NUMERACY & MATHEMATICS

Eastwood Cluster: Building strong transitions.

A guide for Parents and Carers to support Learning at home

FIRST LEVEL

The Aim of this booklet

This document makes clear the correct use of language and agreed methodology for delivering Curriculum for Excellence – Numeracy and Mathematics experiences and outcomes across the Eastwood Cluster of Establishments.

The Eastwood Cluster consists of:

Eastwood High School
Neilston Primary School
Mearns Primary School
Crookfur Primary School
Uplawmoor Primary School
Isabel Mair School
Madras Family Centre
Isabel Mair Family Centre

The aim of this booklet is to enable you to support your child's learning at home and ensure continuity and progression for pupils which will impact on attainment.

This booklet outlines the skills pupils will develop in Numeracy and Mathematics within First Level.

We hope you will find this booklet useful in helping you to support your child in their learning.

Number 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.

Term/Definition	Methodology
Example *5* *4* *+7* *6* *7* *+4*	Always start addition at the top and work downwards as a basic teaching method, moving towards looking for patterns e.g. bonds to ten. Always start subtraction at the top and work downwards. *9* *- 4* Say 9 subtract 4 not, 4 from 9.

Correct Use of Language

Say 5 add 4 add 7.

Say 6 add 7 add 4 or 6 add 4 add 7 (using patterns).

Number and Number Processes

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.

Term/Definition	Methodology
Example *2+□=7* *2 □6=8* *6 =3+□* *2+□= 6* *(Pupils should be introduced to a variety of layouts.)*	**Please refer to Algebra Appendix** Pupils should be encouraged to think of these in a variety of ways, so that they are adopting a strategy to solve the equation

Correct Use of Language

Start to introduce the term algebra when symbols are used for unknown numbers or operators.

Do not use the word, "box" or "square" when solving these equations.

Say:
Two and what makes seven?
What sign makes sense here/completes the equation?

Say:
Two plus what makes six?
What add two makes six?
Six take away two gives what?

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.

Term/Definition
100

Correct Use of Language

Say, "one hundred", rather than, "a hundred."

Distinguish between digits and numbers.

Number 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.

Term/Definition	Methodology
Example $\begin{array}{r} 5\ 6 \\ +\ 3_{1}\ 9 \\ \hline 9\ 5 \\ \hline \end{array}$ $\begin{array}{r} ^{4}5\ ^{1}\cancel{6} \\ -\ 3\ 9 \\ \hline 1\ 5 \\ \hline \end{array}$	When "carrying", lay out the algorithm as in the example. Put the addition or subtraction sign to the left of the calculation. Always start subtraction at the top and work downwards. Say 6 take away 9. Can't do. Exchange one ten for ten units and add to the units. Do not say score out.

Correct Use of Language

Carry

Exchange

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

Term/Definition
4m 3cm

Correct Use of Language

Use 'm' for metres when writing.

Say four metres.

Use 'cm' for centimetre when writing. Say three centimetres.

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 guides

Term/Definition
3kg

Correct Use of Language

Abbreviation of kg or g.

Say three kilograms.

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

Term/Definition
3l *700ml*

Correct Use of Language

Abbreviation of l for litre.

Say 3 litres.

Abbreviation of ml for millilitres.

Say seven hundred millilitres.

Measurement

I can estimate the area of a shape by counting squares or other methods.

Term/Definition
Example *$3cm^2$*

Correct Use of Language

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

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

Term/Definition
3:30pm

Correct Use of Language

Be aware and teach the various ways we speak of time.

Analogue – half past three.

Digital - three thirty.

Money

I can use money to pay for items and can work out how much change I should receive.

I have investigated how different combinations of coins and notes can be used to pay for goods or be given in change.

Term/Definition	Methodology
Example *£1·00* *Write £1·00 or £1.* *(Ensure decimal point is placed at middle height.)*	Explain that there are 100 pennies in £1. Explain that the written form in pounds is £1·80 without the p. When writing money, only one sign is used, either £ or p.

Correct Use of Language

Say one pound not a pound.

Data Analysis

I have explored a variety of ways in which data is presented and can ask and answer questions about the information it contains.

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

Term/Definition	Methodology
Bar chart: A way of displaying data if the data is discrete or non-numerical. There should be a gap between the bars. **Histogram:** A way of displaying grouped data. No gaps between the bars. **Example** ***Bar chart:*** *A bar chart showing pupils favourite flavour of crisps.* ***Histogram:*** *A histogram showing the number of press-ups pupils can manage in one minute*	When using tally marks, each piece of data should be recorded separately in order. Tallying should be done before finding a total.

Correct Use of Language

Use bar graph or bar chart not block graph.

Do not confuse bar charts with a histogram.

Estimation 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.

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.

I can use addition, subtraction, multiplication and division when solving problems, making best use of the mental strategies and written skills I have developed.

Correct Use of Language

Use the terms round to and nearest to.

Number 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.

Fractions, Decimal Fractions and Percentages

Through exploring how groups of items can be shared equally, I can find a fraction of an amount by applying my knowledge of division.

Term/Definition	**Methodology**
Multiply Divide **Example** *$2 \times 5 = 10$* *$10 \div 2 = 5$* $\frac{1}{2}$ of 10 = 5 $\begin{array}{r} 26 \\ \times_2 \ \ 4 \\ \hline 104 \end{array}$	When teaching multiplication tables the link to division and to fractions should also be stressed. For multiplication tables the table number comes first. E.g. $3 \times 1 = 3$ $3 \times 2 = 6$ $3 \times 3 = 9$ Say three ones are three. Say: This is 72 divided by 4. What would you expect the answer to be?

18 r1 *7* *4 ³3* *0 7* *4 28*	Start by saying, 7 divided by 4. Support if necessary by asking how many fours are there in seven? Never say 4 into 7. Never say goes into.

Correct Use of Language

Pupils should be familiar with various words for multiply and then later for divide.
Multiply – Multiplied by, product, times.
Divide – Divided by, quotient, shared equally, division, how many left? How many remaining?
Stress multiplied by rather than times. Use multiplication tables rather than times tables.
Do not use times by or timesing.

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.*

Through taking part in practical activities including use of pictorial representations, I can demonstrate my understanding of simple fractions which are equivalent.

Term/Definition	Methodology
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** $\frac{1}{4}$	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 $\frac{1}{5}$.

Correct Use of Language

Emphasise that it is “one divided by four.”

Number 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.

Term/Definition	Methodology
Example $\begin{array}{r} 2\ 6 \\ \underline{\times\ {}_{2}4} \\ \underline{1\,0\,4} \end{array}$	When multiplying by one digit, lay out the algorithm as in the example. The “carry” digit always sits above the line.

Appendix 1 – Common Methodology for Algebra

Overview

Algebra is a way of thinking, i.e. a method of seeing and expressing relationships, and generalising patterns - it involves active exploration and conjecture. Algebraic thinking is not the formal manipulation of symbols.

Algebra is not simply a topic that pupils cover in Secondary school. From Primary One, pupils **lay the foundations for algebra**. This includes:

Early, First and Second Level

- Writing equations e.g. 16 add 8 equals?
- Solving equations e.g. $2 + \square = 7$
- Finding equivalent forms

e.g. $24 = 20 + 4 = 30 - 6$

$24 = 6 \times 4 = 3 \times 2 \times 2 \times 2$

- Using inverses or reversing e.g. $4 + 7 = 11 \rightarrow 11 - 7 = 4$
- Identifying number patterns

<u>Early/First Level - Language</u>

$4 + 5 = 9$ is the start of thinking about equations, as it is a statement of equality between two expressions.

Move from “makes” towards “equals” when concrete material is no longer necessary. Pupils should become familiar with the different vocabulary for addition and subtraction as it is encountered.

First Level – Introducing Algebra

The term "algebra" when symbols are used for unknown numbers or operators e.g.

$2 + \square = 7$
$2 \square 6 = 8$
$6 = 3 + \square$

Use the word "something" or "what" to represent numbers or operators rather than the word "box" or "square" when solving these equations.

First Level - Function Machines

Use "in" and "out", raising awareness of the terms "input" and "output". Introduce the terminology reverse; do the opposite; work backwards; inverse and undo when appropriate.

First/Second Level – Recognise and explain simple relationships

Establish the operation(s) that are an option.

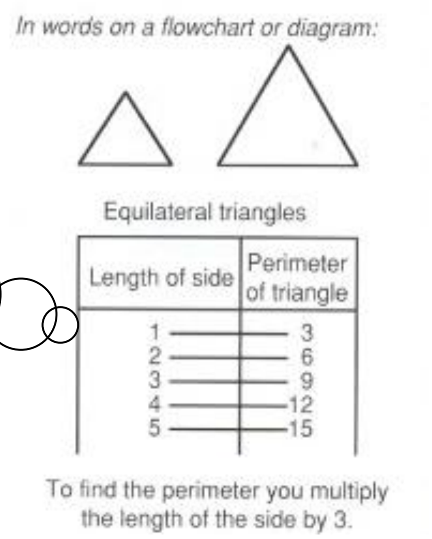
3→21
8→56
10→70

The outputs are larger than the input, so the options are either addition or multiplication.

18→9
14→7
6→3

The outputs are smaller than the input, so the options are either subtraction or division.

In this case, outputs are larger so the options are addition or multiplication.
Add 2 works for the first one but
2 add 2 gives 4, we need the answer 6, addition does not work.
For multiplication, look at which table the output



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