Maths in the Early Years

The Importance of Noticing

Statutory Framework for Early Years

Mathematics

ELG: Number

Children at the expected level of development will:

- Have a deep understanding of number to 10, including the composition of each number.
- Subitise (recognise quantities without counting) up to 5.
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

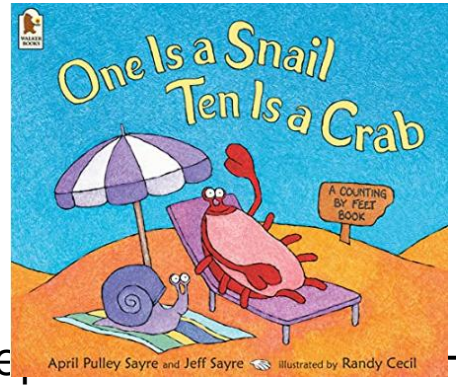
ELG: Numerical Patterns

Children at the expected level of development will:

- Verbally count beyond 20, recognising the pattern of the counting system.
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

This is by no means all that we teach – We also include developing the children's special reasoning skills by exploring. shape, space and measures.

Counting for number order and position (ordinality)



Playful ways of exploring pattern and re — songs, rhymes, stories and games

Numbers for position — 1st, 2nd, 3rd, if you are 3rd you are still 1 child not 3 children despite having the label 3.

Numbers for labels — phone numbers, codes, children saying I am 4

Good for children see us writing numbers in meaningful ways,
phone numbers, addresses, lists, time.

What is subitis

• Perceptual subitising – seeing the whole amount instantly and labelling it. Seeing 1, 2 and 3.

• Brain struggles with more than 3 in a random arrangement.
• In a pattern the brain can perceptually subitise and see larger amounts (dice patterns, tens frames)

• Conceptual subitising – Seeing the whole amount as parts and then knowing the whole amount by combining these parts.

I see a 4 and a 2, I know that is 6.

• Children need to learn that numbers are made up of parts to support addition, subtraction, multiplication, division, fractions – when number parts are removed/added and joined to create new amounts.

How do we develop children's subitising skills?

- Key questions to draw out their explanations to developing their reasoning.

What do you notice/see?
How do you know that it is 4?
Is that 3? Why/why not?

- Direct teaching, using objects with low cognitive load to move and discuss what they see.
- Noticing everywhere in their play – large objects (trees, tyres) small objects (acorns on a branch, toys in the sand)

- Routines that involve everyday problems

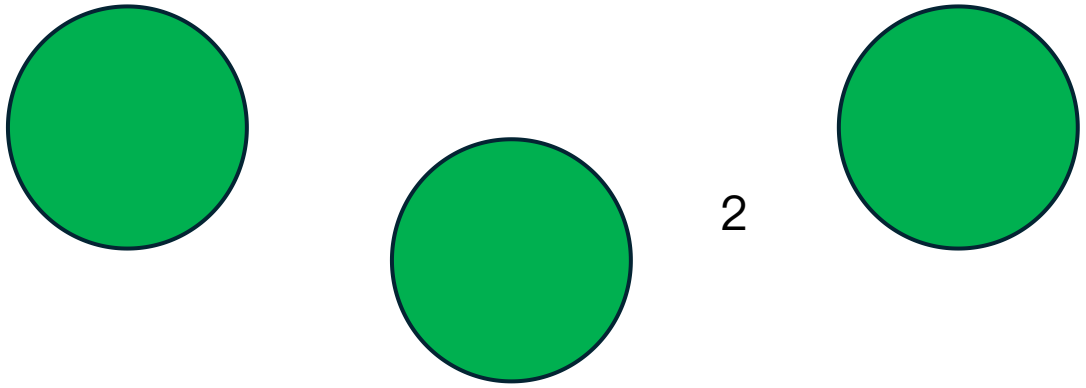
Providing the right number of milks to a group of children. We have 3 we need 1 more.

Seeing how many days until an event on the calendar.

- Games – Having 4 bears then using a blanket to cover 2 children reason and explain what is hidden (I know there are 2 bears hiding, because I can see 2 and I know that 2 and 2 makes 4)

  - Stories – What do you notice on this page? – Be open to what the children are noticing.

Some difficulties children might have when counting for cardinality



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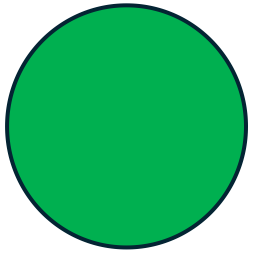
3

It can be confusing we are showing 1 symbol – 4 but there are 4 things.

If you write the digit 4 you can't 'see' the parts within 4, how it is made up – 2 and 2 or 3 and 1 or 1 and 1 and 1 and 1.

When counting 1,2,3,4 children learn to copy us and repeat the last number instead of understanding the whole group is labelled 4.



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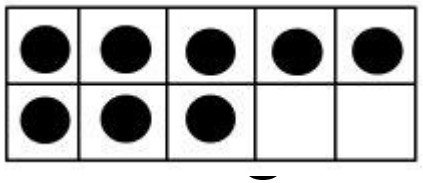
Why does it matter if a child counts each object to find the total?

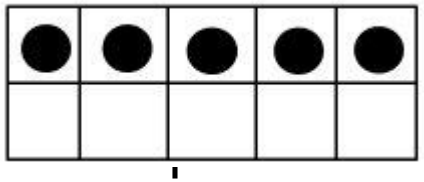
A child who has relied on counting on and back in 1's to calculate will struggle to use known facts.

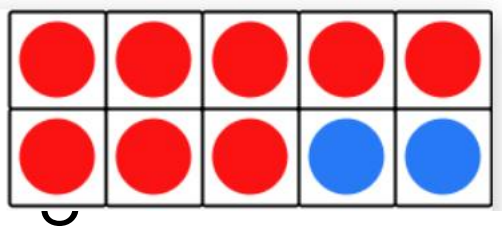
8+5= (A child may use fingers to begin at 8 and count on 5 more, or select 8 counters and 5 more then count the all of the counters)

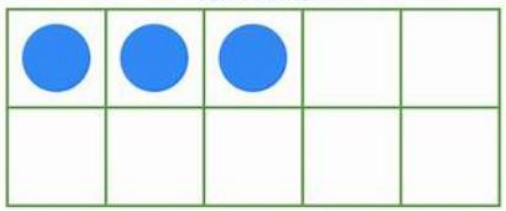
This is not an efficient way of calculating to add, subtract, multiply and divide.

Instead a child who knows that 8 needs 2 more to make 10 and that the 5 is made up of 2 and 3 will quickly calculate that there is 13 in total.







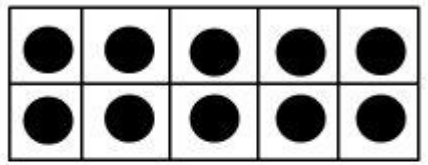


Building strong visual concepts of number

Our math system is made up of units of 10, once we fill a ten we begin creating the next ten. This is important in understanding place value — the value each digit has in a number.

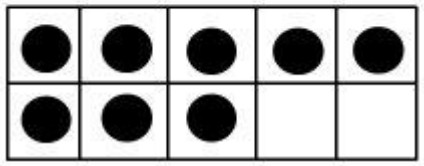
Five and Ten frames

The children begin by using 5 frames and describing them. It is full or empty, there is 4, I need 1 more to make 5. 10 frames are introduced and children begin to notice and label amounts without counting, but by recognising the patterns (subitising).



Here we would describe the amount as 1 full ten and 8 of the next ten.

At the same time we would write the digits 18 to give them meaning.



t confused with teen numbers, in 18 the 8 is said first leading to them writing 81. By making the amount on 10 frames they understand what it looks like and what the 1 and the 8 digit represent.

How we use tens frames

Story vote

Calculating

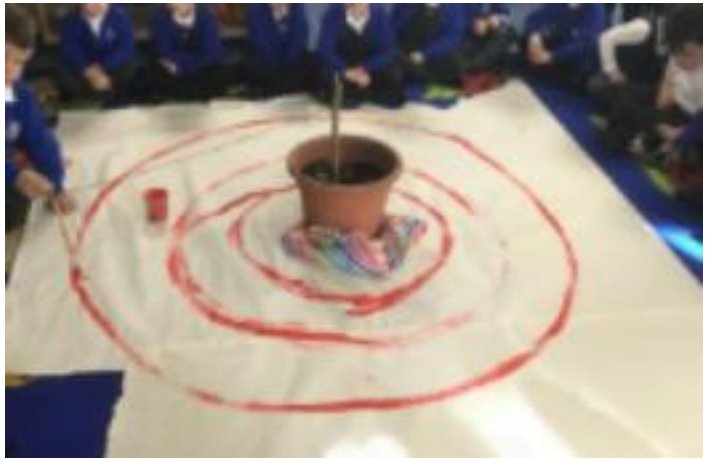
Scoring games

Calculating

Shape, Space and Measures

As with all our teaching, we begin with the maths concepts and then think about how children will learn best.

Adults modelling correct language alongside practical activities, solving real meaningful problems.



Creating circles

What would make a good sledge?

Part whole models