimate, measure and compare different quantities – weight</b>  <b>I can solve problems involving measures in real-life contexts</b>  <b>I can select and use appropriate units of measure when solving problems, knowing the importance of accuracy</b> <ul style="list-style-type: none"> <li>• I can estimate and weigh accurately using 1 kg, <math>\frac{1}{2}</math> kg and <math>\frac{1}{4}</math> kg</li> <li>• I have a sense of standard units of weight and can use this to estimate and make comparisons using 200g, 100g and 50g</li> <li>• I can use a range of equipment to weigh common items and know when to approximate</li> <li>• I know that <math>\frac{1}{4}</math> kg = 250g</li> <li>• I can convert between kg and g and vice versa</li> <li>• I can read a variety of scales accurately</li> <li>• I can weigh everyday items and objects and link this to real life contexts</li> </ul>	<b>Weight</b> H4 Teacher's Notes pgs 190 – 197  H4 Measure Wbk pgs 9 – 15  TJ Level B Ch 18 Ex 3 pg 202  TJ 1a Ch 22 Ex 3 pgs 191 – 192  TJ 1b Ch 19 Revision of Weight pg 211  TJ 1b Ch 19 Ex 1 pgs 212 – 213  <a href="http://www.ictgames.com/weight.html">http://www.ictgames.com/weight.html</a>	<b>Write</b> TJ Level B Ch 18 Topic in a Nutshell Pg 204  <b>Write</b> TJ 1a Ch 22 The 3 R's pgs 193  <b>Do</b> Give the children parcels that have a specified weight and a pan balance. Children use the weights to estimate what the parcel weighs then use the weights and the pan balance to find the correct weight. They should have a set of scales to check their answer too. They could list the weights that make the overall weight of the parcel, i.e. 350g = 200g, 100g and 50g weights.

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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
<b>Recall</b> 1 litre = 1000ml $\frac{1}{2}$ litre = 500ml $\frac{1}{4}$ litre = 250ml  <b>Skills</b> (mentally, with jottings and materials if needed)  When reading scales, work out the value of increments of the scale by reading two main points then count the number of intervals. Divide the amount between two main points by the number of intervals	<b>Capacity and Volume</b>  <b>I can estimate, measure and compare different quantities – capacity and volume</b>  <b>I can solve problems involving measure in real-life contexts</b>  <b>I can select and use appropriate units of measure when solving problems, knowing the importance of accuracy</b>  <ul style="list-style-type: none"> <li>• I can estimate and measure volume accurately using litres, <math>\frac{1}{2}</math> litre and <math>\frac{1}{4}</math> litre</li> <li>• I can record measurements with ml and litres</li> <li>• I have a sense of standard units of volume and can use this to estimate and make comparisons</li> <li>• I can use a range of equipment to measure volume common items and know when to approximate</li> <li>• I know that <math>\frac{1}{4}</math> litre = 250ml</li> <li>• I can convert between litres and ml and vice versa</li> <li>• I can read a variety of scales accurately</li> <li>• I can measure the volume of everyday items and link this to real life contexts</li> </ul>	<b>Volume</b> H4 Teacher's Notes pgs 219 – 221  H4 Tbk pgs 73 –75  TJ 1b Ch 19 Ex 2 Ex 3 pgs 214 – 216  <a href="http://www.mathsisfun.com/measure/metric-volume.html">http://www.mathsisfun.com/measure/metric-volume.html</a>	<b>Say</b> Set up several containers that appear different but hold the same volume of water. Ask the children to consider which container has the largest or smallest volume in it. Allow them to prove their statements by measuring the amount in a container that has a scale on it.  <b>Make</b> Children make a poster to give top tips for reading scales and for measuring accurately.

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**Topic & CfE Outcome - Measurement**I 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
<b>Recall</b> All multiplication facts from 2 to 10 times tables  <b>Skills</b> (mentally, with jottings and materials if needed)  Choose the most effective method of counting the number of squares in an area	<b>I can estimate, measure and compare different quantities – area</b>  <b>I can make comparisons and order measurements of different objects, using direct comparison and non-standard unites – area</b>  <b>I can calculate the area of a shape by counting squares and half squares</b>  <b>I can use <math>\text{cm}^2</math> and <math>\frac{1}{2} \text{cm}^2</math> correctly</b>  <b>I know and can demonstrate that different shapes can have the same area</b> <ul style="list-style-type: none"> <li>• I can calculate the area of a shape using half squares, adding halves together to make whole squares.</li> <li>• I can calculate the area of irregular shapes drawn on a grid by counting the squares, half squares and other fractions 'contained'.</li> <li>• I can use notation for area measured in squared centimetres correctly – <math>\text{cm}^2</math></li> </ul>	HAM Teaching Card M1.4d  H4 Teacher's Notes pgs 184 – 187  H4 Measure Wbk pgs 5 – 8  TJ Level C Ch 12 Ex 5 Qu 3 – 4 Ex 6 pgs 144 – 146  TJ 1b Ch 15 Ex 3 Qu 3 Ex 4 pgs 180 - 181	<b>Write</b> Question Bank M1.4d  <b>Write</b> TJ 1b Ch 15 The 3 R's Qu 5 – 7 pg 183  <b>Do</b> Each child chooses an object to draw around on cm squared paper. Children swap drawings and estimate the area covered by the drawing. Then that child counts the squares in the shape and writes the area and compares this against the estimation. Finally, they order all their pictures from smallest area to largest area.

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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><b>Recall</b> Read and identify numbers to 1000</p> <p><b>Skill</b> (mentally, with jottings and materials if needed)</p> <p>Compare numbers- biggest and smallest to 1000</p> <p>Order numbers from smallest to largest to 1000</p> <p>Match numbers to characters from other number systems</p> <p>Match number names to numbers (to 1000)</p>	<p>I can write the first few numbers in another number system and explain briefly how that system works</p> <p>I have investigated various number systems, e.g. Babylonian, Egyptian, Roman</p> <p>I can explain why numbers are important in my life and in the world around me</p>	<p><a href="http://nrich.maths.org/774">http://nrich.maths.org/774</a></p> <p><a href="http://www.mathsisfun.com/roman-numerals.html">http://www.mathsisfun.com/roman-numerals.html</a></p> <p><a href="http://www.educationscotland.gov.uk/studyingscotland/resourcesforlearning/learning/Contextsforstudy/greatscots/valentine.asp">http://www.educationscotland.gov.uk/studyingscotland/resourcesforlearning/learning/Contextsforstudy/greatscots/valentine.asp</a></p>	

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**Topic & CfE Outcome - Expressions and Equations**I 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
<b>Skills</b> (mentally, with jottings and materials if needed)  Count on and back in 1s, 2s, 3s, 4s, 5s and 10s to 1000 from any number. Build up to 6, 7, 8 and 9 after initial teaching	<b>Create complex patterns</b>  <b>I can explore and continue different visual patterns or designs</b>  <b>I can explore how visual patterns relate to number patterns</b>  <b>I can describe and continue a range of different number sequences</b> <ul style="list-style-type: none"> <li>• I can explain the rule for simple counting patterns</li> <li>• I can discover the rule for more complicated number sequences such as 1, 2, 4, 7, 11...</li> <li>• I can apply the rule for a number sequence to extend the pattern</li> </ul>	HAM Teaching Cards MD 1.4  H4 Teacher's Notes pgs 106  H4 Number Wbk pgs 16 – 17  TJ 1b Ch 13 Revision of Patterns pg 139	<b>Write</b> TJ Level B Ch 16 Topic in a Nutshell pg 191  <b>Write</b> TJ 1a Ch 23 The 3 R's pg 198

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**Topic & CfE Outcome - Expressions and Equations**Through 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><b>Recall</b> Odd and even numbers to 100 (then beyond)</p> <p>Read and identify numbers to 1000</p> <p><b>Skill</b> (mentally, with jottings and materials if needed)</p> <p>Use multiplication facts to skip count</p> <p>Compare numbers - biggest and smallest to 1000</p> <p>Order numbers from smallest to largest to 1000</p>	<p><b>I can create and complete number sequences by repeatedly adding or subtracting a number within a familiar number range</b></p> <p><b>I can recognise and explain the rule for number sequences containing:</b></p> <ul style="list-style-type: none"> <li>- <b>Multiplication tables 6, 7, 8 and 9</b></li> <li>- <b>ascending/descending</b></li> </ul> <ul style="list-style-type: none"> <li>• I can identify the next number before or after in a sequence</li> <li>• I can use my knowledge of number bonds to help me create a pattern</li> <li>• I can put numbers from this pattern in order</li> <li>• I can continue a sequence in steps of multiples of 10 and other helpful numbers</li> <li>• I can spot this sequence and can talk about the different patterns it creates in its numbers</li> <li>• I can create and display this pattern in a range of different ways</li> <li>• I can solve problems which involve this sequence</li> </ul>	<p>HAM Teaching Cards AS 1.4c</p> <p>TJ 1b Ch 13 Ex 1 pgs 140 – 141</p> <p>TJ Level B Ch 16 Ex 3 pgs 189 – 190</p> <p>TJ Level C Ch 13 Ex 1 Qu 4 - 9 pgs 150 – 151</p>	<p><b>Write</b> TJ 1b Ch 13 The 3R's pg 144</p> <p><b>Say</b> Children agree a start number and a step size. They stand in a group (facing each other if pairs, or in a circle if more) and pass a ball or bean bag as they say the next number in the sequence.</p> <p><b>Say and Make</b> Ask a group of four or five children secretly to come up with a pattern. Get the children to reveal their whiteboards one at a time. The other children try to work out what the pattern is.</p> <p><b>Write and Say</b> Set a start number and the size of each step, and challenge the children to continue the pattern of counting 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>

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**Topic & CfE Outcome - Expressions and 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><b>Recall</b> 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><b>Skills</b> (mentally, with jottings and materials if needed)</p> <p>Add or subtract a pair (or more) of numbers to demonstrate knowledge of equality, i.e. <math>23 + 3 = 18 + 8</math></p> <p>Find the value of a missing number by applying <b>inverse operations</b> -  <math>\Delta + 24 = 38</math>  <math>38 - 24 = 14</math>  <math>\Delta = 14</math></p> <p>Find the value of a missing number by applying <b>balancing</b> -  <math>\Delta + 24 = 38</math>  <math>\Delta + 24 - 24 = 38 - 24</math>  <math>\Delta = 14</math></p>	<p><b>I can use symbols to help describe number relationships – to 1000</b></p> <ul style="list-style-type: none"> <li>• I can compare numbers to decide which is bigger or smaller – to 1000</li> <li>• I can recognise the 'greater than' sign (<math>&gt;</math>) and 'less than' sign (<math>&lt;</math>)</li> <li>• I can complete a statement by inserting <math>&gt;</math> or <math>&lt;</math> to make it true, e.g. <math>789 \dots 547</math></li> <li>• I can complete a statement by adding a number to make it true, e.g. <math>259 &gt; \dots</math></li> <li>• I can find the value of missing symbols, e.g. <math>2 \times \Delta = 8</math></li> <li>• I can confidently use the symbols <math>=</math> and <math>\neq</math></li> </ul>	<p>HAM Teaching Cards NP 1.8b</p> <p>TJ 1b Ch 18 Ex 4 pgs 203 – 204</p> <p><a href="http://www.mathsisfun.com/equal-less-greater.html">http://www.mathsisfun.com/equal-less-greater.html</a></p> <p>S.E.A.L. Approaches as per Facile planner</p>	<p><b>Write</b> TJ 1b Ch 18 The 3R's pg 209</p> <p><b>Write and Say</b> On the board write a statement using <math>&lt;</math> or <math>&gt;</math> but use a question mark for one side, e.g. <math>? &gt; 100</math> or <math>120 &lt; ?</math> The children write ten examples which would complete it on their mini-whiteboards. Use their answers as a discussion point for the class.</p> <p><b>Say</b> Put five statements using the <math>&lt;</math> <math>&gt;</math> <math>=</math> signs on the board but include some errors. Ask the children to consider the statements and find the errors. Discuss the errors as a class and ask the children to correct them.</p>



## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**Topic & CfE Outcome - Expressions and 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><b>Recall</b> 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 <math>\times</math> and inversely, if the number goes from larger to smaller the operation could be either - or <math>\div</math></p> <p><b>Skills</b> (mentally, with jottings and materials if needed)</p> <p>Find the value of a missing number by applying <b>inverse operations</b> -  <math>\Delta + 24 = 38</math>  <math>38 - 24 = 14</math>  <math>\Delta = 14</math></p> <p>Find the value of a missing number by applying <b>balancing</b> -  <math>\Delta + 24 = 38</math>  <math>\Delta + 24 - 24 = 38 - 24</math>  <math>\Delta = 14</math></p>	<p><b>I can use a function machine involving more complex equations</b></p> <p><b>I can explain how to work out the answer</b></p> <p><b>I can create a rule for finding the missing number</b></p> <ul style="list-style-type: none"> <li>• I can 'work backwards' to find the missing number in a number machine</li> <li>• I can find the missing value by balancing either side of an equation</li> </ul>	<p>TJ 1b Ch 18 Ex 5 pgs 205 – 208</p> <p>S.E.A.L. Approaches as per Facile planner</p>	<p><b>Write</b> TJ 1b Ch 18 The 3 R's pg 210</p> <p><b>Say</b> Approach this activity as a 'Number Talk'. Present the children with a calculation with a missing value. Let the children solve this in their own way. Ask the children to share their strategies for finding a missing number.</p>

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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><b>I have begun to identify regular/irregular 2D shapes</b></p> <p><b>I can describe 2D shapes using the terms of sides, edges and corners</b></p> <p><b>I can describe 3D objects using the terms of faces(flat and curved), edges and vertices</b></p> <p><b>I can recognise 3D objects from 2D drawings</b></p> <p><b>I have explored an extended range of 3D objects and 2D shapes, discuss and compare their properties</b></p> <p><b>I can sort shapes according to set criteria and by my own criteria</b></p> <p><b>I can identify a right-angled triangle</b></p> <p><b>I can use knowledge of right angles to help compare and describe the angles in 2D shapes</b></p> <ul style="list-style-type: none"> <li>• I can use the terms sides and corners when discussing 2D shapes</li> <li>• I can use the terms face, edge and corner when describing a 3D shape</li> <li>• I have explored an extended range of 2D shapes and 3D objects</li> <li>• I can analyse and record my findings about properties of different 2D shapes and 3D objects</li> <li>• I can use my extended knowledge of shape to create a wider variety of tiling patterns and models and nets</li> <li>• I can find and check examples of right angles around me</li> <li>• I can sort angles according to whether they are right angles or smaller/larger than a right angle and talk about what I've done</li> <li>• I can talk about and check angles in 2D shapes and 3D objects</li> <li>• I can sort shapes according to the angles they have and discuss my findings</li> </ul>	<p>HAM Teaching Cards SPM 1.11 SPM 1.15 (Relate to angles in shapes such as squares, rectangles and right-angled triangles)</p> <p><b>2D Shape</b></p> <p>TJ Level B Ch 8 Ex 2 Qu 12 – 13 pg 85</p> <p>TJ 1a Ch 13 Ex 2 pgs 115 – 118</p> <p>TJ 1b Ch 9 Revision of 2 Dimensions pg 93</p> <p><b>3D Shape</b></p> <p>H4 Teacher's Notes pgs 227 – 236</p> <p>H4 Tbk pgs 76 – 81</p> <p>TJ 1b Ch 17 Revision of 3 Dimensions pg 194</p> <p>TJ 1b Ch 17 Ex 1 pgs 195 – 196</p>	<p><b>Write</b> TJ Assessment Pack MTH 1-16a</p> <p><b>Write</b> TJ 1a Ch 13 The 3 R's pg 119</p> <p><b>Write</b> TJ 1b Ch 17 The 3 R's pg 197</p> <p><b>Say</b> All children draw a 2D shape on their whiteboard. Encourage 'interesting' shapes such as re-entrant hexagons or irregular four-sided shapes (quadrilaterals). Children take turns to reveal their shape very slowly from behind a screen (use a book or a board). The others try to name the shape as soon as they can.</p> <p><b>Say</b> Display three 3D objects. Ask one child to describe one of these objects to the class without saying the name of the shape. Children use the clues to identify which of the three objects is being described. Repeat with other children and other sets of objects.</p> <p><b>Do</b> Get the children to build models using 3D objects. The children have to explain which shapes they have used. Ask the children what would happen if you substituted a particular shape with another. Get them to explain in terms of properties why a particular shape could or could not be substituted in the model.</p>

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**Topic & CfE Outcome - Properties of 2D shapes and 3D objects**I 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><b>I have experimented with a variety of 2D shapes to experience how they can or cannot tile</b></p> <p><b>I can create more complex tiling patterns using a variety of 2D shapes</b></p> <ul style="list-style-type: none"> <li>• I can use extended knowledge of shape to create a wider variety of tiling patterns and models with nets</li> </ul>	<p>HAM Teaching Cards MC 1.10</p> <p>H4 Teacher's Notes pgs 250 – 255</p> <p>H4 Shape and Handling Data Wbk pgs 5 – 6</p> <p>TJ 1b Ch 9 Ex 1 Qu 11 – 18 pgs 97 – 98</p> <p><a href="http://nrich.maths.org/4832">http://nrich.maths.org/4832</a></p>	<p><b><u>Write</u></b> TJ Assessment Pack MTH 1-16b</p> <p><b><u>Write</u></b> TJ 1b Ch 9 The 3 R's pg 99 – 100</p> <p><b><u>Say and Do</u></b> Give children a selection of shapes and ask them to sort them into a 'Can Tile' and 'Cannot Tile' pile. The children should then be asked to explain the properties of a particular shape and why it can or cannot tile.</p>

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**Topic & CfE Outcome - Angle, symmetry and transformation**I 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><b>I know that angles are measured in degrees and a right angle is 90°</b></p> <p><b>I can recognise a right angle</b></p> <p><b>I know that a quarter turn can also be called a 90° or right angle turn</b></p> <p><b>I can use compass points to help locate positions and follow directions</b></p> <p><b>I can create simple maps and plans for pathways</b></p> <p><b>I can record and interpret a route or journey using pictures, symbols and maps</b></p> <ul style="list-style-type: none"> <li>• I have explored and made different maps and plans of familiar and fantasy places</li> <li>• I understand that a map or plan shows a 2D representation from above of a real place</li> <li>• I have experimented with how to represent places or items with symbols and pictures</li> <li>• I can record directions as a set of instructions and can use symbols or initials to help, including compass points</li> <li>• I can describe journeys using a wide range of vocabulary including compass points</li> <li>• I can create a path on squared paper and can describe it to someone or follow the directions I am given by someone else to create a route</li> <li>• I can program a toy or computer program to make a journey</li> <li>• I recognise how a right angle is represented</li> <li>• I can show that I know an angle is a measure of a turn</li> <li>• I can identify examples of right angles in the environment</li> </ul>	<p>HAM Teaching Cards SPM 1.16</p> <p>H4 Teacher's Notes pgs 257 – 263</p> <p>H4 Shape and Handling Data Wbk pg 7 – 10</p> <p>TJ 1a Ch 20 Ex 2 Qu 5 – 11 pgs 177 – 178</p> <p>TJ 1b Ch 6 Ex 2 Ex 3 pgs 69 – 72</p>	<p><b><u>Write</u></b> TJ Assessment Pack MTH 1-17a</p> <p><b><u>Write</u></b> TJ 1a Ch 20 The 3 R's pg 179</p> <p><b><u>Write</u></b> TJ 1b Ch 6 The 3 R's pgs 73 – 74</p> <p><b><u>Say and Write</u></b> Display a large 5 × 5 grid and draw a pathway using a continuous line. Children work in pairs to write instructions to follow the line. Discuss the different language they used to describe it. Did they choose turns left/right, quarter turns clockwise or anti-clockwise or compass points? Challenge them to describe the path again using different language.</p> <p><b><u>Do</u></b> Draw a route with turns on the board. Describe each step of the route using appropriate direction statements. Ask children to indicate if they think the statement matches the route or not by showing thumbs up or down.</p>

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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
<b>Recall</b> The horizontal location point is noted before the vertical point	<b>I have explored real-life circumstances where grid references are used</b>  <b>I can use grid references to discuss points on a grid</b> <ul style="list-style-type: none"> <li>• I can talk about where in real life I might need to interpret a grid to locate a position</li> <li>• I can describe a position within a grid</li> <li>• I can interpret and use grids</li> <li>• I can create a grid and give instructions to others about using it</li> </ul>	HAM Teaching Cards SPM 1.9 (Revision of activities and associated written tasks)  H4 Teacher's Notes pgs 238 – 240  H4 Shape and Handling Data Wbk pg 1  H4 Tbk pg 82  TJ 1b Ch 11 Ex 1 Ex 2 pgs 115 – 121  <a href="http://nrich.maths.org/1259">http://nrich.maths.org/1259</a>	<b>Write</b> HAM Question Bank SPM 1.9  <b>Write</b> TJ 1b Ch 11 The 3 R's pg 122  <b>Write</b> TJ Assessment Pack MTH 1-18a  <b>Write and Do</b> Draw a 10 × 10 grid with grid references on the board and write a letter in every cell. Use the grid references as a code to create a word. For example, E7 B5 G1 might represent CAT. Children work in pairs to solve the code and find the word. Once you have demonstrated a few examples, ask children to make up their own code words. Children can challenge each other to find the grid references from the given word and vice versa.

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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><b>I can identify and mark lines of symmetry on a range of different shapes and patterns</b></p> <p><b>I can complete and create more complex symmetrical patterns and pictures</b></p> <ul style="list-style-type: none"> <li>• I can explain what a line of symmetry means</li> <li>• I can visualise lines of symmetry when given a shape</li> <li>• I can look at a shape and mark on one then two lines of symmetry and check with a mirror</li> <li>• I can sort shapes and a range of objects according to the number of lines of symmetry; zero, one and two lines</li> </ul>	<p>HAM Teaching Card SPM 1.12</p> <p>H4 Teacher's Notes pgs 242 – 249</p> <p>H4 Shape and Handling Data Wbk pgs 2 – 4 and 11 – 12</p> <p>H4 Tbk pgs 83 – 84</p> <p>TJ Book 1b Ch 2 Revision of Symmetry pg 9</p> <p>TJ Book 1b Ch 2 Ex 1 Ex 2 pgs 10 – 17</p>	<p><b>Write</b> HAM Question Bank SPM 1.12</p> <p><b>Write</b> TJ Book 1b The 3 R's Ch 2 pg 18</p> <p><b>Write</b> TJ Assessment Pack MTH 1-19a</p> <p><b>Do</b> Draw around 2D shape templates and then cut out the shapes. They test the shapes for lines of symmetry by folding them and drawing in any lines of symmetry they find. They sort their paper 2D shapes according to the number of lines of symmetry and stick them in these sets on a piece of paper. They write the name of each shape beside it.</p> <p><b>Make and Do</b> Give each pair or small group a piece of squared paper. Draw a 4 × 4 grid on the board and colour in or mark symbols or shapes in some of the cells. Challenge children to use this as one half of a symmetrical picture – they can choose any edge as the line of symmetry – and then to complete the symmetrical picture. Next, challenge them to use your picture as one quarter of a shape which has two lines of symmetry and they create the complete picture. Compare their pictures and discuss anything interesting they notice.</p>

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

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. <b>MNU 1-20a</b>															
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. - 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><b>Recall</b></p> <p>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><b>Skills</b></p> <p>(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?’</p> <p>‘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><b>I can construct a bar graph with an overall title, labelled axes and bars spaced evenly.</b></p> <p><b>I can discuss an appropriate scale for vertical axis</b></p> <p><b>I can label axes with one box representing two units</b></p> <p><b>I can interpret information from more complex bar graphs, i.e. scale of one box representing two units</b></p> <p><b>I can use a tally chart</b></p> <ul style="list-style-type: none"><li>• I have investigated how one symbol can represent two units in a pictogram</li><li>• I can create my own pictogram with title, labels and a key</li><li>• I understand the links between a block graph and a bar graph</li><li>• I can create a bar graph from a block graph</li><li>• I can make sensible choices about the scale to use on my bar graph axis</li><li>• I can create my own bar graph with a title and clearly labelled axes</li><li>• I can ask and answer questions about the information shown in a pictogram or bar graph</li></ul>	<p>HAM Teaching Card IH 1.6</p> <p>TJ Book 1b Ch 20 Revision of Statistics pgs 221 – 222</p> <p>H4 Teacher’s Notes pgs 268 – 271</p> <p>H4 Tbk pgs 87 – 91</p> <p>H4 Wbk pgs 15 – 16</p> <p>TJ Level B Ch 11 Ex 1 Qu 7 – 11 Ex 3 Qu 4 – 5 pgs 125 – 134</p> <p>TJ 1a Ch 19 Ex 1 Qu 8 – 10 Ex 2 Qu 3 – 4 Ex 3 Qu 6 – 7 pgs 164 – 170</p>	<p><b>Write</b></p> <p>HAM Question Bank IH 1.6</p> <p><b>Write</b></p> <p>TJ 1a Ch 19 ‘The 3R’s’ pgs 171 – 172</p> <p><b>Write</b></p> <p>TJ Assessment Pack MNU 1-20a</p> <p><b>Say and Write</b></p> <p>Display a bar graph which is missing a title and axis labels. Tell children to discuss what is missing with a partner. They write their answers on their whiteboards, then all show you at the same time. Discuss the answers provided. Choose some that are not quite precise enough and discuss what could improve them.</p> <p><b>Say</b></p> <p>Write on the board: 1 square represents: a) 1 object, b) 2 objects. Show children a grid which has 10 squares available for the height of the graph. Now read out some data and discuss with children which scale they would use (a or b). Data examples include:</p> <ul style="list-style-type: none"><li>• Cars in a car park: 15 red, 10 silver, 2 blue.</li><li>• A class’s favourite dinners: 9 spaghetti bolognaise, 8 chicken curry, 4 macaroni, 5 fish.</li></ul> <p><b>Write</b></p> <p>Display this table showing the contents of a basket of fruit at a harvest festival:</p> <table><tr><th>Fruit</th><th>Number</th></tr><tr><td>Apple</td><td>18</td></tr><tr><td>Banana</td><td>7</td></tr><tr><td>Orange</td><td>11</td></tr><tr><td>Peach</td><td>10</td></tr><tr><td>Melon</td><td>6</td></tr></table> <p>Children draw a bar chart showing the information in the table. This is one example of data that can be used, however, consider the cultural capital that the children have and choose an appropriate data set to reflect this.</p>	Fruit	Number	Apple	18	Banana	7	Orange	11	Peach	10	Melon	6
Fruit	Number														
Apple	18														
Banana	7														
Orange	11														
Peach	10														
Melon	6														



## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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.
- 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><b>Recall</b> Vocabulary of 'altogether', 'difference', 'more than' and 'less than'</p> <p><b>Skills</b> (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>Skip counting in fives to count tallies</p>	<p><b>I can sort and organise objects based on my own and others' criteria and talk about what was done</b></p> <p><b>I can create and use questions to find out information and display findings in different ways</b></p> <p><b>I have explored how information can be sorted and displayed in different ways, talking about what was done – One criterion: pictograms and block diagrams</b></p> <p><b>I have explored how information can be sorted and displayed in different ways, talking about what was done – One or two criteria: Venn, Carroll and tree</b></p> <p><b>I can use tally marks to collect responses</b></p> <ul style="list-style-type: none"> <li>• I can ask and answer questions about the information displayed in the environment</li> <li>• I can give examples of when I have gathered and sorted information</li> <li>• I have explored real-life charts, diagrams and graphs</li> <li>• I can show understanding of what needs to be found out and the kinds of questions to ask</li> <li>• I can show an awareness of the kinds of answers that may be given and how to record them</li> <li>• I can gather information through questioning in an organised way</li> <li>• I can record and display findings in a different ways by using: tallies, lists and tables</li> <li>• I can gather and organise information to create a pictogram</li> <li>• I can show understanding that the information from a pictogram can also be presented in a block graph</li> <li>• I can gather and organise information to create a block graph</li> <li>• I can ask and answer questions about pictograms and block graphs</li> <li>• I can mark tally marks correctly in groups of 5</li> </ul>	<p>HAM Teaching Cards IH 1.4a, IH 1.4b</p>	<p><b>Write</b> HAM Question Bank IH 1.4a, IH 1.4b</p> <p><b>Write</b> TJ Assessment Pack MNU 1-20b</p> <p><b>Make, Write and Do</b> Allow the children to sort a collection of items by their own criteria. Work with children to use coloured cubes or counters to create a block graph to represent the data they have sorted.</p> <p><b>Make, Say, Write and Do</b> Building on children's experiences of making pictograms and block graphs, ask them to think of something they want to find out about and to create a block graph or pictogram about it. Remind them to use labels for categories and to add a title.</p>

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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><b>I have extended my knowledge of graphs and their features</b></p> <p><b>I can select and use the most appropriate way to display information</b></p> <p><b>I can create tables and bar graphs</b></p> <p><b>I can use computer packages to create tables and bar graphs</b></p> <ul style="list-style-type: none"> <li>• I have discussed and compared the key features of tables, charts, diagrams and graphs</li> <li>• I have explored different ways to present the same information</li> <li>• I can choose which table, chart, diagram or graph I will use to present my information</li> <li>• I can choose the medium to present my information according to my audience</li> <li>• I recognise how my table, chart, diagram or graph has helped me to solve a problem or answer a question</li> <li>• I can ask and answer questions about tables, charts, diagrams and graphs created by myself and others</li> </ul> <p><b>I can devise and use simple questionnaires to collect information</b></p> <p><b>I can carry out a survey to collect information</b></p> <p><b>I can display results in a variety of ways</b></p> <ul style="list-style-type: none"> <li>• I can recognise when I might need to gather information to answer questions or solve problems</li> <li>• I have explored what kind of information I need to gather in order to answer a problem or address a question</li> <li>• I have thought about the kinds of questions I need to ask to get information in the right format</li> <li>• I can decide how to collect and record my information</li> <li>• I can gather my information, talk about my findings and decide what I need to do next to answer my question or solve my problem</li> </ul>	<p>Link with MNU 1-20a and MNU 1-20b</p> <p>HAM Teaching Card IH 1.8</p> <p>H4 Teacher's Notes pgs 272 – 278</p> <p>H4 Shape and Handling Data Wbk pgs 17 – 18</p> <p>H4 Tbk pgs 89 – 90</p> <p>TJ 1b Ch 20 Ex 1 pgs 221 - 222</p> <p>HAM Teaching Card IH 1.7</p> <p>H4 Teacher's Notes pgs 278 – 284</p> <p>H4 Shape and Handling Data Wbk pgs 15 – 16, 19 – 22</p> <p>H4 Tbk pg 91 – 93</p> <p>TJ Level 1b Ch 20 Ex 1 pg 223</p> <p>TJ Level C Ch 6 Ex 1 pgs 69 – 71</p>	<p><b>Write</b> TJ Assessment Pack MTH 1-21a</p> <p><b>Write</b> TJ 1a Ch 25 Qu 3 The 3 R's pg 213</p> <p><b>Say, Make, Write and Do</b> Explain to children that they are going to do a survey to find out the most popular activities to be included in a school fun day. They decide which questions they should ask the class and how they will do this. Once they have all the information they need, they decide how to show this to everyone. They can choose any format they have learned about. When their displays are complete, take feedback from everyone's work. As a class evaluate the representations, in terms of clarity and ease of interpretation, and analyse the results. Ask children to make statements using the information in the different representations and also to ask each other questions about what they see.</p> <p><b>Write</b> HAM Question Bank IH 1.7</p> <p><b>Write</b> TJ 1a Ch 25 Qu 1 – 2 The 3 R's pg 213</p> <p><b>Write</b> TJ Assessment Pack MNU 1-20b</p> <p><b>Say and Write</b> Tell the children that you are going to design a dream lunch menu for school lunches so they have make a suitable questionnaire that they could use to survey other children. Get the children to work in pairs to come up with some questions that they think are suitable to ask. Their questions might require respondents to write down their food</p>

## Numeracy and Mathematics Progression and Support - First Level Pathway 3

			<p>preferences, for example, 'What is your favourite food?' 'What would you like to eat for dessert?' 'What would you not want on the school dinner menu?' Their questions could also require yes/no answers, for example, 'Do you think you should have a choice of fruit every day?' 'Should you have chips every day?' Take suggestions from the class for some of the questions, and agree which are the best ones to include.</p>
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## Numeracy and Mathematics Progression and Support - First Level Pathway 3

**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><b>I can talk about how likely something is to happen and justify my opinion</b></p> <p><b>I can use specific vocabulary to describe the likelihood of an event</b></p> <ul style="list-style-type: none"> <li>• I can use the words never, always and sometimes to describe the likelihood of events</li> <li>• I have explored and can use the vocabulary probable, likely/unlikely, certain/uncertain, possible/impossible, and fair/unfair. To describe the likelihood of an event occurring</li> <li>• I can give examples of things that are likely to happen, not likely to happen (unlikely) or impossible to happen</li> <li>• I can sort events according to likelihood</li> </ul>	<p>HAM Teaching Card IH 1.5 MC 1.15</p> <p>TJ Book 1b Ch 21 Ex 1 Ex 2 pgs 224 – 227</p>	<p><b><u>Write</u></b> HAM Question Bank IH 1.5</p> <p><b><u>Write</u></b> TJ 1b Ch 23 Qu 1 The 3 R's pg 231</p> <p><b><u>Write</u></b> TJ Assessment Pack MNU 1-22a</p> <p><b><u>Do</u></b> On the board write these headings: 'Never', 'Always', 'Sometimes' and 'Often'. Read out some statements; 'I walk to school.' 'I play on the computer.' 'I go to ballet lessons.' 'I go to school on a Saturday.' In pairs children discuss which category each statement belongs to, then show their answer by writing N, A, S or O on their whiteboard to show you.</p> <p><b><u>Say</u></b> Show the children that you are putting these cubes into a bag: 5 red, 1 white, 4 green, and 3 yellow. Shake the bag to mix up the cubes. Write the following statements on the board: If I take out one cube (without looking) is it likely or unlikely that I will select:          oo a green cube          oo a red cube          oo a yellow cube          oo a white cube?          Record the general consensus about each colour then take out one cube at a time and discuss with children how well the actual results matched their predictions. Ask if anyone can suggest why one colour is more likely than another colour.</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