Dunlop Primary School & ECC
Numeracy: Second Level Parent Booklet

Number and number processes
I have extended the range of whole numbers I can work with and having explored how decimal fractions are constructed, can explain the link between a digit, its place and its value.

MNU 2-02a

Example	**Methodology**
2·05 *2·36* *0·5* *2·45 - decimal fraction* $\frac{1}{2}$ *- common fraction* **Correct Use of Language** Say: two point zero five, not two point nothing five. two point three six not two point thirty-six. zero point five not point five. Talk about decimal fractions and common fractions.	Ensure the decimal point is placed at middle height.

Number and number processes
Having determined which calculations are needed, I can solve problems involving whole numbers using a range of methods, sharing my approaches and solutions with others.

MNU 2-03a

I have explored the contexts in which problems involving decimal fractions occur and can solve related problems using a variety of methods.

MNU 2-03b

Having explored the need for rules for the order of operations in number calculations, I can apply them correctly when solving simple problems.

MTH 2-03c

Example:

$$\begin{array}{r} 56 \\ +\,3_{1}9 \\ \hline 95 \end{array}$$

$$\begin{array}{r} 26 \\ \times 4 \\ \hline 104 \end{array}$$

$$\begin{array}{r} 47 \\ \times\, 5_{4}6 \\ \hline 282 \\ 2\,3_{1}50 \\ \hline 2632 \end{array}$$

Correct Use of Language

For multiplying by 10, promote the digits up a column and add a zero for place holder.
For dividing by 10, demote the digits down a column and add a zero in the units' column for place holder if necessary.

Methodology

When "carrying", lay out the algorithm as in the example.
Put the addition or subtraction sign to the left of the calculation.

When multiplying by one digit, lay out the algorithm as in the example.

The "carry" digit always sits above the line.

Decimal point stays fixed and the numbers move when multiplying and dividing.
Do not say, "add on a zero", when multiplying by 10. This can result in $3{\cdot}6 \times 10 = 3{\cdot}60$.

Number and number processes
I can show my understanding of how the number line extends to include numbers less than zero and have investigated how these numbers occur and are used.

MNU 2-04a

Term/Definition

Negative numbers

Example

–4

20°C

Correct Use of Language

Say negative four not, minus four.
Pupils should be aware of this as a common mistake, even in the media e.g. the weather.

Use minus as an operation for subtract.

Twenty degrees Celsius, not centigrade
Explain that it should be negative four, not minus four.

Dunlop Primary School & ECC
Numeracy: Second Level Parent Booklet

Fractions, decimal fractions and percentages
I have investigated the everyday contexts in which simple fractions, percentages or decimal fractions are used and can carry out the necessary calculations to solve related problems.

MNU 2-07a

I can show the equivalent forms of simple fractions, decimal fractions and percentages and can choose my preferred form when solving a problem, explaining my choice of method.

MNU2-07b

I have investigated how a set of equivalent fractions can be created, understanding the meaning of simplest form, and can apply my knowledge to compare and order the most commonly used fractions.

MTH 2-07c

Term/Definition

Numerator: number above the line in a fraction.
Showing the number of parts of the whole.

Denominator: number below the line in a fraction.
The number of parts the whole is divided into.

Example

2·45 decimal fraction
$\frac{1}{2}$ *common fraction*

Start with $4\frac{1}{10}$ *is written 4·1*
$7\frac{9}{10}$ *is written 7·9 etc.*

Then $3\frac{37}{100}$ *is written 3·37 etc.*

Finally $6\frac{3}{4}$ *is the same as* $6\frac{75}{100}$ *which is 6·75*

Correct Use of Language

$\frac{1}{4}$ - Emphasise that it is one divided by four.

Methodology

Emphasise the connection between finding the fraction of a number and its link to division (and multiplication).
Ensure that the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$ is highlighted. Use concrete examples to illustrate this. Show $\frac{1}{4}$ is smaller than $\frac{1}{2}$.
Pupils need to understand equivalence before introducing other fractions such as $\frac{1}{3}$ or $\frac{1}{5}$.

Accept all common language in use:
Five pounds eighty ,
Five pounds eighty pence,
Five eighty.

Ensure the decimal point is placed at middle height.

To find $\frac{3}{4}$ of a number, find one quarter first and then multiply by 3.

Simplifying fractions – Say, "What is the highest number that you can divide the numerator and denominator by?" Check by asking, "Can you simplify again?"
Finding equivalent fractions, particularly tenths and hundredths.

£5·80 – Say five pounds eighty to match the written form. **DON'T WRITE OR SAY** £5·80p. Say: two point zero five, not two point nothing five. (2·05) two point three six, not two point thirty-six.(2.36) zero point five not, point five. (0.5) Pupils should be aware of the phrases *state in lowest terms* or *reduce*. Talk about decimal fractions and common fractions to help your child make the connection between the two.	Starting with fractions, then the relationship with percentages, finally link percentages to decimals. 60% = $\frac{60}{100}$ = 0·6 Your child needs to be secure at finding common percentages of a quantity, by linking the percentage to fractions. e.g. 1%, 10%, 20%, 25%, 50%, 75% and 100%.

Time

I can use and interpret electronic and paper-based timetables and schedules to plan events and activities, and make time calculations as part of my planning.

MTH 2-10a

Term/Definition	**Methodology**
a.m. - ante meridian p.m. - post meridian 24 hour time Speed **Example** *Calculating duration.* *8:35am→4:20pm* *8:35am→9:00am = 25mins* *(9:00am→12:00noon = 3h)* *12:00noon→4:00pm = 4h* *4:00pm→4:20pm = 20mins* *7hours 45minutes* **Correct Use of Language** Be aware and teach the various ways we speak of time. 3:30pm Analogue – half past three in the afternoon. Digital - three thirty pm. Say zero two hundred hours. (Children should be aware of different displays, e.g. 02:00, 02 00 and 0200) eight kilometres per hour. *8km/h* sixteen metres per second. *16m/s*	When calculating the duration your child should clearly set out steps .

Dunlop Primary School & ECC
Numeracy: Second Level Parent Booklet

Measurement
I can use my knowledge of the sizes of familiar objects or places to assist me when making an estimate of measure.

MNU 2-11a

I can use the common units of measure, convert between related units of the metric system and carry out calculations when solving problems

MNU 2-11b

I can explain how different methods can be used to find the perimeter and area of a simple 2D shape or volume of a simple 3D object.

MNU 2-11c

Example

A1 = lb
= 12 × 4
= 48cm²

A2 = lb
= 5 × 4
= 20cm²

Total Area = A1 + A2
= 48 + 20
= 68cm²

1cm³=1ml
1000cm³ = 1000ml
= 1litre

Correct Use of Language

3cm²
Say 3 square centimetres not 3 centimetres squared or 3 cm two.

Abbreviation of *l* for litre.
Say 3 litres. *(3l)*

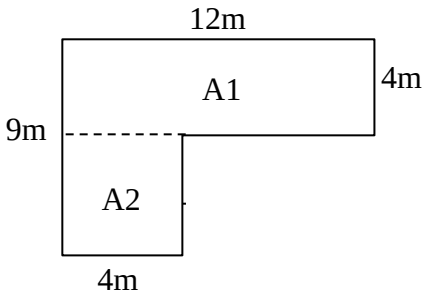
Abbreviation of ml for millilitres.
Say seven hundred millilitres. *(700ml)*

2.30m

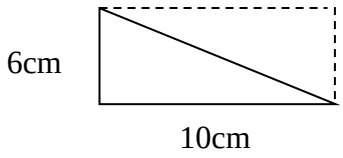
Methodology

To find the area of compound shapes:

- Split the shape into rectangles
- Label them as shown
- Fill in any missing lengths



5·43m *6·124kg* Your child should understand how to write measurements (in m, cm, kg, g), how to say them and what they mean e.g. 5 metres 43cm. Six kilograms and 124 grams, say six point one two four kilograms. Emphasise that perimeter is the distance around the <u>outside</u> of the shape.	

$A = l \times b$ Start with this and move to $A = lb$ when appropriate.  **DO NOT USE** $A = \frac{1}{2} l \times b$ or $A = \frac{1}{2} lb$ as this leads to confusion later on with the base and height of a triangle.	Complete the surrounding rectangle if necessary. Area of rectangle = 10×6 $= 60cm^2$ Area of Triangle = $\frac{1}{2}$ the Area of rectangle = $\frac{1}{2}$ of 60 $= 30cm^2$
$80\ cm^3$	Say 80 cubic centimetres **NOT** 80 centimetres cubed. Use litres or millilitres for volume with liquids. Use cm^3 or m^3 for capacity.

Patterns and relationships
Having explored more complex number sequences, including well-known named number patterns, I can explain the rule used to generate the sequence, and apply it to extend the pattern.

MTH 2-13a

Term/Definition	Methodology
Prime numbers: numbers with only 2 factors, one and themselves. One is not defined as a prime number. 2, 3, 5, 7, 11, 13, 17, 19, … **Square numbers** 1, 4, 9, 16, 25, … Should be learned. **Triangular numbers** 1, 3, 6, 10, 15… Should be learned. **Example** *6, 12, 20, 30, …* **Correct Use of Language** Your child should also have to be able to continue the sequence when the steps are not constant, but not give a rule.	

Expressions and equations
I can apply my knowledge of number facts to solve problems where an unknown value is represented by a symbol or letter.

MTH 2-15a

Example	Methodology
Pupils should be introduced to single function machines and then double function machines. *3→21* *8→56* *10→70* **Correct Use of Language**	

Use "in" and "out" to raise awareness of "input" and "output." Pupils should use the following terminology: Input; output; reverse; do the opposite; work backwards; inverse; undo etc. Outputs larger than the input, so the options are addition or multiplication Similarly if the outputs are smaller it implies subtraction or division.	

Properties of 2D and 3D shapes

Having explored a range of 3D objects and 2D shapes, I can use mathematical language to describe their properties, and through investigation can discuss where and why particular shapes are used in the environment.

MTH 2-16a

Through practical activities, I can show my understanding of the relationship between 3D objects and their nets.

MTH 2-16b

I can draw 2D shapes and make representations of 3D objects using an appropriate range of methods and efficient use of resources.

MTH 2-16c

Term/Definition

Congruent: Two shapes are congruent if all the sides are the same length and all the angles are the same i.e. the shapes are identical.

Example

The faces on a cube are congruent.

Correct Use of Language

Your child should be familiar with the word congruent.

Angle, symmetry and transformation

Through practical activities which include the use of technology, I have developed my understanding of the link between compass points and angles and can describe, follow and record directions, routes and journeys using appropriate vocabulary.

MTH 2-17c

Term/Definition	Methodology
060°	Say zero six zero degrees.

I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology.

MTH 2-21a / MTH 3-21a

Term/Definition	Methodology
Histogram: no spaces between the bars, unlike a bar graph. *(Used to display grouped data.)* **Continuous Data:** can have an infinite number of possible values within a selected range. *(Temperature, height or length)* **Discrete Data:** can only have a finite or limited number of possible values. *(Shoe size, number of siblings)* **Non-numerical data:** data which is non-numerical *(Favourite flavour of crisps)* Use a bar graph, pictogram or pie chart to display discrete data or non-numerical data.	