

# Numeracy Parent/Carer Workshop

Wednesday 13<sup>th</sup> March, 2024



# From our Numeracy Workshop you wanted to...

Understand how maths is taught in class.

Learn about new maths teaching approaches.

Find out what children are learning day to day.

Find out how addition, subtraction, multiplication, and division is taught.

Learn how to support children who are anxious about maths.





# Our Morning



- Teaching approaches
- Supports
- Assessments
- NLC Numeracy Co-Ordinator – Margret Anne Keatings
- Maths in action!
- Feedback Questionnaire

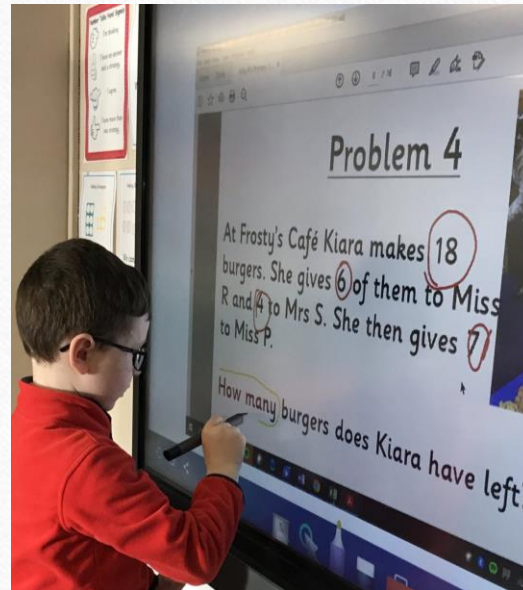




# What do children learn?



- 5 main components...
- 1. Mental Agility
- 2. Number
- 3. Non-Number
- 4. Problem Solving
- 5. Yeti mindsets!



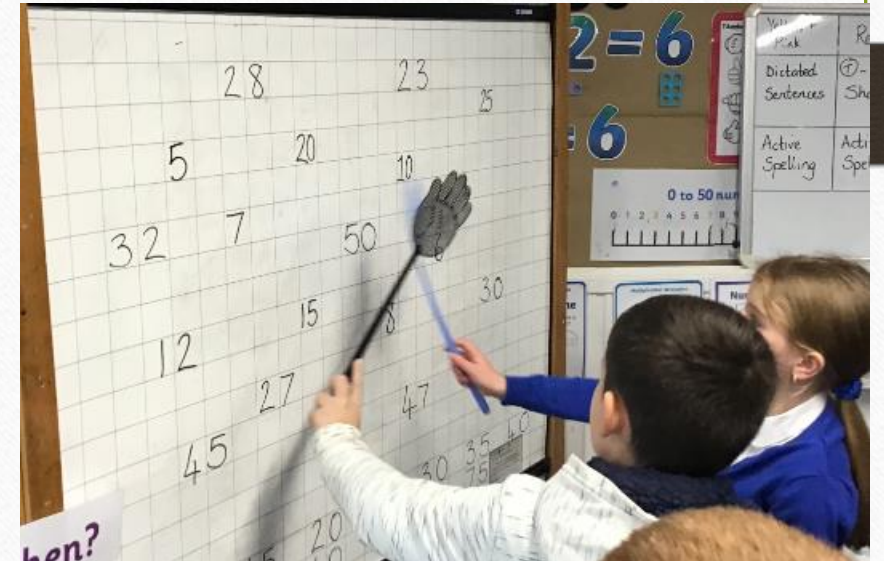




# Mental Agility



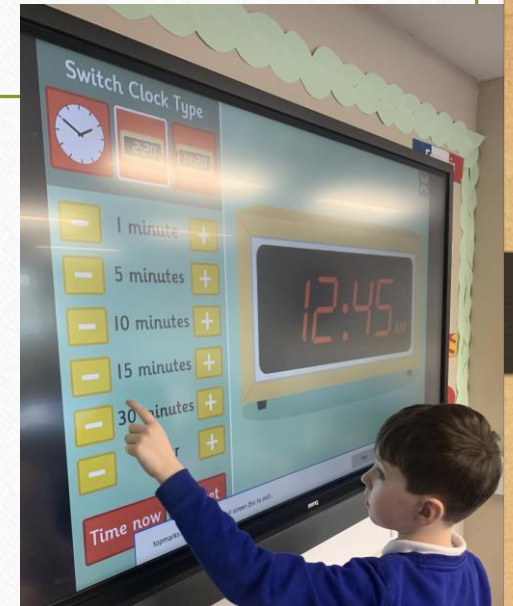
- Recalling number facts such as times tables, number bonds to 10.
- Carrying out maths problems.
- Number Talks
- Explaining thinking/strategies
- Not always about speed, depth is important.





# Number

- Addition & Subtraction
- Multiplication & Division
- Estimation & Rounding
- Fractions, Percentages, Decimals
- Money
- Time
- Equations







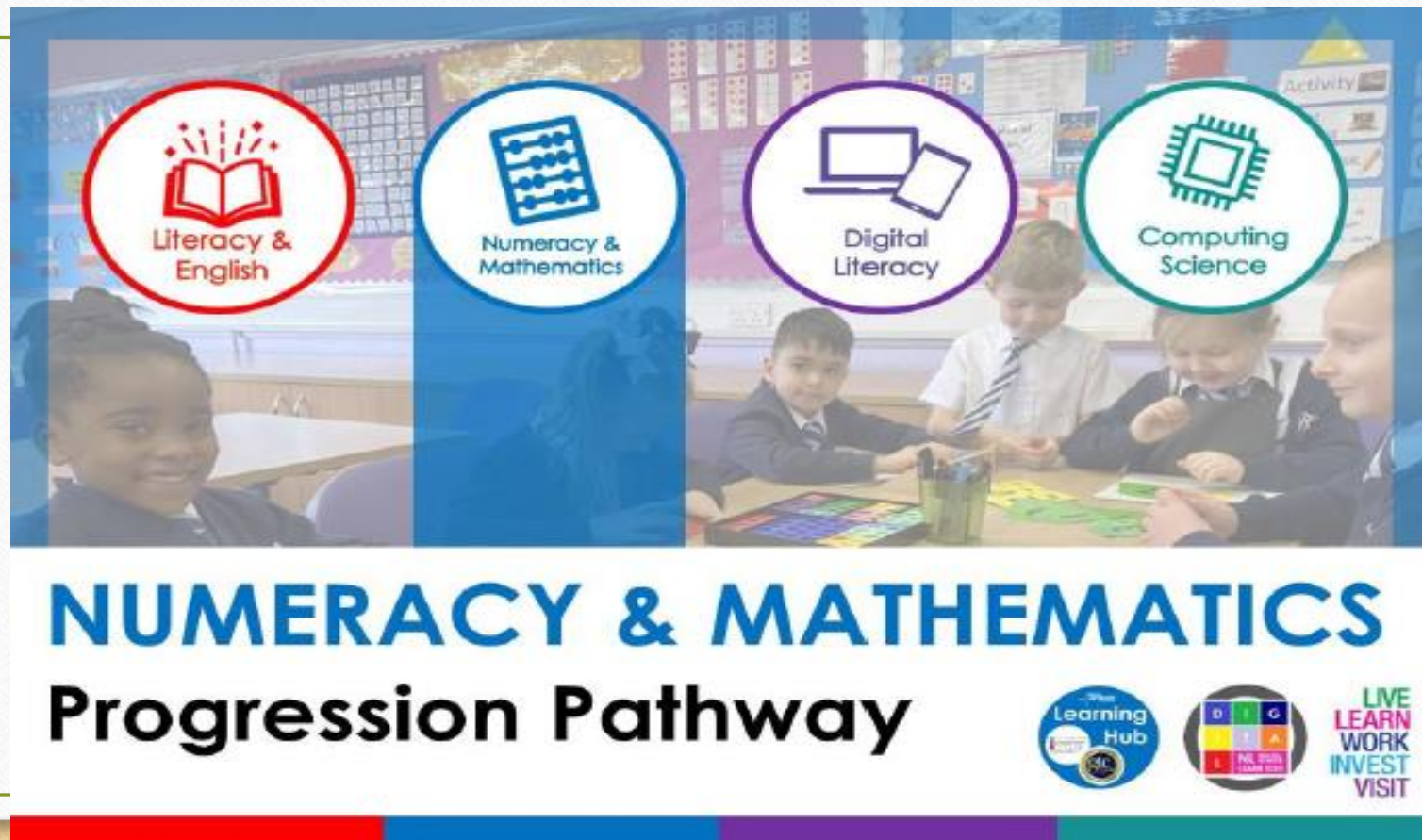
# Non-Number

- Data Analysis
- Chance
- 2D & 3D shape
- Measure
- Angles & Symmetry





# North Lanarkshire Numeracy Planners

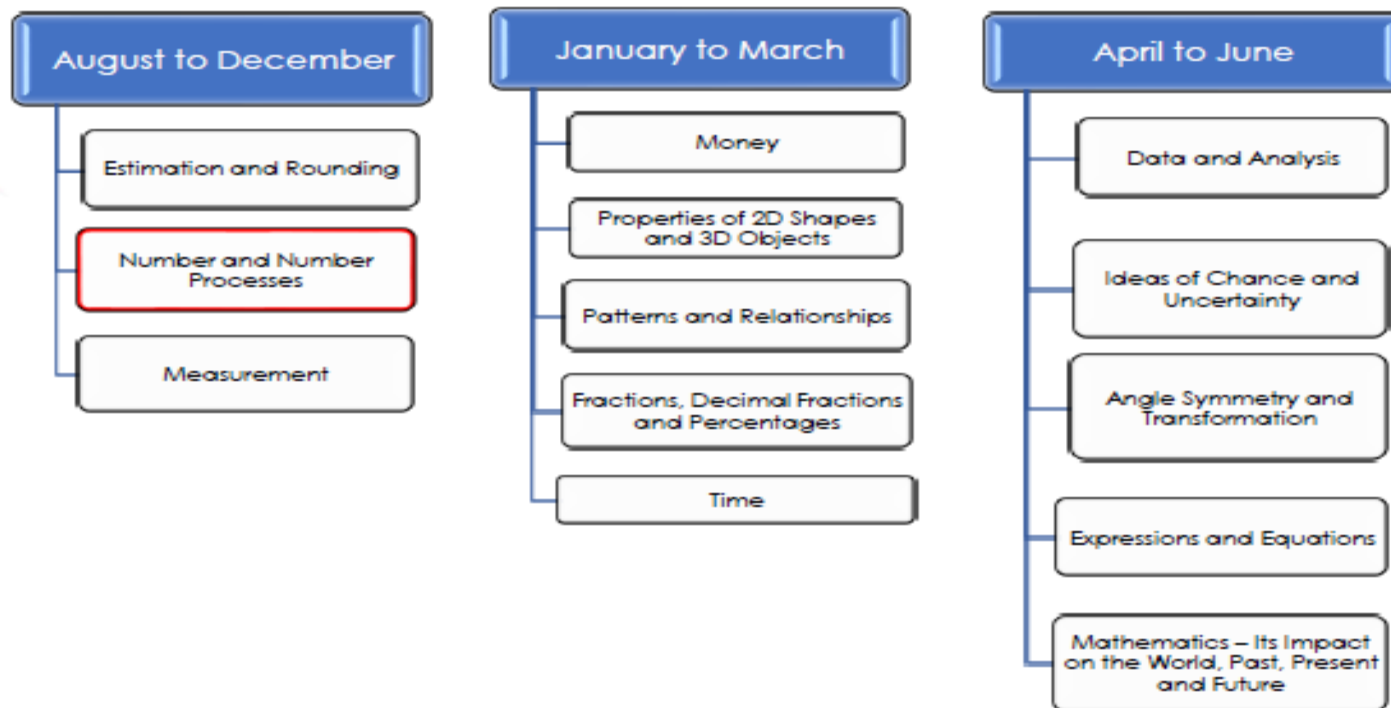






# NUMERACY & MATHEMATICS - Progression Pathway

## The Numeracy and Mathematics Organisers Suggested Order for *First Level*



Number and Number Processes should be revisited regularly throughout the year.



# Numeracy and Mathematics

## Organiser

Numbers and Number Processes

## Experience and Outcome

*I have investigated how whole numbers are constructed, can understand the importance of zero within the system and can use my knowledge to explain the link between a digit, its place and its value.*

MNU 1-02a

*I 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

## At the start of First Level

## Through First Level

## Towards the end of First Level

## Benchmarks

### Addition and Subtraction

Using concrete materials, pictorial representations and abstract thinking, I can:

- recognise and describe part-whole relationships.
- use number bonds to 20 to create problems.
- read and arrange a number sentence using objects and pictures.
- solve a mathematical number sentence/problem to 20 using symbols.
- add/subtract (including 0) within 20 by counting on/back.
- add/subtract within 20 (including 0) using number bonds.

Using concrete materials, pictorial representations and abstract thinking I can:

- recognise, describe and create part-whole relationships.
- use number bonds to 20 to derive related facts to 100.
- add several single digit numbers using number bonds.
- understand the commutative law and can use it.
- add and subtract with tens and ones.
- add and subtract by bridging 10.

Using concrete materials, pictorial representations and abstract thinking, I can:

- describe how to solve a variety of higher decade addition and subtraction tasks using my knowledge of tens and ones.
- describe, using appropriate vocabulary, how to solve a variety of higher decade addition and subtraction tasks through counting.
- begin to apply my understanding of number structures to develop and explain a range of non-count-by-ones strategies to solve tasks within 1000.

Demonstrates understanding of the commutative law, for example,  $6 + 3 = 3 + 6$  or  $2 \times 4 = 4 \times 2$ .

Applies strategies to determine multiplication facts, for example, repeated addition, grouping, arrays and multiplication facts.

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.

MNU 1-01a

MNU 1-03a

MNU 1-09a

MNU 1-11a

MNU 1-22a

MTH 1-12a

MTH 1-15a

MTH 1-18a

MNU 1-02a

MNU 1-07a

MNU 1-10a

MNU 1-20a

MTH 1-13a

MTH 1-16a

MTH 1-19a



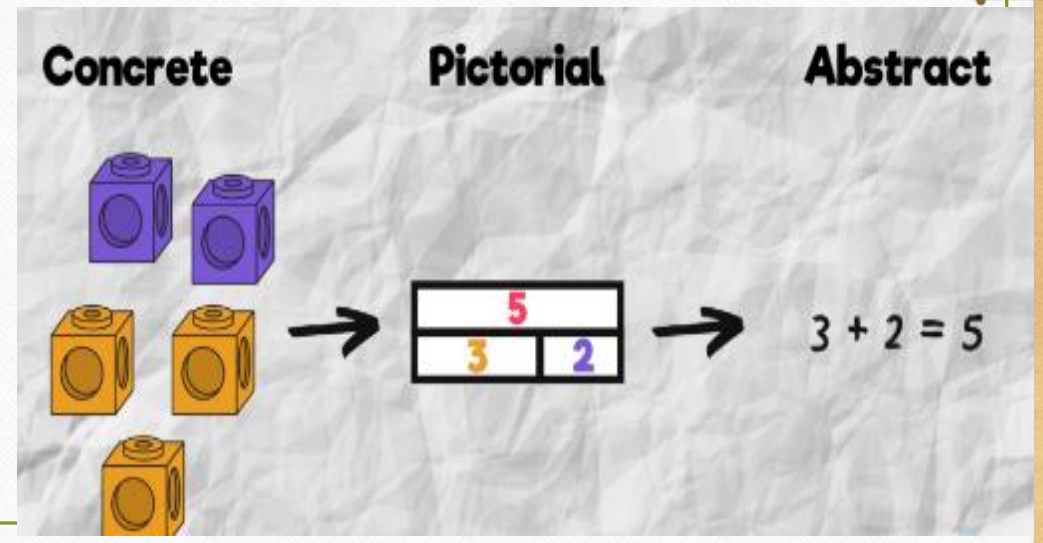




# How do children learn?



- CPA – **C**oncrete, **P**ictorial, **A**bstract
  - Introduce in a tangible way to develop understanding.
  - Move to using pictures and diagrams
  - Final step written calculations



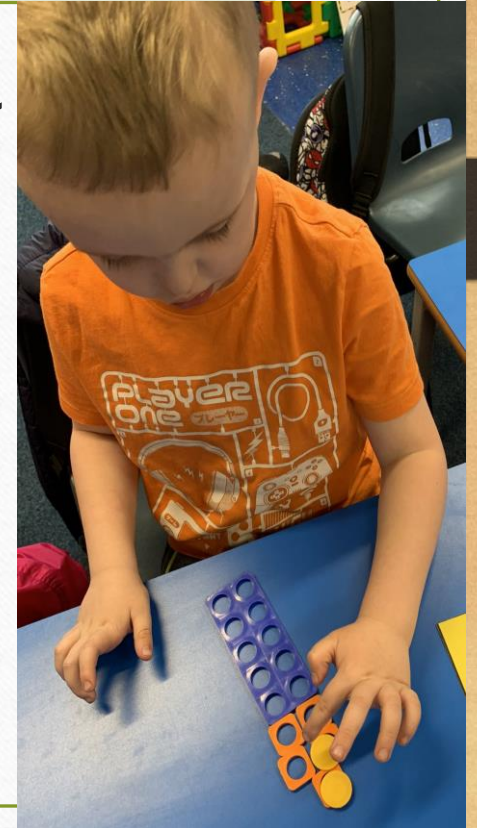


# CPA



- Concrete – using physical things the children can handle and manipulate so they can actually see the maths and make sense of what is happening.

**We must hold maths in our HANDS first  
before we can hold it in our HEADS!**



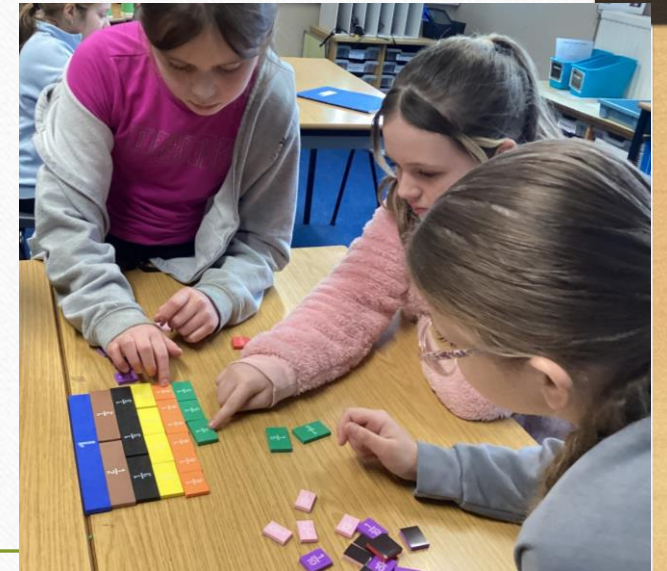




# CPA



- Pictorial – No longer handling the physical resources but are still benefiting from visual support by building or drawing a model. This makes it easier for children to grasp difficult abstract concepts (for example, fractions).

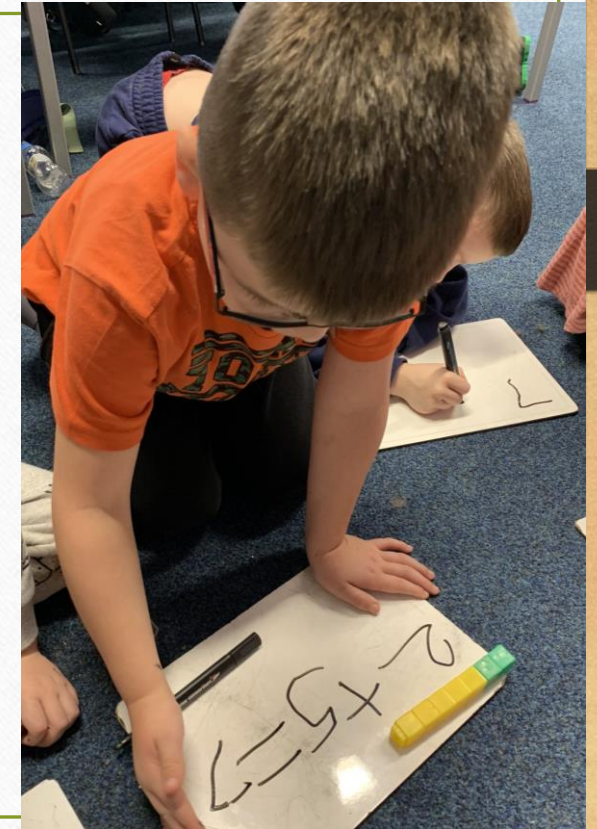




# CPA



- Abstract – Secure understanding. Should be able to explain how to do the ‘maths’ before using formal written methods. If the understanding is not there, we run the risk of children relying on processes rather than understanding.



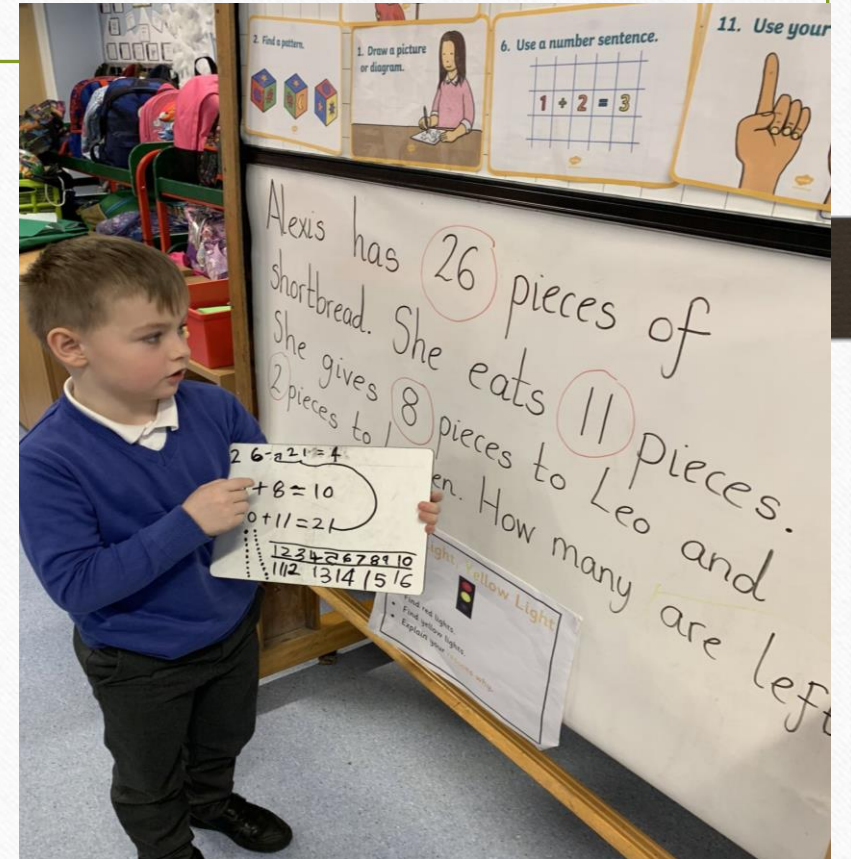




# Problem Solving



- Interpret questions
- Select appropriate strategies
- Make thinking visible
- Link maths concepts
- Use mental agility

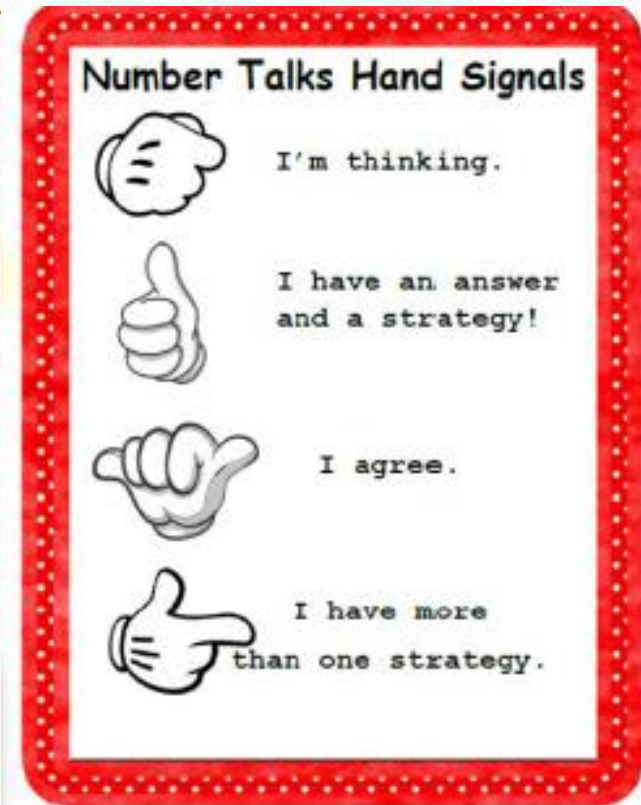




# Problem Solving



- Number Talks - given calculations and are encouraged to work out the answer using any strategy that makes sense to them (this may be different for several children). The focus is then on talking about the different strategies that were used across the class and discussing the efficiency of them.





# Number Talks

## Addition Strategies

DIGITAL  
SCHOOL  
LEARN HERE

### Place Value

Decompose both addends by breaking each number into its place value. Afterwards, add the broken-up numbers together in place value pairs and then altogether.

$$124 + 235$$

$$124 + 235$$

$$100 + 200 = 300$$

$$20 + 30 = 50$$

$$4 + 5 = 9$$

$$300 + 50 + 9 = 359$$

$$124 + 235 = 359$$

### Adding Up in Chunks

Keeping one addend whole, partition the second addend and then add to it in friendly chunks.

$$209 + 124$$

$$209 + 124$$

$$209 + 100 + 20 + 4$$



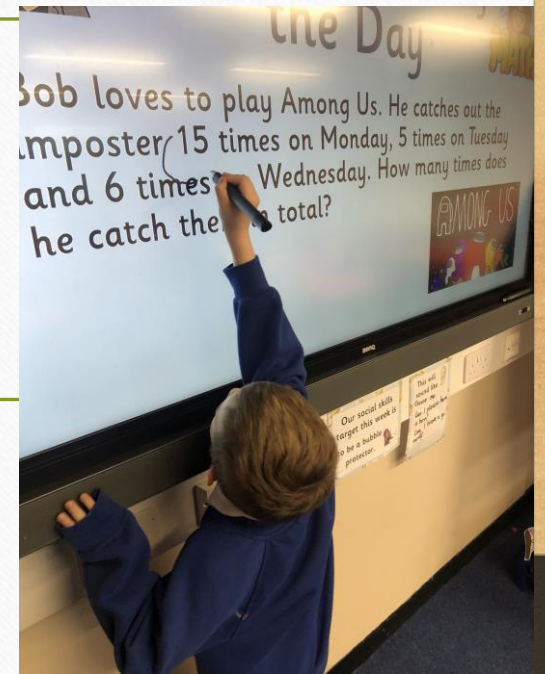
$$209 + 124 = 333$$



# Problem Solving

- Which one doesn't belong?
- Open ended questions
- Word problems
- Always true, sometimes true, never true

50%	0.95
0.25	25%



I have £3.57 in my purse. What coins could I have?	I am thinking of a 2D shape that has 2 lines of symmetry. What shape could I be thinking of?
First	
35 and 45 How are these numbers similar? How are they different?	I measured an item and the answer was 17cm. What could I have measured?





# School Supports



- Number Box – 1:1 support, or small groups. Uses concrete materials to build understanding of basic number concepts. Short, frequent bursts of support.

Ravenswood Primary School

Name: \_\_\_\_\_ Class: Primary \_\_\_\_\_

Your child's report indicates that he/she needs support Literacy/Numeracy/Health and Wellbeing.

She/He participates in the following additional support activities to help with this.

Health and Wellbeing	
Seasons for Growth	Drawing and Talking Therapy
Forest School	Lego Therapy
Nurture Group	Teen Talk Counselling
Play/Art therapy	
Literacy	
Adjusted Teaching Technique	Literacy Box
Reading Eggs	Rainbow Reading
Clicker 8	Read Write Inc
Immersive Reader	Speech to text apps
RTIC – Reading & Talking to Improve Comprehension	Wave 3
Numeracy	
SEAL	Numeracy Box
Adjusted Teaching Technique	





# School Supports



- SEAL – 1:1 support, small groups, whole class. Uses CPA approach to build understanding and strategies rather than children memorising step by step processes.

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Numeracy	
SEAL	Numeracy Box
Adjusted Teaching Technique	

First Level Number Overview				The First Level Learner	
Number Word sequences	Numerals	Number Structures	Counting Strategies: Addition and Subtraction	Counting strategies: Multiplication and Division	Expressions and Equations
<b>Phase 1</b> • I can say the forward number word sequences (to at least 100) • I can say backward number word sequences (to at least 100) • I can quickly recall number word order and number word before (to at least 100) • I can say the next 2, 3, 4 numbers in a number word sequence (to at least 100) • I can count number of jumps from 0 to 5 • I can count in tens	<b>Phase 1</b> • I can read number sequences (to at least 100) • I can sequence numerals (to at least 100) • I can identify numerals (to at least 100) • I can recognise numerals (to at least 100) • I can count on and back from a unconnected numeral to find a given numeral on a numbered track (to at least 100) • I can count on and back from a unconnected numeral to locate a given numeral on a numbered track (to at least 100) • I can work out missing numerals on a numbered square (to at least 30)	<b>Phase 1</b> • I can recognise and describe five-wise tens frames • I can recognise and describe ten-wise tens frames • I can partition filled ten frames in different ways • I can describe numbers in relation to 5 and 10	<b>Phase 1</b> • I can describe how I solve additive tasks when both collections are screened • I can describe how I solve missing addend tasks when both collections are screened • I can describe how I solve missing subtrahend tasks when both collections are screened • I can describe how I solve missing minuend tasks when both collections are screened	<b>Phase 1</b> • I can combine and count equal additive tasks when both collections are screened • I can partition a collection into equal shares and establish the number of shares • I can partition a collection into equal shares and establish the number in each share • I can describe, build and count simple arrays	<b>Phase 1</b> • I can recognise, discuss, duplicate, create simple numeric patterns • I can recognise simple rules, e.g. getting bigger by 1
<b>Phase 2</b> • I can say the forward number word sequences in multiples of 2s, 10s, 5s, 10s and 4s and keep track of the counts on my fingers • I can say the backward number word sequences in multiples of 2s, 10s, 5s, 10s and 4s and keep track of the counts on my fingers • I can say the next number word before and after in a number word sequence (to 20, 10s, 5s, 10s and 4s)	<b>Phase 2</b> • I can recognise, sequence and order multiples of 100 (to at least 1000) • I can identify numerals (to at least 1000) • I can recognise numerals (to at least 1000) • I can sequence decade numerals (to at least 1000) • I can sequence 2 digit numerals (to at least 1000) • I can order 3 digit numerals (to at least 1000) • I can count sequences of multiples (2s, 10s, 5s, 10s, 4s) forwards and backwards using a number track	<b>Phase 2</b> • I can build and describe numbers to 20 using doubling and near doubles • I can build and describe numbers to 20 using partitioning through ten • I can describe the relationship of number bonds to 20 • I can use compensation to produce number bonds to 20	<b>Phase 2</b> • I can describe how I solve a variety of addition and subtraction tasks to 20 using my knowledge of doubles and near doubles • I can describe how I solve a variety of addition and subtraction tasks to 20 using partitioning through ten • I can describe how I solve a variety of addition and subtraction tasks to 20 using compensation strategies • I can describe how I solve a variety of addition and subtraction tasks to 20 using my knowledge of inverse operations	<b>Phase 2</b> • I can build, describe and count arrays (to at least 2s, 10s, 5s and 10s) • I can use multiplicative counting strategies to calculate the total of equal groups • I can use multiplicative counting strategies to calculate the number in each share when a collection is shared equally • I can use multiplicative counting strategies to calculate the number of groups when a collection is shared equally	<b>Phase 2</b> • I can use numbers and symbols to record the counting tasks I have solved • I can interpret a written calculation (e.g. 12+4=) and calculate the answer • I can use commutative and associative properties to simplify calculations, e.g. 5+3=8 or 3+5=8 • I can use the fact that add and subtract are inverse processes to solve problems • I can interpret and solve written calculations where symbols are used for unknown numbers or operators (e.g. 12+?=16 or 12-?=4)
<b>Phase 3</b> • I can say the forward number word sequences in multiples of 2s, 10s, 5s, 10s and 4s and keep track of the counts on my fingers • I can say the backward number word sequences in multiples of 2s, 10s, 5s, 10s and 4s and keep track of the counts on my fingers • I can say the next number word before and after in a number word sequence (to 20, 10s, 5s, 10s and 4s)	<b>Phase 3</b> • I can recognise, sequence and order multiples of 100 (to at least 1000) • I can identify numerals (to at least 1000) • I can recognise numerals (to at least 1000) • I can sequence decade numerals (to at least 1000) • I can sequence 2 digit numerals (to at least 1000) • I can order 3 digit numerals (to at least 1000) • I can count sequences of multiples (2s, 10s, 5s, 10s, 4s) forwards and backwards using a number track	<b>Phase 3</b> • I can build and describe numbers to 20 using doubling and near doubles • I can build and describe numbers to 20 using partitioning through ten • I can describe the relationship of number bonds to 20 • I can use compensation to produce number bonds to 20	<b>Phase 3</b> • I can describe how I solve a variety of addition and subtraction tasks to 20 using my knowledge of doubles and near doubles • I can describe how I solve a variety of addition and subtraction tasks to 20 using partitioning through ten • I can describe how I solve a variety of addition and subtraction tasks to 20 using compensation strategies • I can describe how I solve a variety of addition and subtraction tasks to 20 using my knowledge of inverse operations	<b>Phase 3</b> • I can build, describe and count arrays (to at least 2s, 10s, 5s and 10s) • I can use multiplicative counting strategies to calculate the total of equal groups • I can use multiplicative counting strategies to calculate the number in each share when a collection is shared equally • I can use multiplicative counting strategies to calculate the number of groups when a collection is shared equally	<b>Phase 3</b> • I can use numbers and symbols to record the counting tasks I have solved • I can interpret a written calculation (e.g. 12+4=) and calculate the answer • I can use commutative and associative properties to simplify calculations, e.g. 5+3=8 or 3+5=8 • I can use the fact that add and subtract are inverse processes to solve problems • I can interpret and solve written calculations where symbols are used for unknown numbers or operators (e.g. 12+?=16 or 12-?=4)





# Assessments



- SEAL Diagnostic Assessments – gives detailed information about children's understanding of numbers, addition, subtraction, multiplication, division.
- Any point in the year.
- Highlights areas requiring more support.

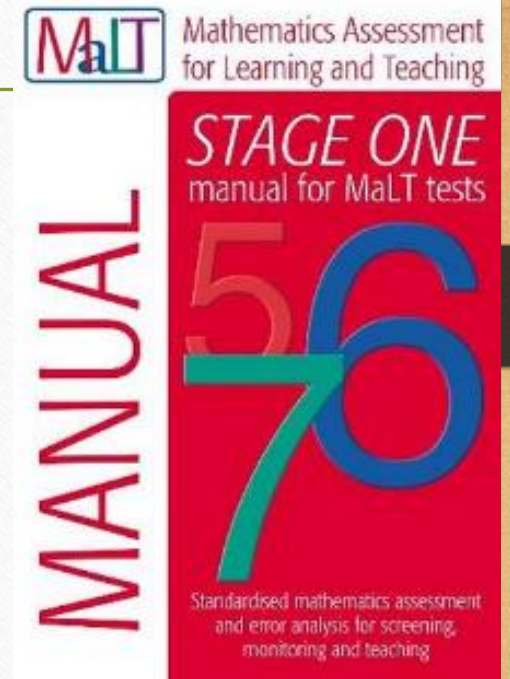
Diagnostic Assessment Pupil Assessment

Emergent Early	Emergent Early	Perceptual Early	Figurative First	Counting on First	First Facile First
Date/Notes	Date/Notes	Date/Notes	Date/Notes	Date/Notes	Date/Notes
Forward Number Word Sequence					
Emergent (developing) Developing FNWS up to 50	Emergent FNWS up to 20 and number words after	Perceptual FNWS up to 30 and number words after	Figurative FNWS up to 100 and number words after	Counting On FNWS in 2s 5s 10s and 5s beyond 100 and number words after	Facile FNWS up to 1000 and beyond in 100s, 200s, 500s, 1000s and number words after
Date/Notes	Date/Notes	Date/Notes	Date/Notes	Date/Notes	Date/Notes
Backward Number Word Sequence					
Emergent (developing) Developing BNWS from 10	Emergent BNWS from 20 and number words before	Perceptual BNWS from 30 and number words before	Figurative BNWS from 100 and number words before	Counting On BNWS in 2s, 5s, 10s, 4s, 5s and 10s. Count backwards in 10s both on and off the decade and number words after	Facile BNWS in 100s, 10s and 15s on and off the decade
Date/Notes	Date/Notes	Date/Notes	Date/Notes	Date/Notes	Date/Notes
Addition and Subtraction					
Emergent Counts one-to-one but can't join sets	Perceptual Counting from 1 with materials	Figurative Imaging Count on / count down from / count down to	Counting On Initial Number Sequence/Counting on / back Immediate number sequence	Facile Advanced additive	
Date/Notes	Date/Notes	Date/Notes	Date/Notes	Date/Notes	



# Assessments

- MALT – Mathematics Assessment for Learning and Teaching. Overview of maths, lots of concepts both number and non-number.
- Beginning and end of school year, usually. Helps with initial class groupings.



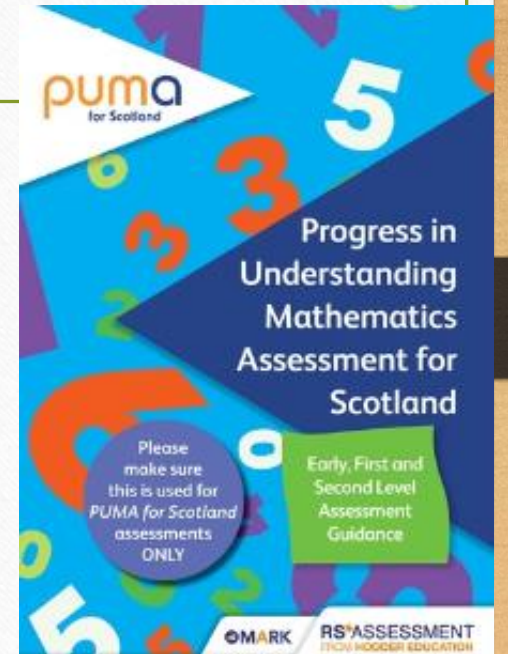




# Assessments

- Coming soon...

PUMA – termly assessment of new learning and previous learning. Gives good, timely insight into where areas of difficult may lie, or where challenge may be required.





# Home Supports



Be positive, don't let your own experiences trickle down!

Encourage children to explain how they worked something out.

Encourage them to use concrete things and drawings.

Don't be tempted to start formal written sums too soon.

Encourage children to have a go! Praise, praise, praise!

Never associate maths with speed.

Check our Twitter and School Website.

Don't put children under pressure.





#Live #Learn #Love

# Home Supports



#Live #Learn #Love

## Early Level (P1)

- Play 'how many' games. "How many apples are in the fruit bowl? How many are left if I eat one?"
- Play sorting games – "Put all of the oranges into this bowl and the apples into this one. How many are in each?"
- Ordering objects – "Put these tins in order, the smallest here and the biggest here."
- Play board games with dice - such as snakes and ladders.
- Ask children to set the table and let them collect the right number of knives & forks.
- From a pack of cards (without the tens, Jacks, Queens and Kings) play a game of pairs where you try to turn over two of the same, or turn over two cards that add up to ten.
- Talk about what numbers mean when they appear in everyday situations such as signs, adverts, on a clock face, a flat or a house number. For example, counting out odd and even house numbers.
- Talk to your child about their school homework and ask them to explain what they're doing and how they do it.



## First Level (P2 - P4)

- Play board games with dice - such as snakes and ladders.
- Practise writing numbers using flour, salt, paint, shaving foam – the messier the better!!
- Talk and ask questions about common fractions; half, quarter, third whenever you are cutting pizza.
- Use a calendar to plan out some family events throughout the year. How many days or weeks are between events?
- Budgeting - Imagine you have £10. Choose three sweets to buy. Work out the total cost and/or how much change you would have.
- Practise number bonds to 10 (2 numbers that add up to 10) and times tables (from P3 upwards).
- Practise counting in patterns – in 10s, 5s and 2s.
- Talk to your child about their school homework and ask them to explain what they're doing and how they do it.



## Second Level (P5 - P7)

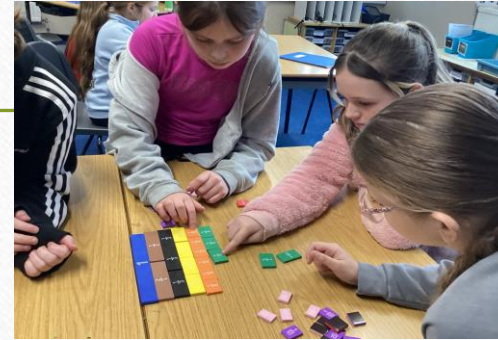
- Play board games with dice - such as snakes and ladders. If you're feeling really competitive dig out the Monopoly board!
- Include your child in decisions around household finances - "Which one is best value?", "How much is the window cleaner per year?"
- Ask them to read the dietary information on various foods and ask "How many grams of fat in 100 grams of...?"
- Give your child responsibility for their own money. Open a bank account for them allowing them to track their savings.
- Get your child involved in any DIY projects you're doing - you can secretly check their measurements!
- Don't miss any opportunities to talk and ask about fractions and percentages when out shopping, or even when serving dinner.
- Talk to your child about their school homework and ask them to explain what they're doing and how they do it.







# Maths in Action!







# Questions?



Margaret Anne Keatings

Numeracy Co-Ordinator for  
North Lanarkshire

