Teaching Early Number

OBJECTIVES FOR TODAY:

Why do we need change?

What needs to change

Overview of approach: philosophy, including 9 Guiding Principles

The Emergent Learner- closer look

The Emergent Planner

Examples of SEAL in Early Years Establishments

WHY DO WE NEED TO CHANGE?

Global, national, authority, school, classroom, individual

levels of attainment present a poor picture and unrepresentative picture of ability

Achievement of Early level in P1 - 14% gap between SIMD1-5 (78% - 92%)

- Poor Numeracy skills cost = £20.2 billion/year
- Impact on learners lives-

  twice as likely to be unemployed

  negative relationship to earnings

  linked to poor mental/ physical health

  more likely to be involved in crime

WHAT NEEDS TO CHANGE?

MAKING MATHS COUNT

Driving change in Scotland

"…a Maths positive nation."

Change attitude towards Maths and Numeracy in schools and society .

-transform public attitudes

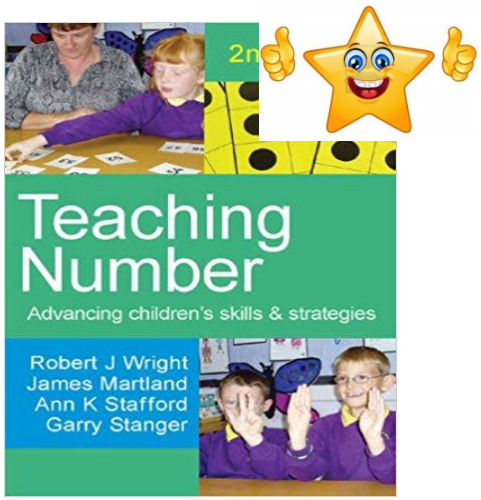
-improve fluency and confidence, ***raise attainment***

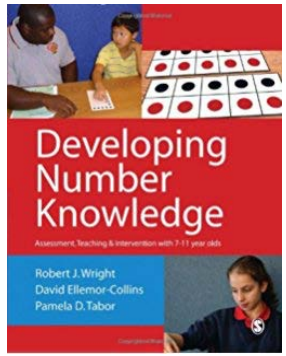
-Promote Maths as essential career skill

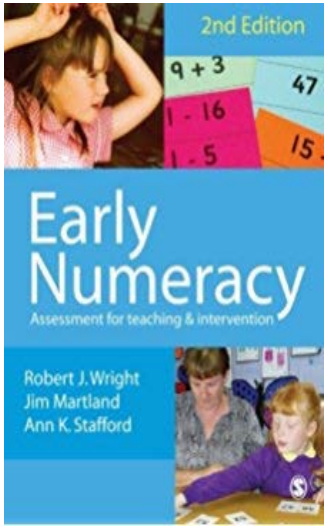
ROBERT WRIGHT

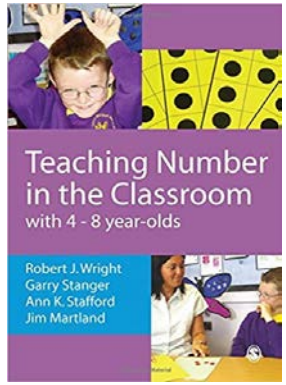
Robert Wright holds the position of Professor in Mathematics Education at Southern Cross University in Australia and is an internationally recognised leader in **understanding and assessing young children's numerical knowledge and strategies,** published many articles and papers in the field.

The development of the Maths Recovery Programme which focusses on the advancement of numeracy levels of young children.







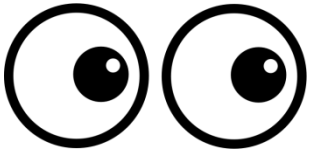


OVERVIEW

SEAL - **S**tages of **E**arly **A**rithmetical **L**earning. It is a model that can be used to understand the development of children's numerical knowledge.

Five progressive **phases** of SEAL –

- **Emergent (Early)**
- **Perceptual (Early / First)**
- **Figurative (First)**
- **Counting On (First)**
- Facile (End of First Level – Average Primary 4)



THE PLANNERS

Each **phase planner** is arranged into ***5 strands*** that are key elements of number:

- Number Word Sequences (NWS)
- Numerals
- Number Structures
- Addition / Subtraction
- Early Multiplication and Division

THE EMERGENT LEARNER

Counting

Is not counting collections accurately over 10

Does not have one to one correspondence

May have oral sequence in place but not coordinated with action

May manage counting smaller collections

If asked “How many?” may see as instruction to say the NWS

THE EMERGENT LEARNER

The NWS

may say NWS to 10 but not individual following number

Will not use the dropping back strategy

BNWS are difficult even 3 to 1

Difficulty saying word before another number

Numerals

Can say some numerals to 10, mostly 1 to 5

Confusion of numerals 6/9, 3/8

THE EMERGENT LEARNER

Spatial patterns (dots)

May recognise some but not all of patterns 2-6

Will count rather than immediately assign

Finger Patterns

Finger patterns within 1 to 5 but typically will look at fingers and raise slowly (growing)

Temporal (related to time) **Patterns**

Sound , movement sequences

Might copy temporal sounds of 2 or 3 but no larger

SO THE EMERGENT PHASE WILL FOCUS ON…

Strengthening Key Topics simultaneously

- FNWS from 1 to 20
- BNWS 1 to 10
- Numerals from 1 to 10

  aspects; recognising, identification, sequence
- Counting Visible Items
- Spatial Patterns
- Finger Patterns 1-5
- Ascribing numerosity to Temporal and spatial Patterns and Temporal Sequences

PERCEPTUAL PHASE

Key Topics

- Number Word Sequences from 1 to 30
- Numerals from 1 to 20
- Figurative Counting
- Spatial Patterns
- Finger Patterns
- Equal Groups and Sharing

FIGURATIVE PHASE

Key Topics:

- Number Word Sequence from 1 to 100.
- Numerals from 1 to 100.
- Counting on and Counting Back
- Combining and Partitioning Involving Five and Ten
- Partitioning and Combining Numbers in the Range of 1 to 10.
- Early Multiplication and Division

COUNTING ON PHASE

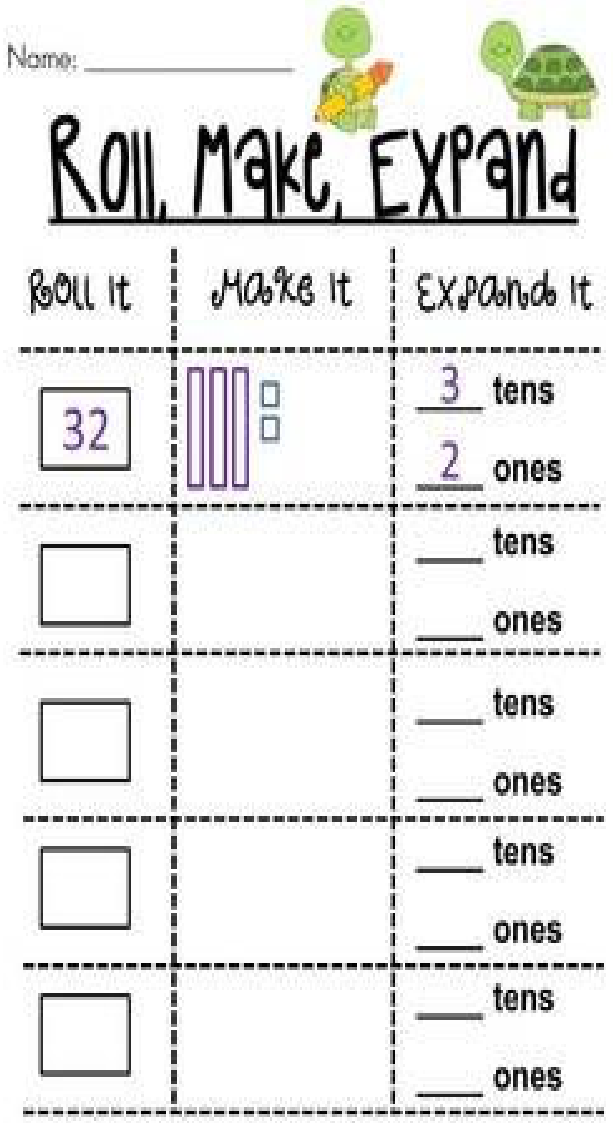
Key Topics:

- Number Word Sequences by 2s, 10s, 5s, 3s and 4s
- Numerals from 1 to 1000.
- Incrementing Tens and Ones
- Adding and Subtracting to and from Decade Numbers
- Addition and Subtraction to 20, using 5 and 10.
- Developing Multiplication and Division

FACILE PHASE

Key topics:

- Counting by 10s and 100s
- 2-Digit Addition and Subtraction through Counting
- Non-standard ways of representing 2 Digit and 3-Digit Numbers
- 2-Digit Addition and Subtraction through Collections
- Higher Decade Addition and Subtraction
- Advanced Multiplication and Division



9 GUIDING PRINCIPLES OF TEACHING SEAL

1. **Inquiry / Problem-Based Teaching**-children are thinking hard to solve problems

2. **Initial assessment and ongoing assessment-** teacher's current knowledge and strategies

3. Tasks are just beyond the cutting edge **(ZPD)**

4. Practitioner selecting from a **bank of teaching procedures-professional judgement,** settings, task

5. Practitioner supports/builds on intuitive **verbal based strategies,** which are used as basis for written forms

6. Practitioner has understanding and deliberately **fosters development of sophisticated strategies**

7. Practitioner observing the child **and fine-tuning teaching**

8. Practitioner provides sufficient and **sustained thinking and reflection**

9. Children have **intrinsic satisfaction -** at realisations of success and progress

Chapter 5: Teaching the emergent child ...

Number Word Sequences 5.1 Number Word Sequences from 1-20	Numerals 5.2 Numerals to 10	Addition and Subtraction 5.3 Counting 'visible items'	Number Structures 5.4 Spatial Patterns	Number Structures 5.5 Finger Patterns	Number Structures 5.6 Temporal Patterns and Temporal Sequences
Purpose - To develop knowledge of FNWS in the range 1-20 and BNWS in the range 1-10	Purpose - To develop knowledge of numerals and numeral sequences in the range 1-10	Purpose - To develop perceptual counting strategies	Purpose – To develop the initial facility to ascribe number to spatial patterns and random arrays	Purpose - To develop initial facility with making finger patterns	Purpose - To develop facility with copying and counting temporal patterns and temporal sequences.
5.1.1 Copying and Saying short FNWS's: *I'm going to count from x to y and I want you to say it after me. Ready? ...* *This time say it by yourself*	**5.2.1 Numeral Sequences forwards:** Place out a Numeral sequence. *Here are some numbers. Watch me as I count them.* Point to each numeral in turn, while counting *Now say the numbers with me.* *Now you do it yourself.* Numerals 0 - 10	**5.3.1 Counting items in one collection:** Place out x counters (all the same colour) *How many counters are there?* Double Sided Counters	**5.4.1 Ascribing numerosity to patterns and random arrays:** Display domino card (in order → randomly). *How many dots do you see?* Flash domino cards (in order → randomly). *Tell me how many dots do you see. Ready...* Domino Patterns 1 to 6	**5.5.1 Sequential patterns for 1 to 5, fingers seen:** *Watch me as I use my fingers to make a number.* Raise a finger. *One* Raise two fingers sequentially. *One, two ... You do that with me. Ready ...* *This time do one, two three with me...*	**5.6.1 Copying and counting temporal sequences of movements:** *Watch me as I move my hand.* Make x deliberate chopping motions. *One, two, three ...* *Do that with me. Ready?* *This time you count the number of chops I make. Ready . . .* *This time I say a number and you make that number of chops. Ready...*
5.1.2 Copying and Saying short BNWS's: *I'm going to count backwards from x and I want you to say it after me. Ready? ...* *This time say it yourself*	**5.2.2 Numeral Sequences Forwards & Backwards:** Place out a numeral sequence. *Here are some numbers. Watch me as I count them forwards and backwards.* Point to each numeral in turn, while counting forwards and then backwards. *Now say the numbers with me. Now you do it yourself.* Numerals 0 – 10	**5.3.2 Establishing a collection of given numerosity:** Place out around 30 counters (all the same colour) *Give me x from the group* Double Sided Counters	Repeat above sequence using random array cards Random arrays 1 to 4	**5.5.2 Sequential patterns for 1 to 5, fingers unseen (bunny ears):** *This time don't look at your fingers when you make the number on your fingers. DO three with me. Ready . . .* *After the child responds: Look at your fingers and see if you are right* Repeat on the other hand *This time use your other hand*	**5.6.2 Copying and counting rhythmic patterns:** *Listen to my pattern and see if you can copy it.* Clap a 2 pattern. *Now try this one.* Clap a 2-2 pattern. Similarly try the following patterns 1-2, 2-1, 1-3, 3-1, 3-3, 2-3, 3-2 Try to count how many claps in my pattern
5.1.3 Saying alternate numbers forwards and backwards: *Let's take turns to say the numbers. I will say one and you say two and we will keep going like that. Ready? ...* *This time you start.* *Let's try it backwards*	**5.2.3 Sequencing Numerals:** Place out a sequence of cards (e.g. 1-3) randomly *Put these cards in order from one. . .Now say the numbers as you point to them.* Numerals 0 - 10	**5.3.3 Counting items in a row, forwards and backwards:** Place out a row of x dots. *Watch me count out the dots forwards and backwards.* Point to each dot in turn *Now you count the dots forwards and backwards.* Rows of Dots	Repeat above sequence using pairs patterns cards Pairs Patterns 1 - 6	**5.5.3 Simultaneous patterns for 1 to 5, finger seen:** *Watch me use my fingers to make a number. This time I am going to raise all my fingers at once (model). You do the number I say. Remember raise all your finger at once.* *After the children responds raise your finger. Compare your fingers with mine.*	**5.6.3 Copying and counting monotonic sequences and sounds:** Try to count how many times I clap. Make slow monotonic sequence of four claps. *How many times?* Similarly for sequences within the range 1 – 10 *Now it is your turn. Make x claps*
5.1.4 Saying the next number word forwards: *I'm going to count and I want you to say the next number after I stop. Ready?*	**5.2.4 Numeral Recognition:** Place out a range of cards, randomly arranged. *Point to x, point to y* Numerals 0 - 10	**5.3.4 Counting items of two collections:** Place out x red counters. Place out y blue counters. *Here are x red counters and y blue counters. How many altogether?* Rows of Dots: Red - 6, 10, 15 and 20. Green – 1, 2, 3, 4, 5	**5.4.2 Making Spatio-Motor Patterns:** Display domino card. *Make a pattern in the air to show the number of dots.* *This time see if you can do it without looking at the card.* Repeat with Pairs and Random Arrays Domino, Pairs and Random Array Cards	**5.5.4 Simultaneous patterns for 1 to 5, fingers unseen (bunny ears):** *Put your hand on your head like me. Watch me use my fingers to make a number. (model)* *You do the number I say. Remember raise all your finger at once.* *After the children responds: Look at your fingers and see of you are right*	**5.6.4 Copying and counting arhythmical sequences and sounds:** Try to count how many times I clap. Make a fast arhythmical sequence of three claps. *How many times?* Similarly for sequences within the range 1 – 10 *Now it is your turn. Make x claps*
5.1.5 Saying the next number word backwards: *I'm going to count and I want you to say the next number backwards. Ready?*	**5.2.5 Numeral Identification:** Place out a range of cards, randomly arranged. Point to x, *what is this?* Point to y, *what is this?* Numerals 0 - 10	**5.3.5 Counting items of two rows:** Place out a row of x red dots. Beside that place out a row of y blue dots. *Here are x red counters and y blue counters. How many dots altogether?*	Repeat above activity but this time, flash the domino, pairs and random array cards. Domino, Pairs and Random Array Cards	**5.5.5 Double patterns 1 to 5** *Put your hands out in front. Make two on your right hand. Make two on your left hand. How many altogether? Say after me – 2 add 2 makes 4. Repeat for other doubles.* *Now put your hands on your head. Make two on your right hand. Make two on your left hand. How many altogether? Take your hands down and have a look. Say after me – 2 add 2 makes 4.*	
5.1.6 Saying the number word after: *I'm going to say a number and I want you to say the number just after the one I say. Ready? . . .*	**5.2.6 Numeral Tracks:** Place out the numeral track, with numerals uncovered. *Watch me as I count forwards and backwards.* Point to each numeral in turn while counting forwards and then backwards. *Now you count forwards and then backwards and point to each number in turn.* Close lids on the Numeral Track and repeat previous activity. Uncovering the lids AFTER saying each number. As Before		**5.4.3 Making auditory patterns to match spatial patterns:** Display domino card. Clap your hands to show the number of dots on the card. Repeat with Pairs and Random Arrays Domino, Pairs and Random Array Cards	**5.5.6 Use finger patterns to keep track of temporal sequences of movement:** *Watch me as I move my hand.* Move hand in a chopping motion, three times. *One, two, three.* *Use your fingers to keep track of how many times I move my hand.* Move hand x times. *How many was that?* Repeat with other hand	
5.1.7Saying the number word before: *I'm going to say a number and I want you to say the number before the one I say. Ready? . . .*	Place out the numeral track with numerals covered. Uncover a numeral. *What number is this?* Leave that numeral uncovered. Point to another lid. *So what numeral is under here? . . . Would you like to check?* Numerals 1 – 10 Numeral Tracks		Repeat above activity but this time, flash the domino, pairs and random array cards. Domino, Pairs and Random Array Cards	**5.5.7 Use finger patterns to keep track of temporal sequences of sounds:** *Watch me as I clap.* Clap three times. *One, two, three.* *Use your fingers to keep track of how many times I clap.* Clap x times. *How many was that?* Repeat with other hand *Now look away and keep track of how many times I clap my hands.*	

THE PLANNER

The planner works ***progressively downwards*** for each of the 5 strands

Chapter 5: Teaching the emergent child ...

5.1 Number Word Sequences from 1-20	5.2 Numerals to 10	5.3 Counting Visible Items	5.4 Spatial Patterns	5.5 Finger Patterns	5.6 Temporal Patterns and Temporal Sequences
Purpose - To develop knowledge of FNWS in the range 1-20 and BNWS in the range 1-10	Purpose - To develop knowledge of numerals and numeral sequences in the range 1-10	Purpose - To develop perceptual counting strategies	Purpose – To develop the initial facility to ascribe number to spatial patterns and random arrays	Purpose – To develop initial facility with making finger patterns	Purpose - To develop facility with copying and counting temporal patterns and temporal sequences
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5.1.2 Copying and Saying short BNWS's: *I'm going to count backwards from x and I want you to say it after me. Ready? .... This time say it yourself* Numerals 0 - 10	**5.2.2 Numeral Sequences Forwards & Backwards:** Place out a numeral sequence. *Here are some numbers. Watch me as I count them forwards and backwards.* Point to each numeral in turn, while counting forwards and then backwards. *Now say the numbers with me. Now you do it yourself.* Numerals 0 - 10	**5.3.2 Establishing a collection of given numerosity:** Place out around 30 counters (all the same colour) *Give me x from the group* Double Sided Counters	Repeat above sequence using random array cards Random arrays 1 to 4	**5.5.2 Sequential patterns for 1 to 5, fingers unseen (bunny ears):** This time don't look at your fingers when you make the number on your fingers. DO three with me. Ready ... *After the child responds: Look at your fingers and see of you are right* Repeat on the other hand *This time use your other hand*	**5.6.2 Copying and counting rhythmic patterns:** *Listen to my pattern and see if you can copy it.* Clap a 2 pattern. *Now try this one.* Clap a 2-2 pattern. Similarly try the following patterns 1-2, 2-1, 1-3, 3-1, 3-3, 2-3, 3-2 *Try to count how many claps in my pattern*
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5.1.7Saying the number word before: *I'm going to say a number and I want you to say the number before the one I say. Ready? ...*	Place out the numeral track with numerals covered. Uncover a numeral. *What number is this?* Leave that numeral uncovered. Point to another lid. *So what numeral is under here? .... Would you like to check?* Numerals 1 – 10 Numeral Tracks		Repeat above activity but this time, Flash the domino, pairs and random array cards. Domino, Pairs and Random Array Cards	**5.5.7 Use finger patterns to keep track of temporal sequences of sounds:** *Watch me as I clap.* Clap three times. One, two, three. *Use your fingers to keep track of how many times I clap. Clap x times. How many was that? Repeat with other hand* *Now look away and keep track of how many times I clap my hands.*	

THE PLANNER

The planner is ideally used ***horizontally*** , so that each strand reinforces the understanding and

E.g. oral counting 1-3, reinforced by numerals 1-3, counting activities 1-3, dot patterns 1-3, finger patterns 1-3 etc

THE PLANNER

Emergent Level is numbered **5** – *chapter 5 in the green book*

The **strands** on the planner are numbered across the way

e.g. *5*.1 *5*.2 *5*.3 etc

The progressive **activities** for each strand and numbered down the way

e.g. *5*.1.1 *5*.1.2 *5*.1.3

LOOKING AT NUMBER STRUCTURE **5.4-5.6**

Oral counting 5.1, numerals 5.2 and addition and subtraction 5.3 are progressive and easy to follow.

"...the most commonly observed characteristic of low attaining mathematics students is a persistent dependence on counting by ones."

Developing Number Knowledge: Assessment, Teaching and Intervention with 7-11 year olds by Robert J. Wright, David Ellemor-Collins and Pamela Tabor

"The research found an important difference between the low and high achieving students – the high achieving students used number sense."

Jo Boaler

5.4 SPATIAL PATTERNS

TO DEVELOP THE INITIAL FACILITY TO ASCRIBE NUMBER TO SPATIAL PATTERNS AND RANDOM ARRAYS

Subitising – *ability to instantaneously recognise the number of objects in a small group without the need to count .*

https://www.youtube.com/watch?v=xFcXHhV5sI0

http://www.education.vic.gov.au/school/teachers/teachingresources/discipline/maths/assessment/Pages/lvl1trust.aspx

WHAT DOES THE PLANNER SAY ?

5.4.1 (DOTS) – *ACTIVITY 1 PROGRESSION*

Step 1

- **Ascribing numerosity to patterns and random arrays: DOMINO CARDS 1-6**
- 1. **Display** domino card (in order-randomly) *How many dots do you see?*
- 2. **Flash** domino card (in order- randomly)

Step 2

- **Ascribing numerosity to patterns and random arrays: RANDOM ARRAY CARDS 1-4**
- 1. **Display** random array card (in order-randomly) *How many dots do you see?*
- 2. **Flash** random array card (in order- randomly)

Step 3

- **Ascribing numerosity to patterns and random arrays: PAIRS PATTERNS CARDS 1-6**
- 1. **Display** pairs patterns card (in order-randomly) *How many dots do you see?*
- 2. **Flash** pairs patterns card (in order- randomly)

WHAT DOES THE PLANNER SAY?

5.4.2 (*FINGERS AND DOTS*) *ACTIVITY 2 PROGRESSION*

Step 1

- **Making Spatio-Motor Patterns**
- 1 .**Display** domino card.
- -make a pattern in the air to show number of dots
- -make pattern in air without looking at the card
- *Repeat with Pairs and Random Arrays*

Step 2

- **Making Spatio-Motor Patterns**
- 2 .**Flash** domino card.
- -make a pattern in the air to show number of dots
- *Repeat with Pairs and Random Arrays*

WHAT DOES THE PLANNER SAY?

5.4.3 –(AUDITORY AND DOTS)*ACTIVITY 3 PROGRESSION*

Step 1

- **Making auditory patterns to match spatial patterns**
- 1 .**Display** domino card.
- Clap your hands to show the number of dots on the card.
- *Repeat with Pairs and Random Arrays.*

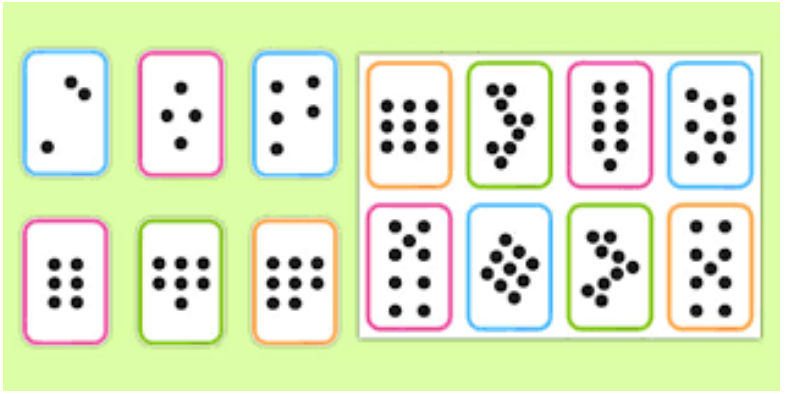
Step 2

- **Making auditory patterns to match spatial patterns**
- 1 .**Flash** domino card.
- Clap your hands to show the number of dots on the card.
- *Repeat with Pairs and Random Arrays.*

SUBITISING IN THE ENVIRONMENT

SUBITISING IN ART AND LANGUAGE

OTHER RESOURCES FOR SUBITISING



PLANNED ACTIVITIES; GROUP WORK

POSSIBLE ACTIVITIES

Snack table - have the number of items the children can have. Introduce the domino, pairs and random array. Adding in each one once it has been introduced to the children. Then when children are familiar with all arrays - mix them up.

Washing number line with domino, pairs and random patterns

This can also be done on toilet doors

Play dominoes, snap (with domino cards, pairs and random arrays)

Mix them all - play dominoes and snap with the mixture of cards

Round and Round - (orchard toys) using the dice to move the appropriate number of spaces

Ladybirds (orchard toys) - recognising domino patterns and counting collections

Snakes and ladders /Play any games with a dice

Make dominoes out of playdough, children throw the dice and add stones to make the domino pattern to match the dice

POSSIBLE ACTIVITIES

Put out an empty dice with square blank paper, ask children to add numbers to the dice, using domino, patterns or random numbers.

Ask children to make the domino game by filling in the dots in the card patterns, laminate and the children can use these to play with or take home.

Children can make their own domino, random, pair flash cards to use in the nursery and then take home

Paint stones - dots, numbers

Hunt for objects to match the number on the dice

Have a number line with numbers, ask children to add the dots in different patterns i.e. domino, pairs and random arrays

Make dominoes out of playdough, children throw the dice and add stones to make the domino pattern to match the dice

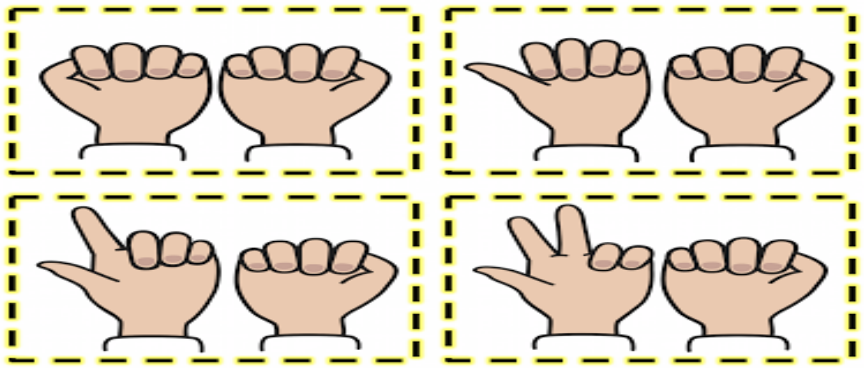
5.5 FINGER PATTERNS; GROWING AND THROWING

TO DEVELOP INITIAL FACILITY WITH MAKING FINGER PATTERNS

Finger patterns provide **multisensory** input and convey the ordinal and cardinal aspects of number

Neurocognitive research suggests that children with good finger-based numerical representations show better arithmetical skills and that training finger gnosis /finger sense enhances mathematical skills.

Moeller et al (2011)



WHAT DOES THE PLANNER SAY?

5.1 TO 5.5 *MAKING FINGER PATTERNS PROGRESSION*

5.1, 5.2 Sequential patterns 1-5

- Growing; finger patterns 1 to 5 -*seen*
- Growing: finger patterns 1 to 5- *unseen* Bunny Ear

5.3, 5.4 Simultaneous Patterns 1-5

- Throwing ; finger patterns 1 to 5 -*seen*
- Throwing ; finger patterns 1to 5 –*unseen* Bunny Ear

5.5 Double patterns 1-5

- Doubles 1 to 5; both hands *seen*

WHAT DOES THE PLANNER SAY ?

5.6, 5.7 FINGERS WITH MOVEMENT AND SOUND

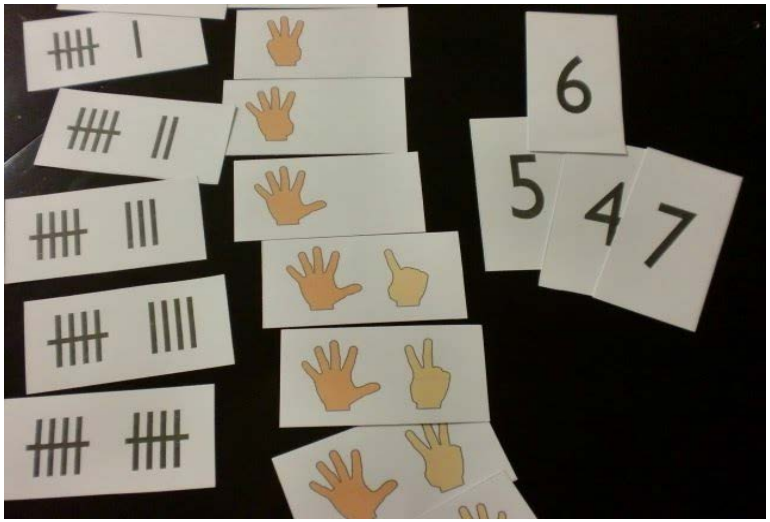
5.6 Temporal Sequences of Movement

- Track and count a sequence of movement (1-5) with finger pattern- practise each hand

5.7 Temporal sequences of sound

- Track and count sound sequences(1-5) with finger patterns – practise each hand

USING RESOURCES



Signs /pictures are used all around the learning environment : Snack area, how many can play?

In conversations and questioning :show me how many in our group today ?

POSSIBLE ACTIVITIES

We are going to tidy up in 'X' seconds, listen to my claps and tell me how many seconds

Music area - have challenges up. Children take a number and then beat the drum the right amount. When confident with this activity, children can work independently and in pairs with this task.

Actions - finger songs e.g. fish alive, 5 little men in a flying saucer

Books

Use any number stories and instead of saying the number - clap the number and the children say how many claps. Ask the children to look away when you clap and say how many.

WHAT DOES THE PLANNER SAY?

COPYING AND COUNTING TEMPORAL PATTERNS AND SEQUENCES

6.1-MOVEMENT 6.2 6.3 6.4-SOUND

6.1 Copying /counting movements

- Watch , do it with me and count , you do this number chopping movement, counting aloud

Copying/counting rhythmic patterns

- Copying clapped rhythmic pattern
- Count claps/sound in pattern

Copying /counting monotonic patterns

- Count clapped/sound monotonic pattern 1-10
- Make **x** claps

Copying /counting arrhythmical sequences /sounds

- Count claps/sound in arrhythmical pattern 1-10
- Make **x** claps/sounds

RESOURCES

POSSIBLE ACTIVITIES

Use movement outside and in PE - copying and counting rhythmic patterns

Use sounds, counting sequences in the music area

Clap - we are going to tidy up in 'X' seconds…

What's the time Mr. Wolf?

Hickory Dickory Dock - song

Drumming games

Use your body for tapping and clapping

Using musical instruments

HOW CAN WE INTEGRATE SEAL INTO OUR ESTABLISHMENTS?- LOOKING AT GOOD PRACTICE

- 10 schools trained last year: Colgrain, Inverary, Lochgilphead, Kilmartin, Park, Kirn, Dunoon, Sandbank, Tobermory, Salen;
- More training this year including: JLB, Kilcreggan, Rosneath, Rockfield, Tarbert, Dalintober, Bowmore and Port Ellen, Tayvallich, Carradale and Drumlemble;
- Using the SEAL approach in Early Years > Primary

SEAL

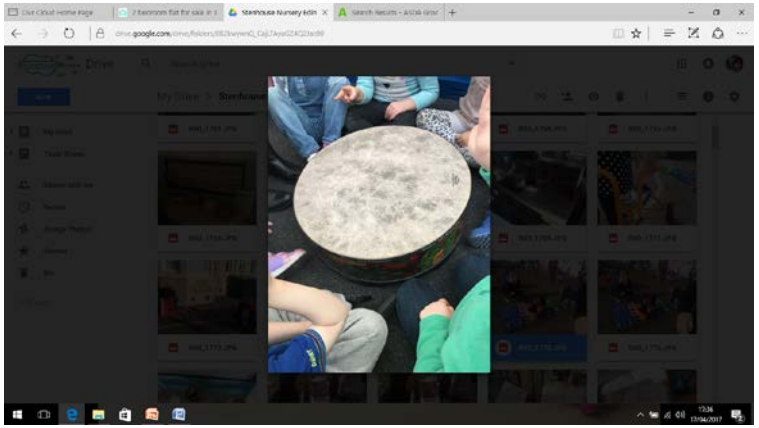
Embedded in: Play experiences

Group time – Adult lead

Everyday routines

e.g. tooth brushing & snack time

GROUP TIME – GROUP A



Temporal sequences & sounds

Watch me as I strike the drum…

Children could use their fingers to keep track of how many

Now look away…

Repeat

Children could clap back how many strikes they heard

Throw me how many strikes of the drum you heard etc.

GROUP TIME – GROUP B

Numicon

Variety of different sized boxes

Use of language – bigger than, smaller than etc.

Numicon inside each box

Counting the circles in the Numicon

Growing/throwing the number

Clapping the number

GROUP TIME – GROUP C

Shiny Numbers

Focused on identifying the number

Throwing the number / growing the number

Putting the numbers in order

Showing the number on their fingers (some count first)

GROUP TIME – GROUP D

Dot patterns

Identifying the wooden numbers

Counting how many dots on the dot card

Matching the wooden number to the correct dot pattern

Ordering the cards and wooden numbers

NUMICON

The use of apparatus builds children's mental image of abstract concepts, and helps to develop their understanding of the connections between different areas of mathematics

Multi sensory approach

Developing fluency, reasoning and problem solving

Seeing patterns – making connections

NUMICON

Free play

Experimenting

talking/symbolising/ representation

predicting/visualising

making connections

playfulness

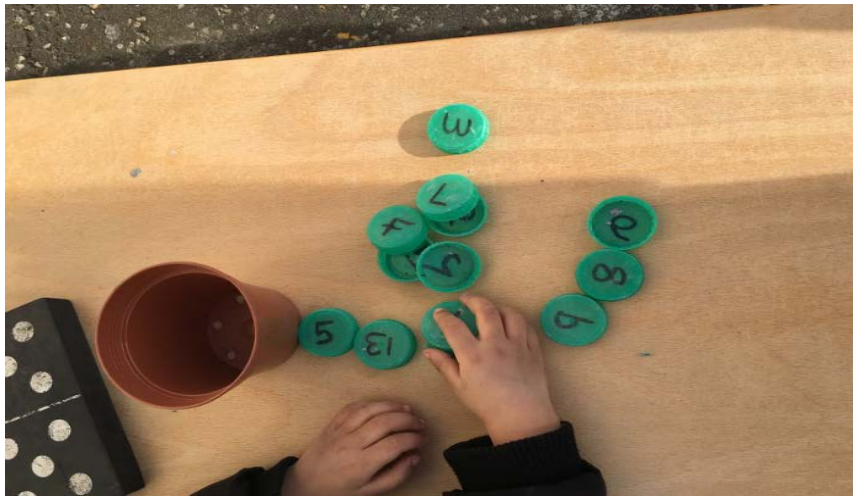
reflecting on thinking

“This piece is bigger, it has more holes, I can put 7 stones in this piece and only 5 in that piece…”

SEAL - OUTDOORS

Possibility of using domino patterns and changing these to random patterns in time.

SEAL - INDOORS



Children need to make their own connections through playing and exploring.

General feeling of ‘calm’ in the nursery, natural materials were heavily utilised also.

Resources available were familiar to the children as they would be used during the group time. Influencing the way in which children would play with them.

Deepen understanding through varied contexts

Five currant buns...

Talking tins

Wooden numbers

Domino patterns

Opportunity for children to use the skills they are developing through the adult led group activities within their free play

SNACK TIME

Use of finger patterns and Numicon flashcards to indicate how many of each item to take at snack time

Building an awareness of number in a variety of contexts and everyday routines

TOOTH BRUSHING

Focus on questioning

How many children are here today?

Is anybody not here?

How many altogether?

Can we clap that number?

Children would number /order themselves

Throw me the number of children here?

Setting out the portions of toothpaste similar to the Numicon structure

Children taking tissues when number is called

SEAL - PACE

Planners - Repetition is okay, no rush to get to the end of the planner

Progress in planner only once children are deep in their understanding of that aspect

Deepen understanding through a range of experiences and contexts

Develop a flexibility with numbers

Phases – Emergent and Perceptual – achieved on average by end of Primary one.

RESOURCES

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