Reception Maths
Stay and Play

What maths discussions or thinking could you create with your child with just one tube of Smarties?

Aims

To give you an understanding of the Reception maths curriculum and next steps

To give you an insight into activities that your children take part in at school

To allow you opportunities to explore mathematical activities with your child

To provide you with ideas of how you can incorporate maths at home

Reception Early Learning Goals - Mathematics

Mathematics Number ELG

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.

Numerical Patterns ELG

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.

How CtS teaches Maths

- Carpet sessions linked to the topic where applicable
- Making Maths 'real' for children – giving it familiar contexts with meaningful purposes.
- Putting 'Maths' opportunities in all learning areas (cross-curricular links) – inside and outside the classroom!
- Problem Solving Activities & Open-Ended Child Led Investigations.
- Implementing the Maths Mastery Scheme: Depth vs. Breadth in Maths Lessons, e.g. mastery of smaller numbers vs. bigger numbers.
- Using the CPA model to teach key concepts (C = Concrete P = Pictorial A = Abstract).
- Giving children the opportunity to reason and explain and to record their findings systematically.


LOVE
Is All We
NEED
Up the Spiral Staircase
What book do I want?


5
6
7

Counting

When counting, children need to understand these key principles …

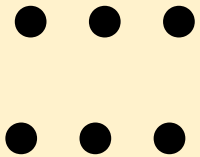
1. One-to-one principle - that we need to say one number for each object counted. Touch counting – match one number name to each item to be counted
2. Stable order principle - say the number names in the correct order
3. Cardinality principle – the last number in the count is the total size of the group.
4. Abstraction principle - anything can be counted e.g. sounds
5. Order irrelevance principle - that we can count objects in any order and the total stays the same.

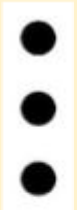
Recognising amounts – subitising

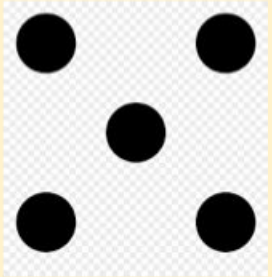
Another skill is to develop other mental strategies to identify the number of items in a group without counting them individually e.g. 6 dots on a dice: seeing this as two groups of three which we combine to make 6.

A child's ability to subitise is a measure of how well they understand the 5 counting principles.

Initially this should be by using concrete objects such as dice. As children progress, allowing them to see groups of dots in different arrangements helps them to mentally 'see' how many objects are there without needing to count. This is a very important skill when children begin to add and subtract.







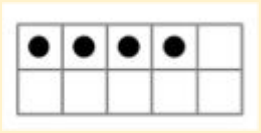
Representing numbers

In Reception we aim to teach so that children have a deep understanding of number.
We want to develop children's number sense so that they understand the number rather than just recognising the numeral.

Children need to understand that numbers can be represented in many ways, not just as a written numeral. We use many different objects and pictures to show that numbers can be represented in lots of ways.

Children sometimes need lots of practise to recognise numbers in different forms. We play games that encourages children to recognise and make different amounts in our indoor and outdoor areas.





Number bonds

Number bonds are simply pairs of numbers that add up to a total. For example, in Reception, children learn the number bonds to 10, meaning they discover all the combinations of two numbers that add up to 10 (like 1 + 9, 2 + 8, 3 + 7, etc)

Knowing number bonds means a child will be able to recall any of the facts out of order within a few seconds, as well as knowing the matching subtractions fact. i.e. 3+17 = 20 but 20- 17=3 and 20-3 = 17.

The key to learning number bonds is frequent repetition.

The Key to learning number bonds is frequent repetition

1) Chanting - Have your child chant out the number bonds for example '2 add 8 equals 10, 3 add 7 equals 10…. Have fun with it! See if they can do it in different voices like a robot, a parrot or a silly voice. Can they shout it out loud, can they whisper it?

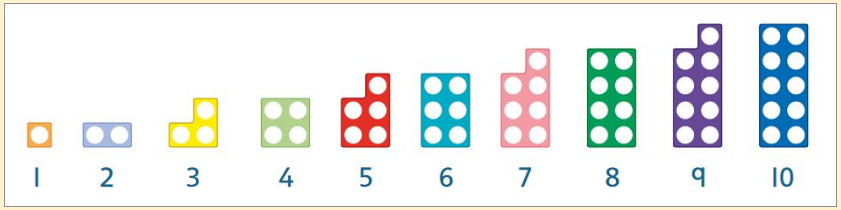
2) Flash cards - Create flash cards to help your child. You could select certain facts they keep getting stuck on rather than the whole set.

3) Timed - Time your child and make it into a competition. Can they beat their last score? Put the timer on for 30 seconds and see how many they can answer.

5) Bingo - Create a 2 x 3 grid (6 boxes) and have the children write any numbers under 10 or 20. Write number bond questions on slips of paper and put into a bowl. Take it in turns pulling out a question and if you have the answer then cross it off. The first to cross out all their numbers win!

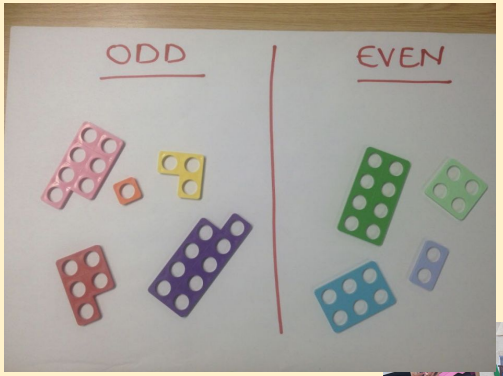
Bingo Game

Numicon



It is:

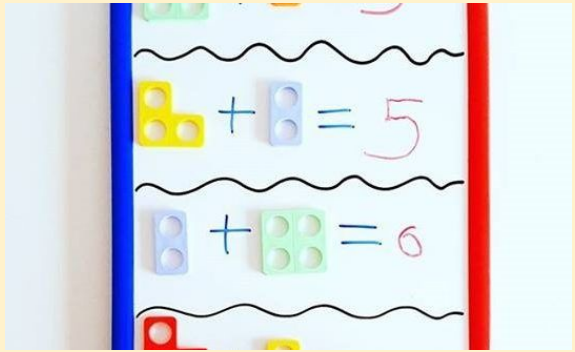
- Multisensory tactile and visually appealing
- Making numbers and number relationships real
- Calculating without counting
- Making connections; using and applying



Any number is possible

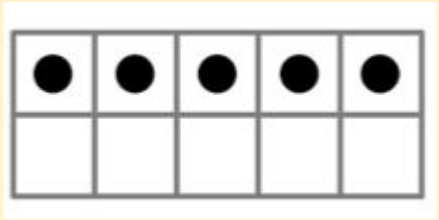
Odd and Even

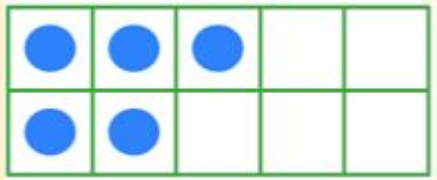
Addition and subtraction



5 & 10 Frames

- Moveable so children can see numbers in a range of ways
- Making numbers and number relationships real
- Learn addition / number bonds to 10

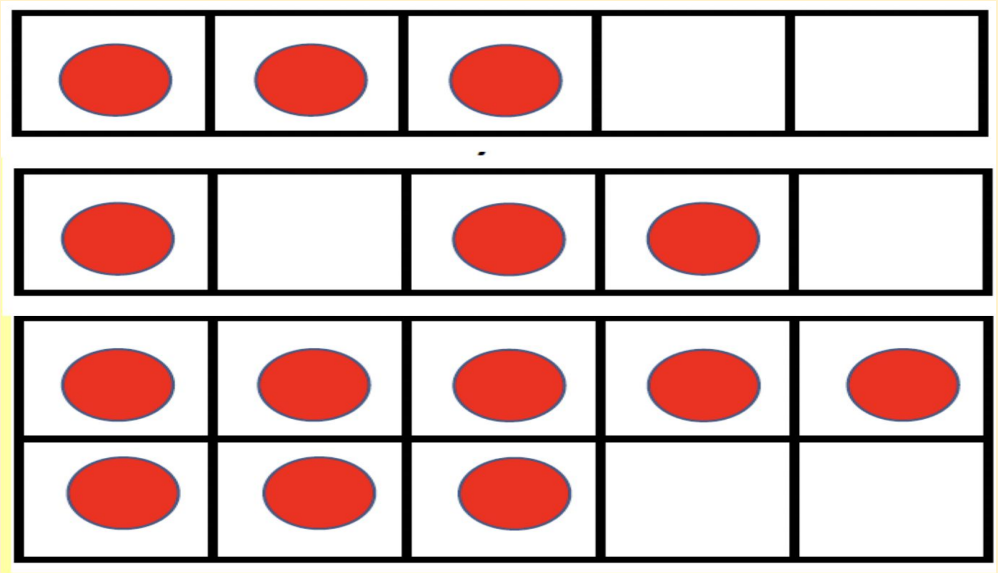




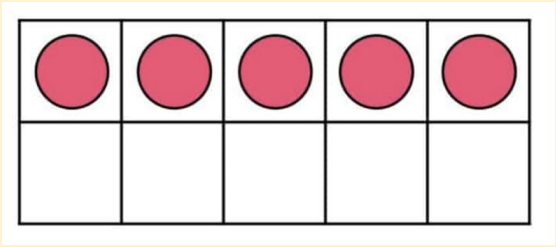
5 & 10 Frames

Five Frame to develop number sense to 5

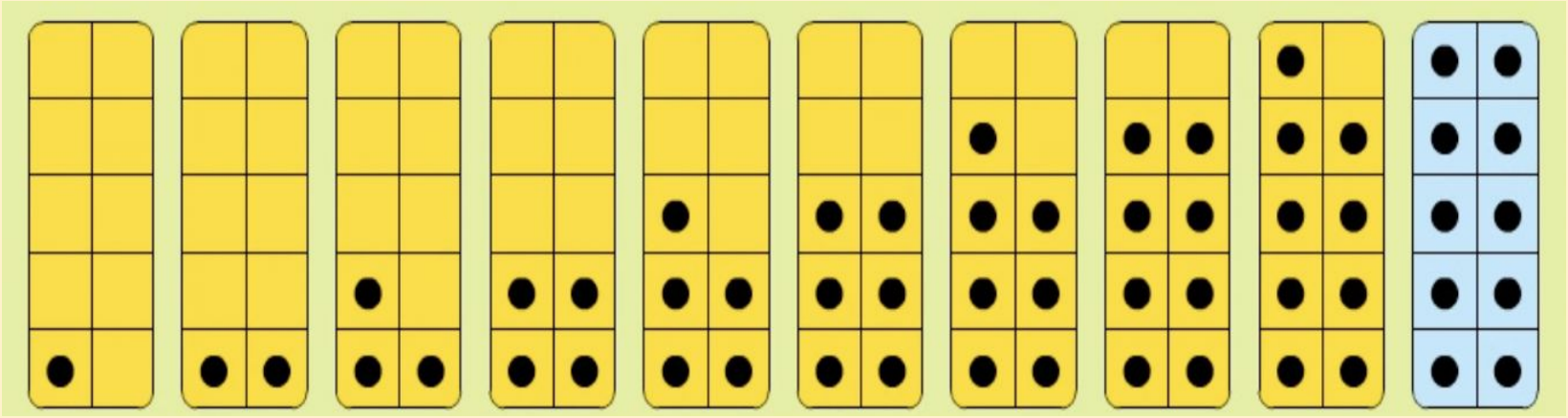
- Seeing the numbers in different combinations with an element of speed
- Seeing for a few seconds children begin to find new strategies rather than counting e.g. grouping them



How many are there?
How do you know?



Counters in rows of 5 as a benchmark
Easily see more or less than 5



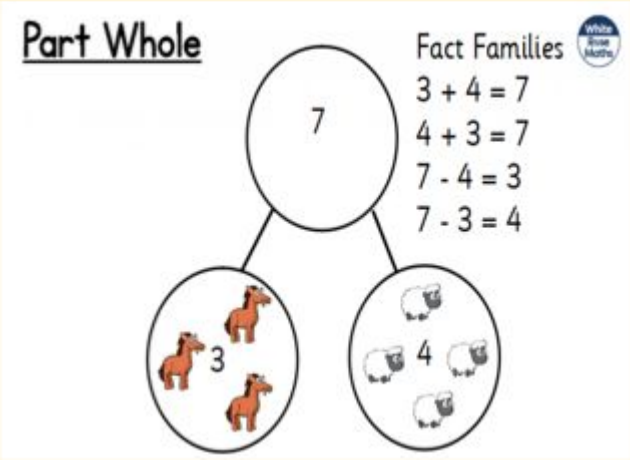
Counters in pairs naturally lead the eye to addition concepts and doubles

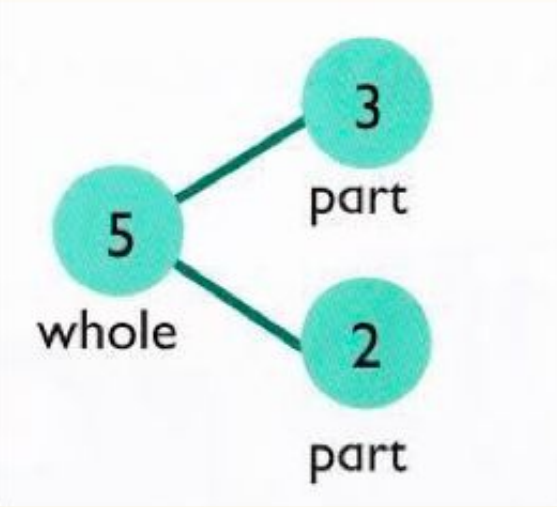
Even numbers are like double facts
Odd numbers have a dot without a partner


10
2


UNO
UNO
9
4


Sticker Board
LABOR DAY
LABOR DAY!
Great Job!





Part-Part Whole Model

The Part-Part Whole model is the concept of how numbers can be split into parts and composed of smaller numbers.

Children using this model will see the relationship between the whole number and the component parts, this helps learners make the connections between addition and subtraction.

Part-Part Whole reasoning also helps pupils to interpret, visualise and solve word problems.

Can be done on a large or small scale

You can use anything at home

Show me

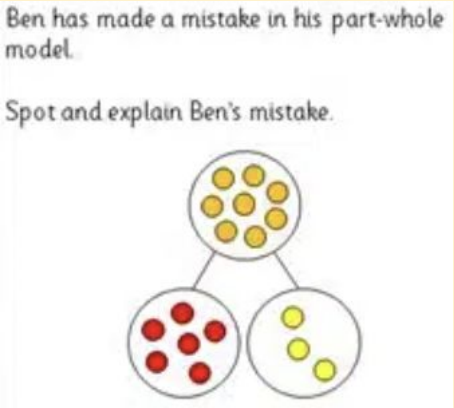
3 + 5

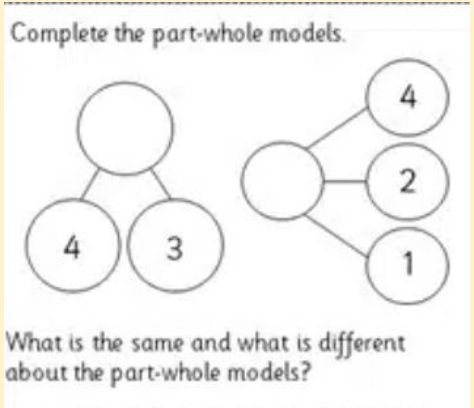
Reasoning

Reasoning in maths helps children to be able to explain their thinking, therefore making it easier for them to understand what is happening in the maths they are doing. It helps them to think about how to solve a problem, explain how they solved it and to think about what they could do differently.

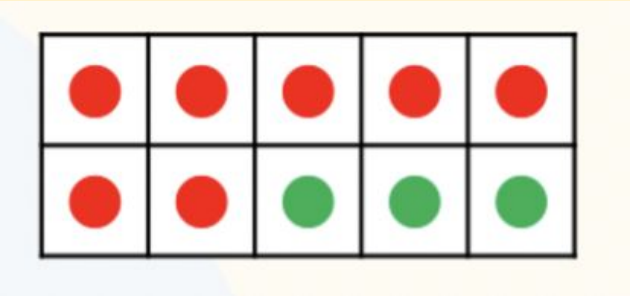
Challenge:

Part-Part



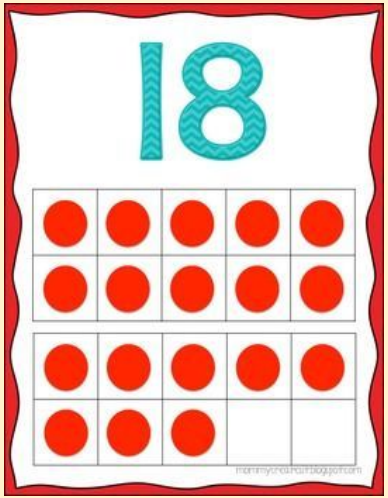


10 frame



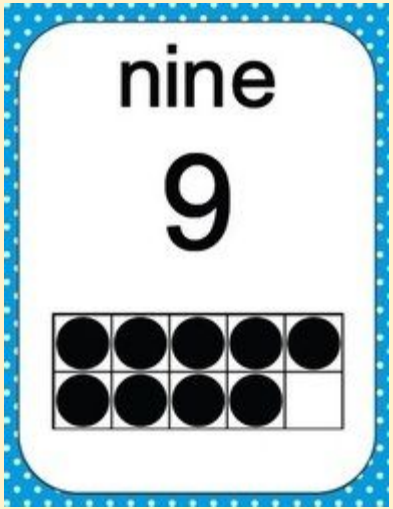
True or false?
This 10 frame shows the number bond 7 + 3

Extension - children predicting whether a number will be odd or even using a 10 frame



I think 18 will be even because 10 has 2 groups of 5 and 8 has 2 4's in it

I think 9 will be odd because it has a 5 and 4 so they're not equal

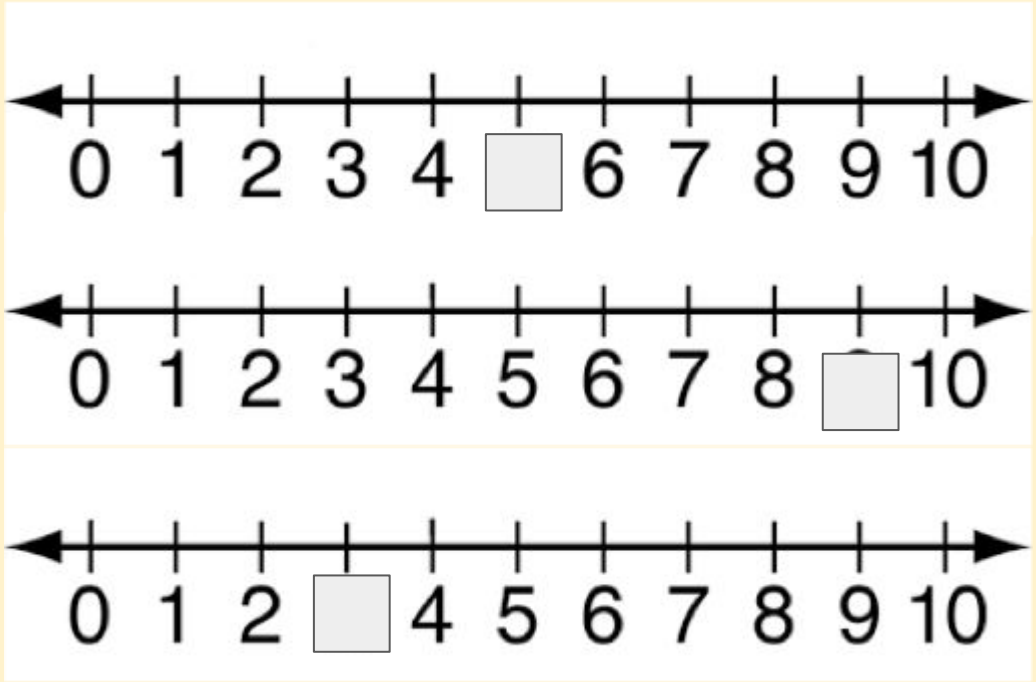






Which cookie is the odd one out? And why?

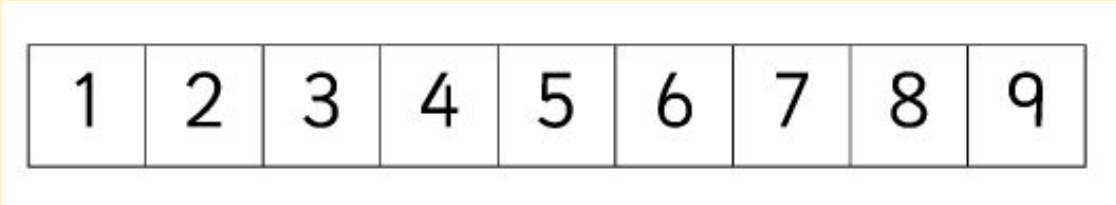
This naughty alien is stealing numbers from the number lines, then putting them in his bag.
Which three numbers would you find in his bag?



Shape, Space and Measure

Number formation rhyme

- Come right down and that is all to make the numeral 1
- Curve around and slide to the right to make the numeral 2
- Curve in and around again to make the numeral 3
- Down across and down some more to make the numeral 4
- Down around and put on a hat to make the numeral 5
- Curve around and curl it up to make the numeral 6
- Slide to the right and slam it down to make the numeral 7
- Make an s then close the gate to make the numeral 8
- Make a circle then a line to make the numeral 9



Next steps…

Counting in 2s, 5s & 10s

Working with numbers up to 20

Reasoning skills

How can I help at home?

Google Classroom

Board games with dice

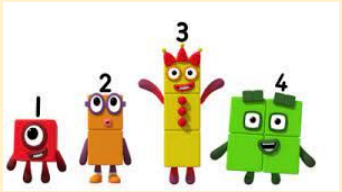
Number rhymes

Sharing / grouping items

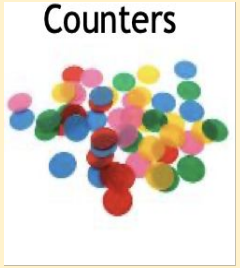
Cooking (measuring, capacity, weighing)

Shopping (money, quantities)

Numberjacks / Numtums / Numberblocks



Counters



or you could use.....

Smarties

3D shapes

groceries

or you could use.....

Counting Bears have a lot of!

or you could use.....

anything you

Pasta for counting

Cards for number recognition and counting

Chewits for counting

Magnetic numbers for number recognition

Toys to put in size order

Don’t forget outside

Language

Largest and Smallest Number

2 24 9

Where are the other 5 buses?

Can you form the numbers to 20?

Try it at home

Use a cotton bud to trace or copy numbers using paint. Can you remember the number formation rhymes?

Help cheeky puppet to put the numbers in the correct order.

Challenge: Can you order the numbers in reverse?

More bigger greater
Less fewer smaller

Try it at home

Order magnetic numbers on the fridge or make your own numeral cards to order from an old cereal box.