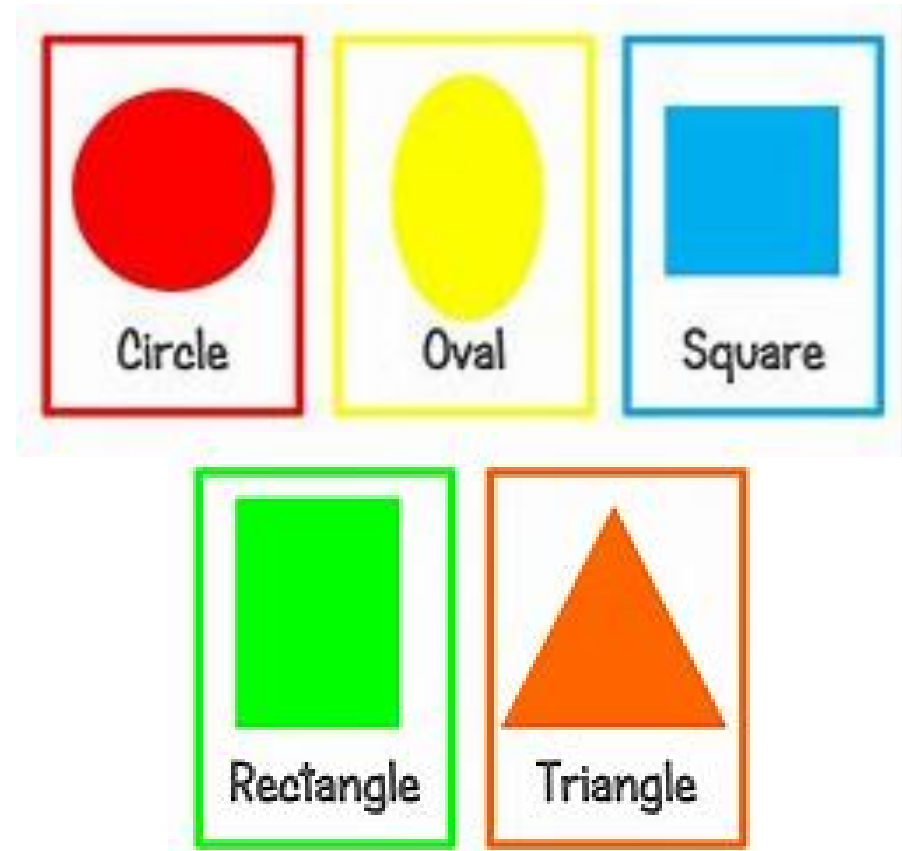
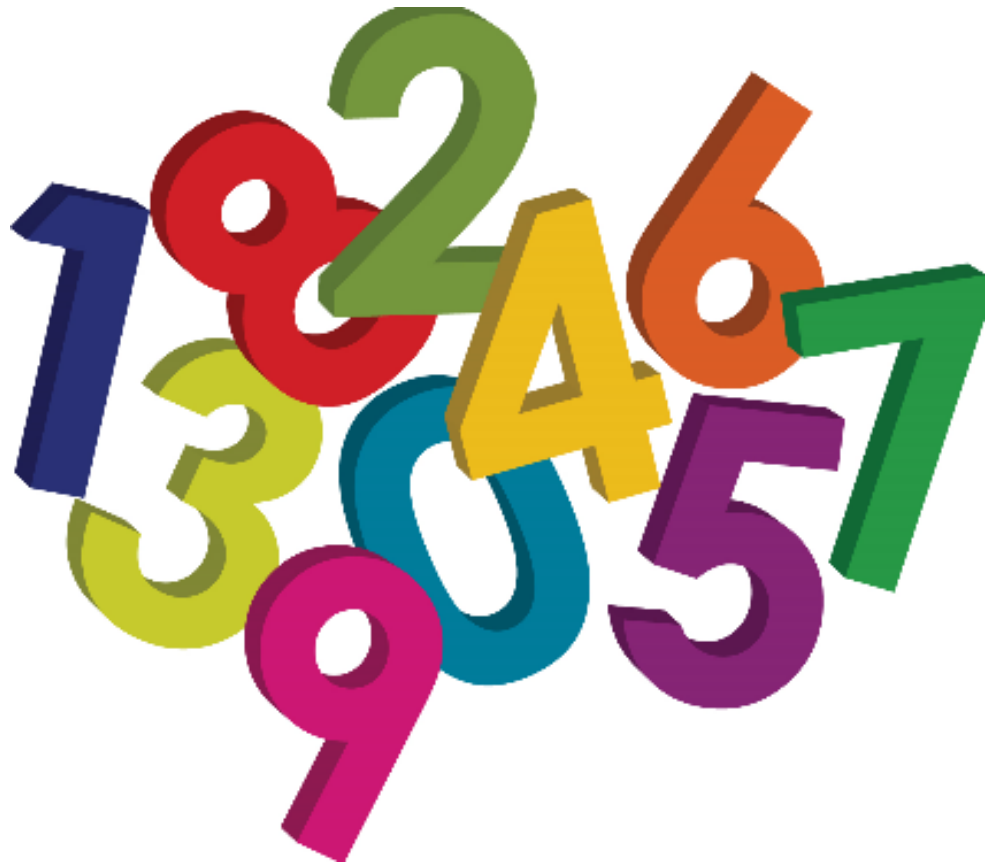


Parent Maths Workshop

27th February 2020



Maths in Reception

Area of Learning and Development	Aspect
Prime Areas	
Personal, Social and Emotional Development	Making relationships
	Self-confidence and self-awareness
	Managing feelings and behaviour
Physical Development	Moving and handling
	Health and self-care
Communication and Language	Listening and attention
	Understanding
	Speaking
Specific areas	
Literacy	Reading
	Writing
Mathematics	Numbers
	Shape, space and measure
Understanding the World	People and communities
	The world
	Technology
Expressive Arts and Design	Exploring and using media and materials
	Being imaginative

Mathematics is broken down into two strands in the Early Years Curriculum.



- Number
- Shape, space and measures

Mathematics: ELG 11 Number

30-50	40-60	Early Learning Goal	Exceeding
<ul style="list-style-type: none">• Uses some number names and number language spontaneously.• Uses some number names accurately in play.• Recites numbers in order to 10.• Knows that numbers identify how many objects are in a set.• Beginning to represent numbers using fingers, marks on paper or pictures.• Sometimes matches numeral and quantity correctly.• Shows curiosity about numbers by offering comments or asking questions.• Compares two groups of objects, saying when they have the same number.• Shows an interest in number problems.• Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same.• Shows an interest in numerals in the environment.• Shows an interest in representing numbers.• Realises not only objects, but anything can be counted, including steps, claps or jumps.	<ul style="list-style-type: none">• Recognise some numerals of personal significance.• Recognises numerals 1 to 5.• Counts up to three or four objects by saying one number name for each item.• Counts actions or objects which cannot be moved.• Counts objects to 10, and beginning to count beyond 10.• Counts out up to six objects from a larger group.• Selects the correct numeral to represent 1 to 5, then 1 to 10 objects.• Counts an irregular arrangement of up to ten objects.• Estimates how many objects they can see and checks by counting them.• Uses the language of 'more' and 'fewer' to compare two sets of objects.• Finds the total number of items in two groups by counting all of them.• Says the number that is one more than a given number.• Finds one more or one less from a group of up to five objects, then ten objects.• In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting.• Records, using marks that they can interpret and explain.• Begins to identify own mathematical problems based on own interests and fascinations.	<p>Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.</p>	<p>Children estimate a number of objects and check quantities by counting up to 20. They solve practical problems that involve combining groups of 2, 5 or 10, or sharing into equal groups.</p>

Mathematics: ELG 12 Shape, Space and Measure

30-50	40-60	Early Learning Goal	Exceeding
<ul style="list-style-type: none"> • Shows an interest in shape and space by playing with shapes or making arrangements with objects. • Shows awareness of similarities of shapes in the environment. • Uses positional language. • Shows interest in shape by sustained construction activity or by talking about shapes or arrangements. • Shows interest in shapes in the environment. • Uses shapes appropriately for tasks. • Beginning to talk about the shapes of everyday objects, e.g. 'round' and 'tall'. 	<ul style="list-style-type: none"> • Beginning to use mathematical names for 'solid' 3D shapes and 'flat' 2D shapes, and mathematical terms to describe shapes. • Selects a particular named shape. • Can describe their relative position such as 'behind' or 'next to'. • Orders two or three items by length or height. • Orders two items by weight or capacity. • Uses familiar objects and common shapes to create and recreate patterns and build models. • Uses everyday language related to time. • Beginning to use everyday language related to money. • Orders and sequences familiar events. • Measures short periods of time in simple ways. 	<p>Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them.</p>	<p>Children estimate, measure, weigh and compare and order objects and talk about properties, position and time.</p>

How do we teach maths in reception?

- Daily whole class adult led maths lessons.
- Play/ creative/ outdoor activities involving numbers and shape.
- Interactive whiteboard games.
- Stories and songs.
- Maths learning station in the classroom.

Daily Teacher Led Maths Lessons



Reception Guidance



#MathsEveryoneCan

Class pages – Reception - Spring Term Information

Autumn Progression

Number and Place Value Numbers to 5

→ One, two, three

→ Four

→ Five

Addition and Subtraction Sorting

→ Sorting into groups

Number and Place Value Comparing groups

→ Comparing quantities of identical objects

Comparing quantities of non-identical objects

Addition and Subtraction Change within 5

→ One more

→ One less

Measurement Time

→ My day

Spring Progression

Addition and Subtraction

Numbers to 5



Number bonds to 5

Number and Place Value

Numbers to 10



Counting to 6, 7 and 8



Counting to 9 and 10



Comparing groups up to 10

Addition and Subtraction

Addition to 10



Combining two groups to find the whole



Number bonds to 10 - ten frame



Number bonds to 10 - part-whole model

Geometry

Shape and space



Spatial awareness

3-D shapes

2-D shapes

Summer Progression

Geometry

Exploring patterns

→ Making simple patterns

→ Exploring more complex patterns

Addition and Subtraction

Count on and back

→ Adding by counting on

→ Taking away by counting back

Number and Place Value

Numbers to 20

→ Counting to 20

Multiplication and Division

Numerical patterns

→ Doubling

→ Halving and sharing

→ Odds and evens

Measurement

Measure

→ Length, height and distance

→ Weight

→ Capacity

The Counting Principles

Following research from Gelman and Gallistel in 1978, it is vital that teachers understand the five counting principles. (Gelman, R. & Gallistel, C. (1978) *The Child's Understanding of Number*. Cambridge, MA. Harvard University Press.)

1

The one-one principle. This involves children assigning one number name to each object that is being counted. Children need to ensure that they count each object only once ensuring they have counted every object.

Children will sometimes count objects more than once or miss an object out that needs to be counted. Encourage children to line up objects and touch each one as they count saying one number name per object. This will also help to avoid children counting more quickly than they touch the objects which again shows they have not grasped one-one correspondence.

The Counting Principles

2

The stable-order principle. Children understand when counting, the numbers have to be said in a certain order.

Children need to know all the number names for the amount in the group they are counting. Teachers can therefore encourage children to count aloud to larger numbers without expecting them to count that number of objects immediately.

3

The cardinal principle. Children understand that the number name assigned to the final object in a group is the total number of objects in that group.

In order to grasp this principle, children need to understand the one-one and stable-order principle. From a larger group, children select a given number and count them out. When asked 'how many?', children should be able to recall the final number they said. Children who have not grasped this principle will recount the whole group again.

The Counting Principles

4

The abstraction principle. This involves children understanding that anything can be counted including things that cannot be touched including sounds and movements e.g. jumps.

When starting to count, many children rely on touching the objects in order to count accurately. Teachers can encourage abstraction on a daily basis by counting claps or clicks. They can also count imaginary objects in their head to encourage counting on, this involves the children visualising objects.

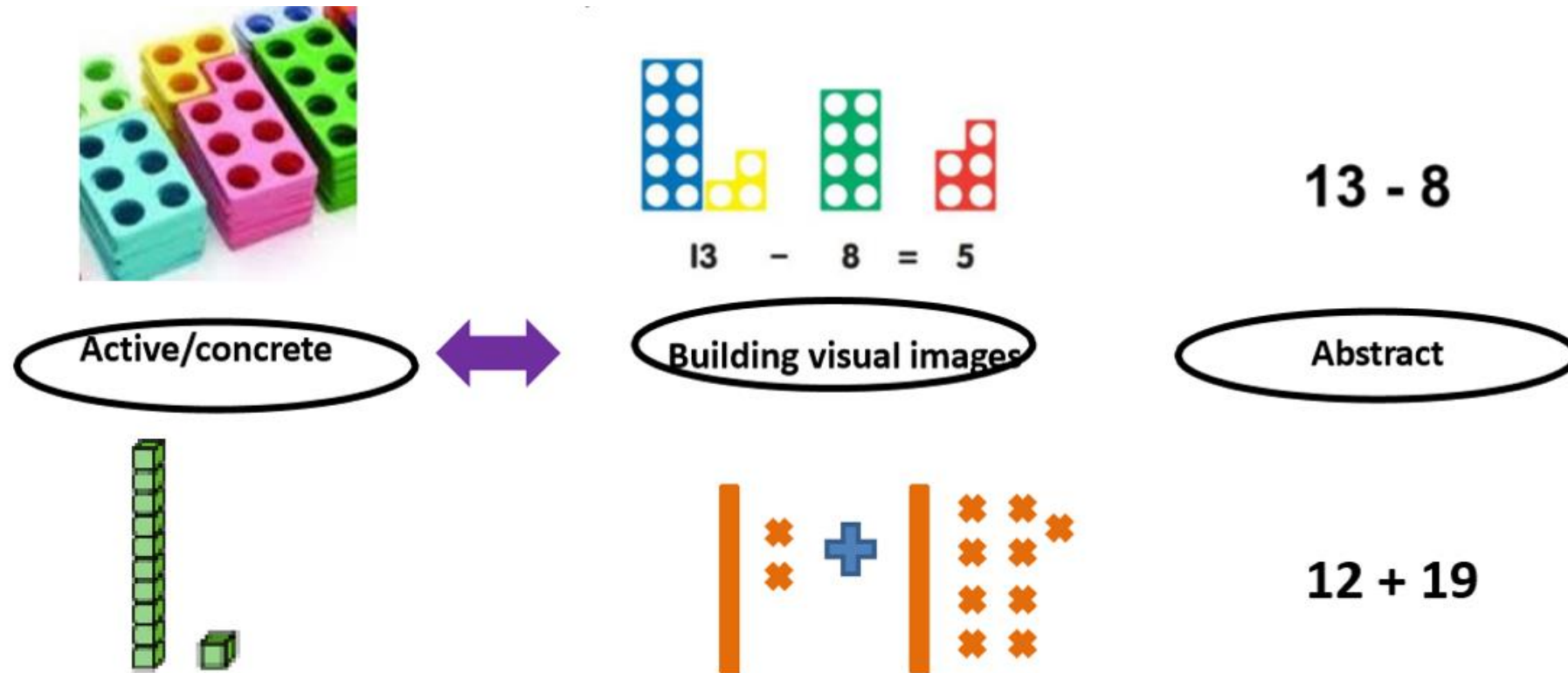
5

The order-irrelevance principle. This involves children understanding that the order we count a group of objects is irrelevant. There will still be the same number.

Encourage children to count objects, left to right, right to left, top to bottom and bottom to top. Once children have counted a group, move the objects and ask children how many there are, if they count them all again they have not fully grasped this principle.

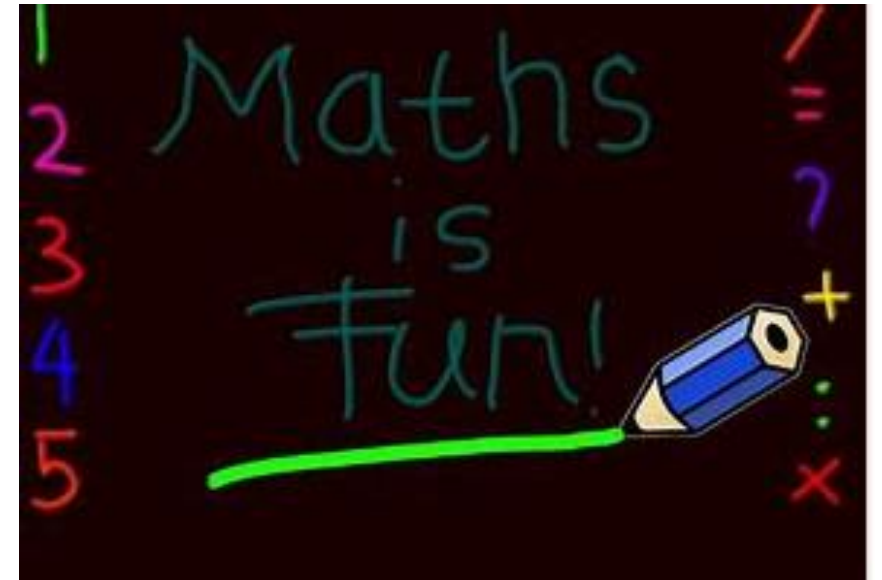
Concrete, Pictorial, Abstract

The principle of the concrete, pictorial, abstract approach is that for children to have a true understanding of a mathematical concept, there are three phases they need to master.



How Reception Children Learn Maths Best

- When maths is practical.
- When maths is purposeful.
- When maths is used as part of their own play or game.
- When maths is fun.



How You Can Help at Home Counting

Have your child count anything they are interested in counting e.g. items of clothes as they come out of the washing machine, toys, kitchen utensils, collections e.g. stickers, rocks, cars etc.

Mix it up! Have your child count a set of objects but start at different places e.g. the middle of the set rather than the beginning so they understand that the total is always the same.

Use counting in meaningful ways in games such as hide and seek. Allow children opportunities to count forwards and backwards.

Play simple board games involving dice, where they count the 'jumps.'



How You Can Help at Home

Counting and Song

Children often first learn about numbers and counting through rhyme. Songs and rhyme are an important way for all children to learn about number order, forwards, backwards, counting and calculating.

Using actions, fingers or objects when singing will help children develop skills even further.

- 1,2,3,4,5 – number names, counting/ordering forwards to 10.
- 10 in a bed – counting backwards from 10
- 5 little ducks – subtraction.
- <https://www.youtube.com/watch?v=Q-ORH9MbVto>
- <https://www.youtube.com/watch?v=YNNBHQTfb8k>



How You Can Help at Home Problem Solving

Try and involve your child in using numbers to solve problems and make everyday decisions. ‘We need six tomatoes to make our sauce for dinner, and we have only two. How many more do we need to buy?’ ‘Two guests are coming to eat dinner with us. How many plates will we need? How many knives and forks do we need?’

Top tip – encourage your child to talk about and show a maths problem in a way that makes sense to him or her – for example, your child may act it out, use the actual materials, draw it or count on his or her fingers.



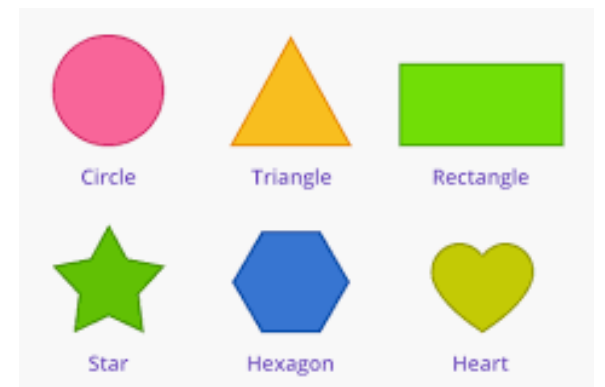
How You Can Help at Home Shape

When talking with your child, identify things by their shape and size: 'Please pass me the rectangular placemat, the largest box out of the cupboard, the square – shaped cracker and the circular plate.'

Ask your child to look for two-dimensional shapes, such as circles, squares, triangles and rectangles, on objects at home or outside.

Help your child look for three – dimensional objects: cubes, cones, spheres (such as a ball), prisms (such as a box), pyramids and cylinders.

Play I Spy with your child by asking him or her to guess the object you identify by its shape: 'I spy something that is a cylinder shape.'



How You Can Help at Home Money

- Play the coin game. Together, trace around coins and colour in the shapes. Ask your child to match the coin to the image and talk about each one's name
- At the shops – ask your child to guess how much a couple of items will cost. Give them small amounts e.g. 50p – what can they buy? Talk about the items you buy – which are more expensive, which are cheaper? Which are heavier, which are lighter? Encourage you child to do the 'self-scan'. How much does each item cost?
- Play shops – make some pretend money (or use Monopoly money) for your play shop, and use items from all over the house as shop items. By 'buying' things with play money, your child begins to understand that different things need different amounts of money.



How You Can Help at Home Maths Through Cooking

Cooking is a fun and enjoyable way to incorporate maths into every day life.

Cooking activities can allow opportunities to:

- Count e.g. how many spoonfuls do we need?
- Recognise numerals e.g when reading a recipe together.
- Understand more/ less e.g how many more eggs do we need?
- Understand capacity e.g add half a cup of water
- Understand weight and use scales for measuring.



How You Can Help at Home Useful Websites

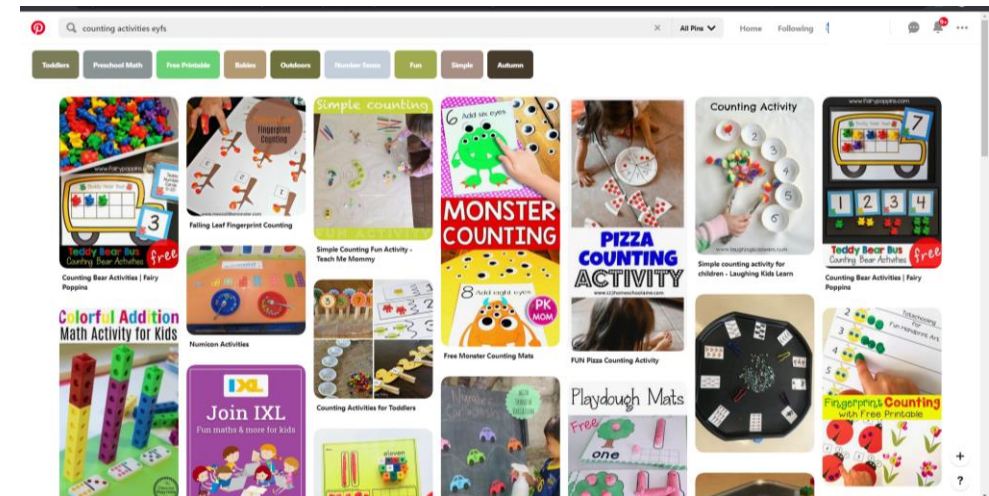
Number Blocks

Numberblocks, first broadcast in January 2017, is a pre-school BBC television series aimed at introducing children to early number.

Snappy animation and loveable characters combine with engaging storylines to gently introduce concepts of number to support early mathematical understanding.



<https://www.bbc.co.uk/cbeebies/shows/numberblocks>



[https://www.pinterest.co.uk/search/pins/?rs=ac&len=2&q=counting%20activities%20eyfs&eq=counting&etslf=10052&term_meta\[\]=counting%7Cautocomplete%7C4&term_meta\[\]=activities%7Cautocomplete%7C4&term_meta\[\]=eyfs%7Cautocomplete%7C4](https://www.pinterest.co.uk/search/pins/?rs=ac&len=2&q=counting%20activities%20eyfs&eq=counting&etslf=10052&term_meta[]=counting%7Cautocomplete%7C4&term_meta[]=activities%7Cautocomplete%7C4&term_meta[]=eyfs%7Cautocomplete%7C4)

<https://www.splashlearn.com/counting-games>

<https://www.topmarks.co.uk/maths-games/3-5-years/counting>