Number books

This list of number picture books is grouped according to a main focus on either Numbers to 10, Bigger numbers or Composition. For each book we have identified some key maths ideas which could be developed, such as number order or cardinality. The terms used are explained below*. Mo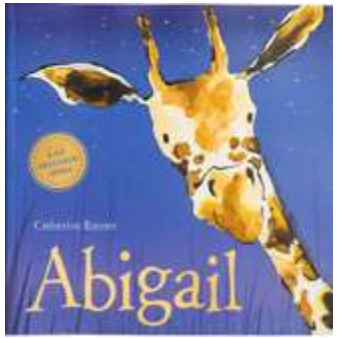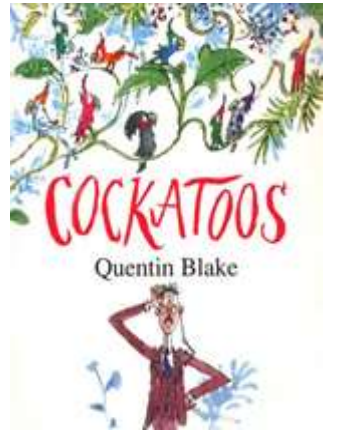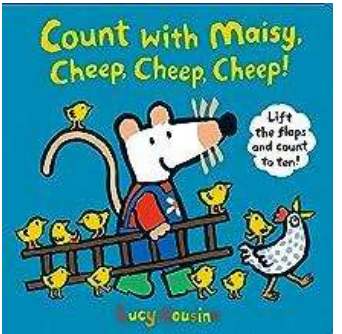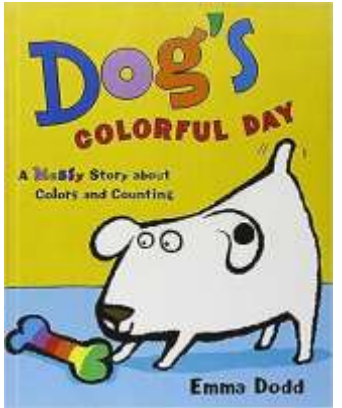st books provide opportunities for developing a range of maths topics, including some more advanced ideas than mentioned here. We have suggested age ranges from two to seven years: the number focus might vary according to the age and experience of the children and young children will be excited by bigger numbers than they understand fully. Finally, we also offer some Guidance for using the books to develop mathematical understanding, including useful links to other sites and lists.
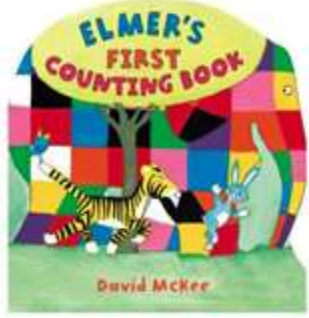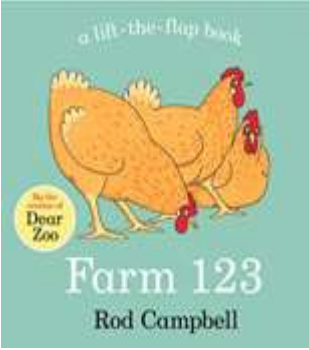
Some of these books may be out of print, but are available second hand or from library services. You can view the books via the YouTube links provided, or by accessing https://archive.org. Please note that some YouTube videos are preceded by adverts which may not be suitable for children.
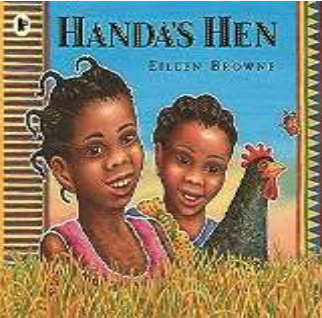
Books focusing on numbers to 10		Description	Developing the maths
	1, 2, 3 to the zoo Eric Carle 2 to 5 https://www.youtube.com/watch?v=9n9SAspDXOQ	A wordless number book, with just the numerals and collage illustrations of 1 to 10 different animals.	**Counting and cardinal number values to 10** **Numerals** **Ordinality - number order** **Subitising** **Composition** The opportunities for children to count animals from 1-10 become more challenging with irregular arrangements of e.g. wriggly snakes. Children can connect the number counted with the numeral on each page, saying the word and showing numbers of fingers. There are also opportunities for subitising, including conceptual subitising of animals, grouped spatially or by kind: children can discuss how numbers are made up.

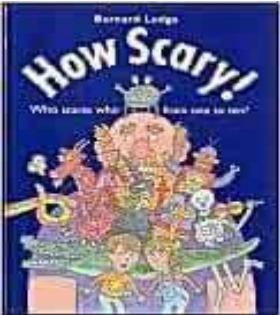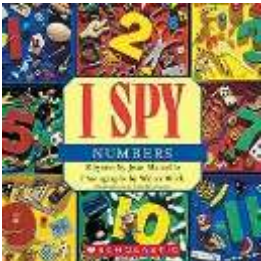|			
	1, 2, 3 what can you see in Autumn? Annie N. 2 to 5 No video currently available	A simple picture book about a squirrel and a hedgehog finding numbers of autumnal things, like acorns and conkers. This is also good for learning and talking about nature and the seasons.	**Counting and cardinal number values to 10** **Ordinality - number order** **Subitising** The numbers of items are arranged in familiar ways to encourage subitising. They are shown in order, so children can easily predict the next number, perhaps by showing fingers. The numerals to 10 are only shown on the last page, so children could identify numerals to match each image and put them in order. They could also count, arrange and label their own collections of autumnal things, like leaves and pinecones.
	10 cats Emily Gravett 3 to 6 https://www.youtube.com/watch?v=Y63Xbh_BdBs	1 mother cat, 9 kittens, and 3 pots of paint. How many cats of each colour are there? How much mischief do the kittens get into?	**Counting and cardinal number values to 10** **Numerals** **Composition of 10** The text of this book is about counting how many cats of each colour there are, but you have to look closely to spot which cats need to be counted e.g. cats with orange splotches. As the other cats are on the page, the children need to work out which cats to count and which to ignore. There is potential to discuss number bonds to ten, as there are always 10 cats in the pictures. As well as thinking about how many cats do match the criteria (e.g. orange splotches), they can then use their knowledge of bonds to 10 to work out how many cats do not.

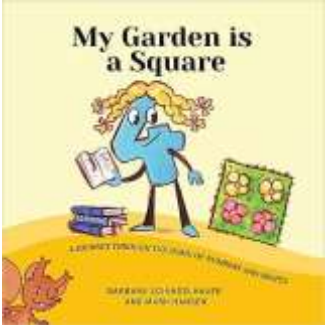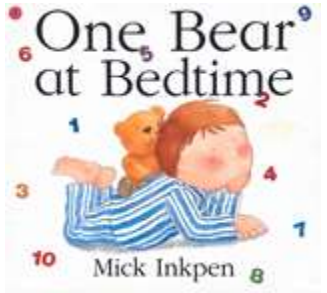|			
	Abigail Catherine Rayner 3 to 5 https://www.youtube.com/watch?v=efue8y2fg98	Abigail the giraffe tries to find things to count which stay still. Her animal friends try to help, but miss out numbers. Abigail teaches them to count.	**Ordinality - number order: counting to 10** **Numerals** This focuses on the number sequence, rather than cardinal number values. You could extend the story by using a puppet to count incorrectly and asking the children to 'teach' and spot the mistakes that the puppet makes when counting. Children can mix up numerals for friends to put in the correct order or fill in gaps on number tracks.
	Cockatoos Quentin Blake 3 to 6 https://www.youtube.com/watch?v=i6UGICkZTKk	Professor Dupont has 10 cockatoos who decide to hide from him. In each room we can search for and count progressively more cockatoos (although Prof Dupont doesn't see them).	**Ordinality - number order: one more** **Counting and cardinal number values to 10** **Composition of 10** With Quentin Blake's sophisticated illustrations, it can be quite challenging to find and count the cockatoos on each page. Children could find numerals to match the numbers of birds. Do children spot the 'one more' pattern as the story progresses? You could ask children to show on their fingers how many birds will be on the next page (or were on the previous page) or show a numeral card. Children could use their 10 fingers to see how many cockatoos are missing in each room.

	Count with Maisy, cheep, cheep, cheep! Lucy Childs 2 to 4 https://www.youtube.com/watch?v=m-vPJLuS0wI	A lift-the-flap book. Mommy Hen searches for her 10 chicks at bedtime, with Maisy's help. Many other Maisy books in the series include counting.	**Ordinality - number order: counting to 10** **Numerals** **Cardinal number values** **One more** As each chick is found, it is counted and the numeral is shown. The growing number of chicks and numerals is repeatedly shown, encouraging recounting. You could ask, *What number will come next, what came before?* or deliberately say the wrong next number, for children to correct.
	Dog's colourful day Emma Dodd 4 to 6 https://www.youtube.com/watch?v=PE0s9QUTfvY&t=65s	Dog always seems to be underfoot when something messy (and colourful) is spilt, giving readers ten different coloured spots on his white coat to count before Dog's bath. Recalling what caused each colour spot could be a memory game.	**Counting and cardinal number values to 10** **Ordinality - number order: one more** **Numerals** This provides lots of opportunities for counting to 10. Number words are used, providing opportunities to match with numerals - until Dog's owner counts the colourful spots at the end of the book. There is also the opportunity to talk about 'one more' and predict the number of spots as they increase by one on each page.
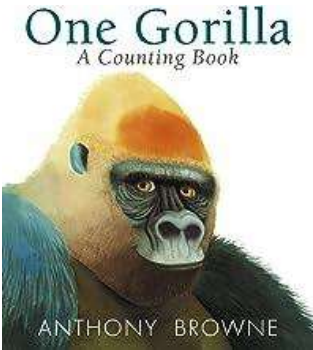
	Elmer's first counting book David McKee 2 to 5 https://www.youtube.com/watch?v=uD_cvadJdi0	A very simple and clearly illustrated counting book, with numerals and number words (in capitals)	**Counting and cardinal number values to 10** **Ordinality - number order** **Numerals** **Composition** Children can count the animals and show numbers of fingers to match. Some of the irregular arrangements encourage systemic counting and others provide scope for subitising (e.g. 2 and 3 monkeys on different sides of the tree). Children might discuss composition of groups (e.g. 2 out of 6 butterflies are seen sideways and 1 is upside down).
	Farm 1,2,3 Rod Campbell 2 to 5 https://www.youtube.com/watch?v=fuBuWUWtFw0	A lift-the-flap board book, with 1 cat through to 10 rabbits - but sometimes one is hiding (or 4 with the hens). There is a final double page spread of all the animals 1-10.	**Counting and cardinal number values to 10** **Numerals** **Subitising** **Composition** **Ordinality - number order** Children can count or subitise the animals to see if the number matches the numeral, or whether one is hidden. You could provide a selection of small world farm animals with picture cards and numerals to match - and invite children to find some that are missing. Picture number cards could also be used at tidy up time:*There should be 3 pigs. Do we have 3?*

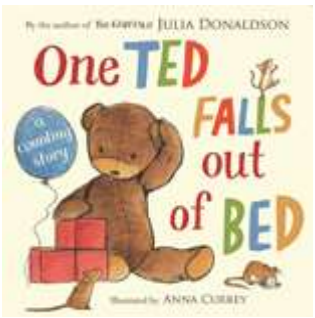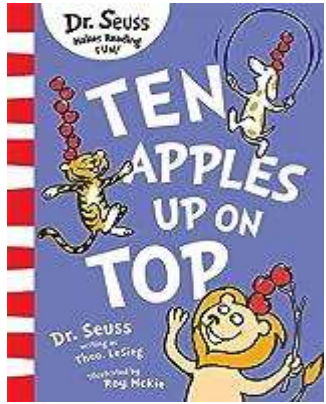|			
	Feast for ten Cathryn Falwell 3 to 5 https://www.youtube.com/watch?v=bH5S-JR_Kws	Shopping and cooking with an African American family. Collage illustrations with numerals. The sequence 1 to 10 is repeated in the things to buy and the stages of preparing the meal.	**Counting and cardinal number values to 10** **Numerals** **Subitising** **Composition** Things to count are scattered and grouped on the pages. This encourages checking to find the number of items, emphasising cardinal values for numerals. Children can discuss how they see the numbers grouped e.g. four pans on the stove and two in the oven, involving subitising and composition of numbers.
	Handa's hen Eileen Browne 3 to 5 https://vimeo.com/60866124	Handa and her friend hunt for Mondi, the missing hen. They discover numbers of different creatures until Mondi and her 10 chicks are found.	**Counting and cardinal number values to 10** **Numerals** **Subitising** **Composition** **Ordinality - number order** This involves counting groups of 1 to 10 creatures as the children look for Mondi the hen. Images are random and linear, encouraging subitising. *"When I read this in my class, the children loved to look at the images of the animals and this encouraged some great number language with the children using their conceptual subitising skills. One little boy said 'I can see 9 birds there because I can see 4 and 4 and then one more'. This could be explored further by the children making up their own number stories, acting it out with small world animals or drawing their own stories with animals up to 10."* (Reception teacher)
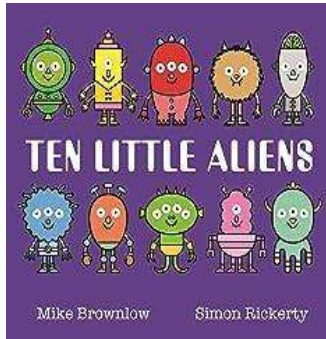
	How scary! Bernard Lodge 2 to 5 https://www.youtube.com/watch?v=zCuRv7LphAA	Meet a different number of hairy, scary and ferocious creatures on each page until you reach the surprise on the last page.	**Counting and cardinal number values to 10** **Numerals** **Subitising** **Composition** **Ordinality - number order** This involves counting assorted scary creatures from 1 to 10. The number word and matching numeral are displayed throughout. It is challenging to count and keep track of things arranged irregularly on the page - particularly on the last spread. There are opportunities for subitising, and talking about number composition.
	How to count to ONE Caspar Salmon and Matt Hunt 3 to 5 https://vimeo.com/683253011 (introduced by author) https://www.youtube.com/watch?app=desktop&v=jWhharWL5F4	This is a quirky and funny book: each page shows a different number of things and children are challenged to ignore those numbers and find the one thing mentioned.	**Subitising** **Cardinal number values** Despite being told to spot just one thing hidden in the picture, children will inevitably subitise or be tricked into counting 2, 3 or 5 things. They could match these with numerals or fingers. The end spread has all 100 objects from the book, which might prompt some children to count to check..

	I spy numbers Jean Marzollo & Walter Wick 3 to 7 https://www.youtube.com/watch?v=wtxOBlYyQ4E Also entitled 'I Spy Little Numbers'.	Photos of collections of extremely varied items representing each number from 1 to 9. Things often show the number in surprising ways: e.g. three holes in the fish slice.	**Counting and cardinal number values to 9** **Numerals** **Subitising** **Composition** Children can count and subitise – and will sometimes need to search to see how each object represents the number on the page e.g. by having 3 wheels, 3 colours or 3 holes. Different arrangements prompt subitising and discussion about composition: e.g. a 7 domino has 5 dots and 2 dots. A group of children could make their own collection of things representing a number.
	Loo queue Nicholas Allen 2 to 5 https://www.youtube.com/watch?v=CW64ef0wg7g	A variety of anxious animals join the queue for the loo, one by one, numbered from 1 to 10. They are all of different colours and a clue to the next animal can be seen through the window.There is a surprise ending!	**Ordinality - number order to 10** **Numerals** **Counting and cardinal number values** This is useful for providing an example of numbers used both ordinally (identifying position) and cardinally (identifying the total in the queue so far). Children could mix up and re-order a numbered queue of toys or people.

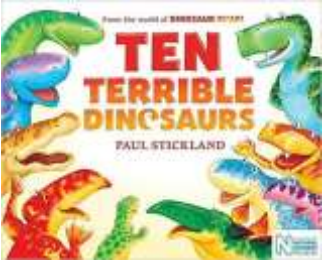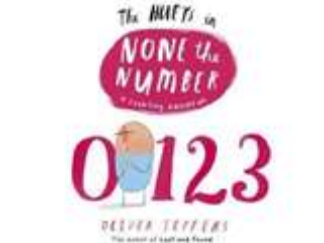|			
	My garden is a square Barbara Schindelhauer & Mark Hansen 3 to 6 https://www.youtube.com/watch?v=5idrZO0sPrI Story from 2:45 to 10:44 Available in several different languages.	This rhyming book is about Numberland, where numbers like 4 have a house with four windows and a square garden. Trickster removes some items and Numberilly helps to put things right. Let's visit Numberland: https://www.numberland.net/	**Counting and cardinal number values to 10** **Numerals** **Ordinality - number order** **One fewer** Children can count numbers of windows, sides of the garden and other items linked to a number. Children enjoy making their own version of Numberland, using recyclable materials. They can suggest items that belong in each garden: e.g. a cow could belong to Number 1 because there is one cow with one tail, or to Number 4 because it has 4 legs. After creating Numberland, a child can act as Trickster, removing (or adding) things, and others can act as Numberilly to make the numbers right.
	One bear at bedtime Mick Inkpen 2 to 5 https://www.youtube.com/watch?v=jra1lQyhY0M	A little boy thinks that he only needs one bear at bedtime, but of course he needs all sorts of other animals.	**Ordinality - number order to 10** **Counting and cardinal number values** **Numerals** Children can count up to 10 to find 'how many' in the set of animals on each page. The numeral is also displayed on each page to match to the set. You could ask, *How many will be on the next page? How many were on the page before? How many will be on the last page*? The final page is the opportunity to count all the sets of animals - and children could be encouraged to do this in order (either forwards from 1 or backwards from 10)
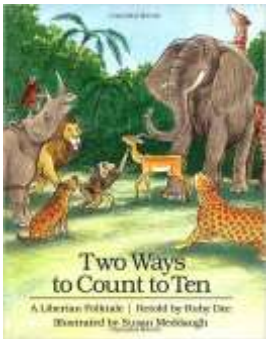
	One fox: A counting book thriller Kate Read 3 to 5 https://www.youtube.com/watch?v=2fvf6PFzlSo	The fox is hunting hens, with lots of suspense - but the hens win in the end, showing strength in numbers (100 hens). Children often feel sorry for the fox when they discuss the ending!	**Counting and cardinal numbers to 10 (and 100)** **Subitising** **Ordinality - number order** **Numerals** **Composition** There are different things to count on each page, up to 10, including actions and sounds (silent steps and knocks). Objects are grouped, e.g. 8 eyes belong to three hens and the fox, providing opportunities to discuss composition. At the end, there are 100 hens and 1 fox, showing what a big number one hundred is.
	One gorilla Anthony Brown 2 to 5 https://www.youtube.com/watch?v=d1AUgf737oc	A vivid and beautifully illustrated presentation of primates, in groups to 10 - including gorillas, gibbons, macaques, mandrills, ring-tailed lemurs and spider monkeys.	**Counting and cardinal number values to 10** **Numerals** **Ordinality - number order** With a large, clear numeral and matching image on each double page spread, this is a clear and simple counting book. Children can count each group and predict how many there will be on the next page.

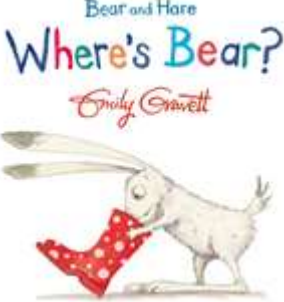|			
	One smiling grandma: A Caribbean counting book Ann Marie Linden Illustrated by Lynne Russell. 3 to 5 https://www.youtube.com/watch?v=e7v7qWZ_ozI In this video a family read the book, and numerals appear on the screen	This is a simple counting book with rhyming text, illustrating contexts from the Caribbean	**Counting and cardinal number values to 10** **Ordinality - number order** **Subitising** **Composition** This shows 1 to 10 objects that might be found in the Caribbean. There are no numerals shown, so children could find these and/or hold up fingers to match the numbers. They might predict and check how many there will be on the next page. There are opportunities for subitising and discussing number composition eg. 6 market ladies are in 2 groups of 3; 9 coconuts shown as 1, 2, 3, 2 and 1.
	One ted falls out of bed Juia Donaldson Illustrated by Anna Currey 2 to 5 https://www.youtube.com/watch?v=LztOHJCQNtk	This is a counting story with a narrative. One teddy bear falls out of bed. He plays with different numbers of other creatures and toys, then builds a staircase to get back on the bed- but the staircase falls down!	**Ordinality - number order: counting to 10 and back** **Cardinal number values** **One more** The numbers of things increase by one each time, and then they appear in descending order. Children could match numbers with numerals. They could count from one to ten and then back from ten to one, predicting the next number. With a number staircase image, children could count up and down, and you could ask, *Where is 6? What is before 6? What is two after 6?*

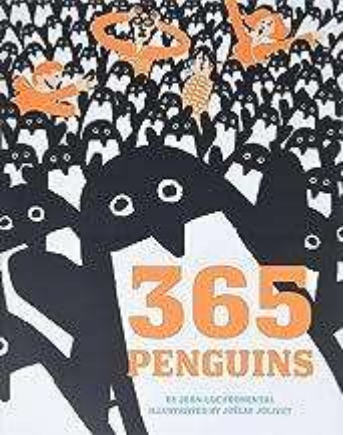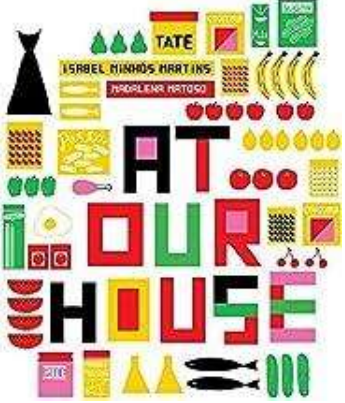|			
	Ten apples up on top Dr. Seuss 3 to 5 https://www.youtube.com/watch?v=0rA4zt_boIg	A lion, a dog and a tiger compete as they show off how many apples they can balance on their heads, from 1 to 10.	**Counting and cardinal number values to 10** **Ordinality- number order** **One more** Adding one more apple each time, the lion, dog and tiger count to ten, emphasising the cardinal values of the number words. The use of number words rather than numerals gives children the opportunity to identify and/or write the matching numeral. Children could make up challenges for each other e.g. Can you make a tower of *10 blocks? or 5 pebbles?*
	Ten little aliens (or dinosaurs, pirates…) Mike Brownlow and Simon Rickerty 2 to 5 https://www.youtube.com/watch?v=1giyNR1EErk	This bright, busy series of books always begins with 10 creatures. Then one at a time, they are lost in different ways until there is only one left.	**Ordinality - number order: counting back from 10** **Cardinal number values** **Numerals** **Subtracting one** Children can count backwards from 10 to predict the number on the following page: the clue is in the rhyme e.g.*fix…six.* The engaging images invite children to count to check the numbers of creatures left and to realise that subtracting one results in the previous counting number. They could use collections of toys to subtract one, then two, and predict the number left. When the aliens are in line, you could ask, *Which is last? Which is next to last? Which is fifth*?

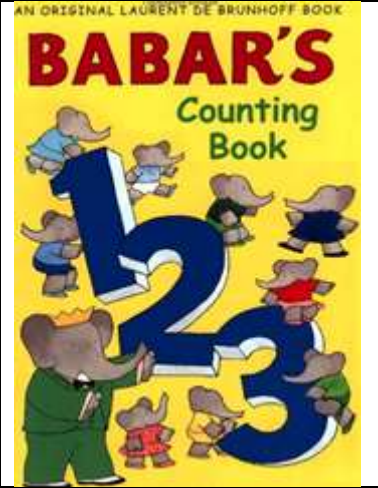|			
	Ten little fingers ten little toes 2 to 3 https://www.youtube.com/watch?v=-Pd3apkZ-_Q	This rhyming book involves frequent repetition of the refrain 'ten little fingers and ten little toes' (with no numerals shown).	**Ordinality - number order: counting to 10** **Cardinal number values** This book is best read when children and adults have removed their shoes and socks. As you read the book you can occasionally count the children's fingers and toes, or if reading with a very small group, count the fingers and toes of each child in turn. At the end you could blow kisses, *1,2,3*. Using fingers and toes, you could ask, *Where is your third toe? Can you touch your fourth toe with your third finger?* Or even, 'Which is your third toe?'
	Ten seeds Ruth Brown 2 to 5 https://www.youtube.com/watch?v=EALlkBeu2jo	Although ten seeds are planted, we watch as one-by-one, the seeds or seedlings are taken, eaten or destroyed. Beautifully detailed illustrations make this book very useful for a growing or nature topic.	**Ordinality - number order: counting back from 10** **Counting and cardinal number values** **One less / subtracting one** Children can see one being taken away from the number on each page and predict how many there will be on the next page. Number words are used throughout, so children could find numerals to match. Children could each have 10 sunflower seeds and remove them one by one as the incidents in the book occur. They could also act out the story using puppets (made, for instance, by copying the illustrations to make simple stick puppets).
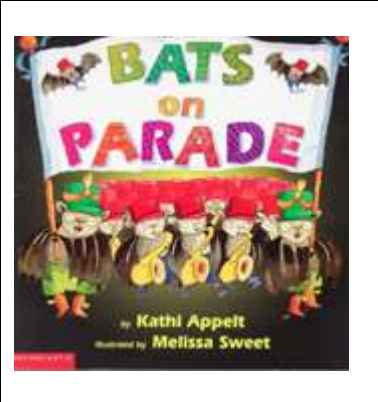
	Ten terrible dinosaurs Paul Stickland 4 to 6 https://www.youtube.com/watch?v=b-_ifWmOTJ0	The rhyming text encourages children to join in, as dinosaurs disappear one at a time, and to predict and check which dinosaur has gone from each new picture.	**Ordinality - number order: counting back from 10** **Cardinal number values** **Numerals** **One less / subtracting one** Children could act out the story using 10 dinosaurs. A staircase image shows 1 to 10 dinosaurs: children could make their own staircase patterns with toys. Once children have created a staircase pattern, they could spot an error (a duplication, a deletion or a swapping of the 'steps') or re-order jumbled 'steps'.
	The Hueys in none the number Oliver Jeffers 2 to 5 https://www.youtube.com/watch?v=BR1KmXwbNRc	This humorous book tries to relate none to the other cardinal numbers and provides quirky images for numbers to 10.	**Counting and cardinal numbers from 0 (none) to 10** **Numerals** **Ordinality - number order** **one more** The big idea in this book is that none (or zero) is a number. The characters discuss ideas of one more (and one less) and count up various objects from 0 to10.

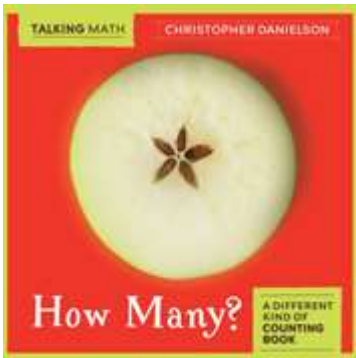|			
	Two ways to count to ten, A Liberian folktale Ruby Dee 3 to 6 https://www.youtube.com/watch?v=FchJYZR2j8g	A folk tale about animals competing to become king of the jungle when King Leopard dies. Animals must fling a spear into the air and count to 10 before the spear falls.All the animals count in ones, until one of the animals counts in twos.	**Ordinality - number order: counting to 10** **Counting in 2s to 10** This is about reciting the number sequence, in ones and in twos. Children could count forwards - and backwards- in twos, perhaps counting pairs of hands, feet or ears. You could set them other counting challenges, e.g. counting forwards and back in ones from different starting numbers, counting in twos starting from 1, counting fingers of a group of children in 5s or 10s. Children could also show the number sequences using numerals.
	We all went on safari: A counting journey through Tanzania Laurie Krebs Illustrated by Julia Cairns 4 to 6 https://www.youtube.com/watch?v=0hgW3UMaYjc	A rhyming story of a group of Maasai children going on a journey. They count the animals they see in both English and Kiswahili.	**Counting and cardinal number values to 10** **Ordinality- number order** **Numerals** **One more** On each page there are different animals and one more until there are ten: children could predict the number on the next page. This introduces the Kiswahili words to ten as well as the English words and these are shown with numerals and dots on the final page. Children could share counting words in other languages, perhaps with help from their families.
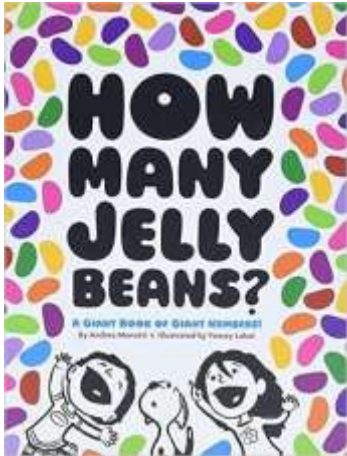
	Where's Bear? Emily Gravett 2 to 4 https://www.youtube.com/watch?v=Qdw7isBq45g	Bear and Hare are playing hide and seek. Before they start searching, they count to ten each time. They are not very good at hiding or seeking!	**Ordinality - number order: counting to 10 Numerals** The numerals from 1 to10 are shown before each search. You could mix up a sequence of magnetic numerals or on a number washing line for children to re-order, or they could have numeral cards and challenge a friend to spot a mistake or sort a muddle.
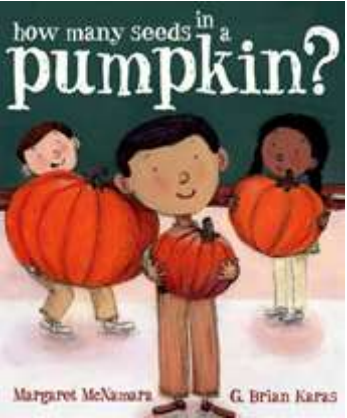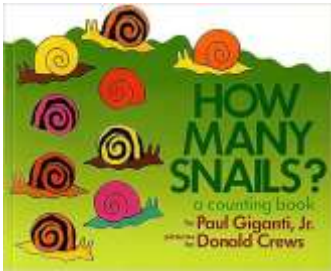
Books focusing on bigger numbers	Description	Developing the maths
100 things Masayuki Sebe 4 to 7 https://archive.org	Collections of 100 creatures with fun comments and questions. At the end there are pictures of tricky things to spot from the previous pages. See also *Dinosaurs Galore*	**Counting to 100** **Composition** Each collection of 100 shows 10 groups of 10. Questions invite children to count a subset of each collection or to spot rare things: e.g. *How many brown cats?* or *How many children are standing on their hands?*

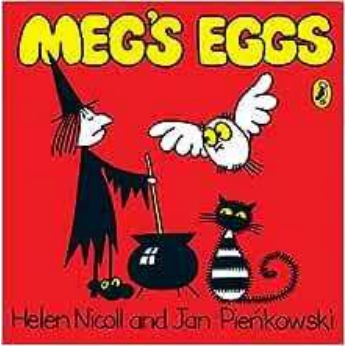|			
	365 penguins Jean-Luc Fromental & Joelle Jolivet 5 to 7 365 Penguins! 🐧 - YouTube	A penguin arrives each day from 1st January to 31st December … Lots of number-based links are made through the quantity of food they eat and more.	**Ordinality- number order** **One more** **Composition** This involves counting on 'one more' and arrangements of various significant numbers, such as triangles of 15, and the numbers of days in a month (and the year). Children will enjoy the illustrations even when the numbers are challenging. Create an Estimation Station with toy animals - How many animals are in the jar?
	At our house Isabel Minhos Martins & Madalena Matoso 4 to 7 https://archive.org	An adventure through the eyes of one household and the bodies that are in it. Each page counts up the number of toes, length of intestines, and every tooth you might find in your family, in a hilarious and possibly gross story which children will love.	**Counting and cardinal number values** **Composition** Children enjoy working out how many people or animals are represented on a particular page and the number of a particular feature in their own home (with illustrations). Numbers can rapidly increase, so it is best to stick to noses, eyes, ears, hands, feet, arms or legs with younger children, extending to fingers and toes with older children.

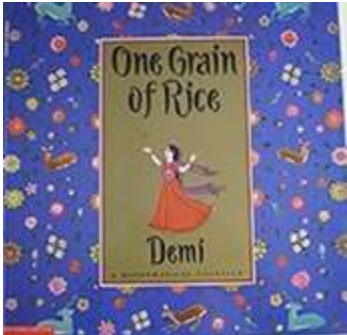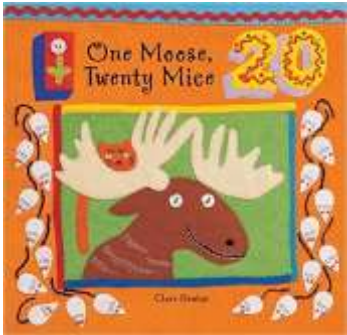|			
AN ORIGINAL LAURENT DE BRUNHOFF BOOK **BABAR'S** Counting Book 123	**Babar's counting book** Laurent de Brunhoff 3 to 6 https://archive.org/	A simple counting picture book with numbers of things to 10, but including a spread showing 11 to 20 of different kinds of animals and a certificate for counting to 20 (from Babar king of elephants).	**Counting and cardinal number values to 20** **Numerals** **Ordinality - number order** **Composition** As well as having clear pictures with numerals and number words, this also presents numbers 11 to 20 in the final spread. These are split into '10 and some more', with e.g.'10 + 8' alongside a line of antelopes followed by '18' and 'eighteen'. The groupings of pictures up to 10 are irregular, providing opportunities to discuss the composition of these numbers.
BATS on PARADE by Kathi Appelt illustrated by Melissa Sweet	**Bats on parade** Kathi Apelt Illustrated by Melissa Sweet 6+ https://www.youtube.com/watch?v=CUnTVIX5yc4	The bats are on parade. The different sections of the band come in arrays of 1x1, 2x2, 3x3…to 10x10. When they are altogether there are 385 bats on parade	**Counting and cardinal number values** **Multiplication** **Arrays** **Square numbers to 100** **Addition to 385** This introduces the idea of square numbers up to 10 x 10 through arrays. Children could count in ones or by rows. Eventually all of the bats are there, providing older children with a challenge to calculate how many bats there are altogether (385).

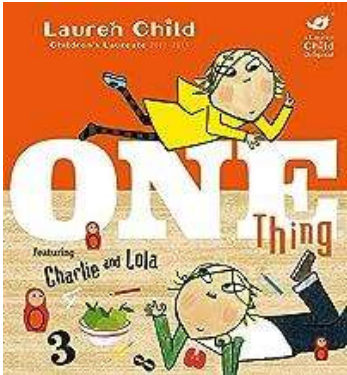|			
	Count to 100 Felicity Brooks & Sophia Touliatou 3 to 7 https://www.youtube.com/watch?v=xKweha35UXg (quick overview only)	This picture book introduces counting to 100 in tens. There are large numbers of cars, swirling leaves raindrops and stars to count in groups.	**Counting and cardinal number values to 100** **Ordinality - number order** **Counting in 10s** **Numerals** This involves counting to 100, beginning with numbers to 10 and then increasing in 10s to100. Most displays are grouped in 5s and 10s, but not all. Some items are missing so children are encouraged to count and check (e.g. that there are 7 flowers in each of ten rows).
	How big is a million? Anna Milbourne & Serena Riglietti 3 to 7 https://www.youtube.com/watch?v=uIQXLKyfYwY	The little penguin wants to know how big a million is. He finds ten fish, a hundred penguins in a huddle and a thousand snowflakes... There are no numerals, but a fold-out poster of a million stars.	**Cardinal number values of large numbers** **Ordinality - number order** Young children will be excited by the big numbers and by learning how many zeros are needed to write these. Older children could find number symbols for numbers over 10, e.g. by using a calculator and repeatedly adding 10,100, 1,000 or 100,000. A class of children can make a large number together: if they make five playdough penguins or 10 paper stars each, they can count them all up. If other classes did the same, there would be a lot!

	How many? A counting book Christopher Danielson 3 to 7 How Many? A Different Kind of Counting Book Author demonstrating with children: https://www.youtube.com/watch?v=i6GkoQMyJAs	A book of photos of everyday things, with lots of counting opportunities up to 24 and beyond	**Counting and cardinal number values to 24 +** Children decide what to count on each photo: numbers can vary depending on the child's criteria. This gives children more flexibility and choice than most counting books as to what to count, and may help to encourage their 'spontaneous focusing on numerosity'.
	How many jellybeans? by Andrea Menotti & Yancey Labat 5 to 7 https://www.youtube.com/watch?v=cJpgK1QCY9g (with teacher asking questions)	Emma and Aiden compete with each other to say the ever increasing number of jellybeans they would like, up to a million.	**Counting and cardinal number values** **Ordinality - number order to a million** **Numerals** **Composition** Quantities like ten thousand, and even a million, are illustrated in jellybeans and often regrouped, for example, to show that eating a thousand beans a year would be about 3 a day. Varied numbers are represented on one spread, which helps children to begin to compare and get a sense of these large numbers.

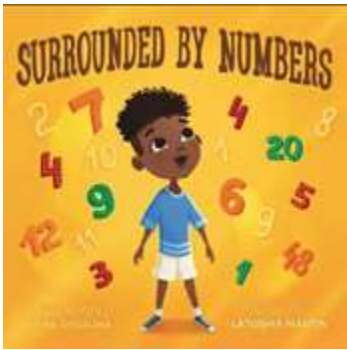|			
	How many seeds in a pumpkin? Margaret McNamara Illustrated by G. Brian Karas 5 to 7 https://www.youtube.com/watch?v=tdViPybeP3c	Mr. Tiffin's class count the seeds in 3 different pumpkins. They find that the size of the pumpkin does not determine the number of seeds. It would be good to do this investigation with children in the autumn.	**Counting in 2s, 5s and 10s** **Ordinality: number order to 350** **Estimating** This provides a context for estimating larger numbers and counting in 2s, 5s, and 10s. It also provides an opportunity to think about the efficiency and accuracy of counting in 2s, 5s, or 10s when there are larger numbers. Children can choose their own ways to count collections of large numbers of objects (e.g. buttons or conkers) by grouping. Using small containers like paper cups or dishes can help to organise groups. Setting up an Estimation Station can provide daily challenges to estimate and count larger numbers.
	How many snails? A counting book Paul Giganti Jr 4 to 6 https://www.youtube.com/watch?v=y0CDAeIZ_9s	Bright, colourful images of varied groups with questions to prompt counting.	**Counting groups under and over 10 and 20** Simple questions prompt children to notice differences between objects and count to answer the specific question. No numerals or number words are displayed, so children could show matching numerals or numbers of fingers. You could ask counting questions like the ones in the book, then ask the children to come up with their own questions to ask their friends.

	Meg's eggs Helen Nicoll & Jan Pienkowski 3 to 5 https://www.youtube.com/watch?v=FWQOM4C_vl0	Meg makes a spell with various creatures to produce 3 eggs for supper. They turn out to be huge and too hard to eat. In the night they start to hatch and out come . . . DINOSAURS!	**Ordinality - number order: counting from 98** **Subitising 2 and 3** This is mostly focused on 3 as the eggs hatch into dinosaurs, but then the stegosaurus eats 98, 99,100 - and more - cabbages. Children could explore counting beyond 100: 101, 102,.. by using +1 on a calculator. A simple game involves toy dinosaurs throwing dice to collect cabbages to eat (lots of green card circles or gems on a field- e.g. 10 x 10 squared paper). Children could also explore the composition of 3 and other numbers, using spell ingredients or eggs and dinosaurs.
	More, fewer, less Tana Hoban 2 to 5 https://www.youtube.com/watch?v=gjLefyK6b64 from 1:19 to end	This wordless photobook contains clear pictures of different kinds of things to compare e.g. hens, scissors, shells.	**Estimating more or fewer** **Counting and cardinal number values** Children are invited to estimate, count, compare and also ask their own questions, with different size groups of varied things. The YouTube video gives many suggestions of questions you could pose and discuss.

	One grain of rice Demi 5 to 7 https://youtu.be/_CdAXYU_LYs Also available in Japanese.	An Indian folk tale of a clever village girl outwitting a selfish raja, showing how doubling for 30 days results in a billion grains of rice. There are beautiful illustrations in the style of Indian miniatures.	**Counting and cardinal number values** **Ordinality- number order to a billion** **Doubling** **Arrays** The story has the 'wow' factor of big numbers and some lovely arrays of pack animals to count. A chart at the end shows the number pattern: older children could try doubling from one, doubling numbers of hundreds, thousands and millions, or use a calculator and try reading the numbers. There is also a message about how knowing maths can help poor people.
	One hundred hungry ants Elinor J. Pinczes & Bonnie MacKain 3 to 7 https://www.youtube.com/watch?v=KXLNe5zfrvc Also available in Chinese	100 ants are in a long file then group themselves in different ways in order to reach the picnic faster. They start with two rows of 50, and eventually make10 rows of 10.	**Counting to 100 and to 50, 25, 20** **Counting in 10s** **Multiplication and composition of 100** **Arrays** Children can check the numbers in the pictures, by counting the number of ants in each row, and count to 100 in tens. They could make 10 groups of 10 things and check there are 100 altogether. Older children could investigate composing numbers like 12 and 18 in different ways using equal rows to make arrays.

	One moose, twenty mice Clare Beaton 3 to 6 https://www.youtube.com/watch?v=17qJBiagaGc *Also available in Spanish*	A 1 to 20 counting book - showing all the teen numbers. There is also the question, '*But where's the cat?*' and children will enjoy spotting the hidden cat on every page. Children could use collage to make numbers of creatures, as in the book.	**Counting and cardinal number values to 20** **Ordinality - number order** **Numerals** **Composition** This book is useful for presenting the numbers 11 to 20. Children will enjoy counting the various animals (monkeys, tigers, dolphins, spiders and more). Sometimes the animals are grouped in different ways, prompting a look at composition and a discussion of different ways they could be counted. Children could create a class version, with pairs each making a 'teen number' page, or use small world creatures (perhaps going beyond 20).
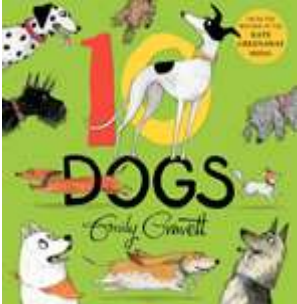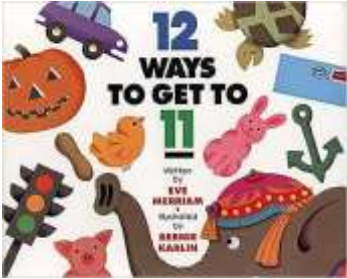
	One thing Lauren Child 4 to 7 https://www.youtube.com/watch?v=WP8yOo8tErg	Top negotiator Lola takes on numbers in everyday life and bends them to her endearing and unique will. A classic Charlie and Lola picture book from Children's Laureate Lauren Child.	**Counting and cardinal number values** **Ordinality - number order of large numbers** **Numerals** **Calculations** Time, assorted numerals and number words, and a range of calculations feature throughout. Inside the front cover, Lauren Child talks about numbers and how they are written. This is great for recognising children's fascination with counting and large numbers, and especially good for discussion with a small number of children. There are lots of addition and subtraction calculations that could be recreated and checked out with manipulatives such as bead strings.
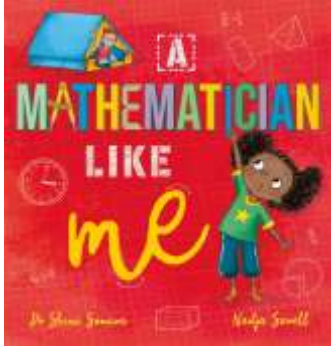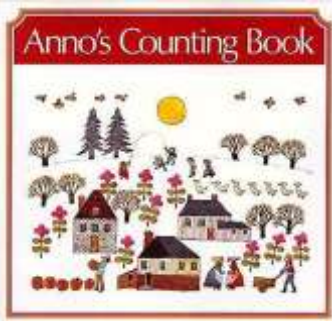
	Ready, set, 100th day! Nancy Elizabeth Wallace 4 to 7 https://www.youtube.com/watch?v=rXEeeRGWY04	It's the 100th Day of school and Mina wants to find a fantastic example of 100 things to take to school. With the help of her family, she finds a number of different ways to count to 100, before she decides on a creative way to make 100.	**Counting in 5s, 10s, 20s, 25s, 50s** **Cardinal number values to 100** **Ordinality- number order** **Composition** There are opportunities to count to 100 in 6 different ways (in 5s,10s, 20s, 25s & 50s) with a focus on counting 10 lots of 10. Children could make their own sets of 100 for the 100th day of school.
	Spinderella Julia Donaldson 3 to 6 https://www.youtube.com/watch?v=Qjgp3YiaKJw	Spinderella is a spider in a family which sees no use for numbers. She finds they are useful for making equal teams for football and many other purposes. (Changing the name of the school to your school ensures engagement.	**Counting and cardinal number values to 20** **Numerals** **Counting equal groups** This involves counting to 20 in ones and in two groups of 10, as well as smaller numbers. It shows the need for numbers in different situations like *How many goals?* or *How many football boots?* You could create different outdoor games with the children and let the children take the role of organising teams and ensuring that these are equal.
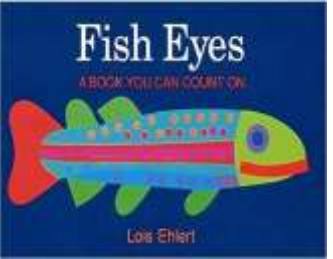
	Surrounded by numbers Latoshia Martin Illustrated by Vera Sysolina 4 to 6 https://www.youtube.com/watch?v=zhi_oPWg-kU	An African American family get ready and go to some different shops. This shows some different contexts for numbers in everyday life. The final spread shows images for numbers to 20.	**Counting and cardinal number values to 20** **Ordinality - number order** **Numerals** **Contexts for numbers** This has several examples of cardinal and ordinal numbers, e.g. the numbered aisles in the supermarket. There are opportunities for counting and recognizing quantities and numerals up to 20. Children could make their own version of the display of images for numbers to 20.
	The great race Emily Hiles 3 to 5 https://www.facebook.com/watch/?v=720683812650001	This is a rhyming version of the classic story about the naming of the Chinese Zodiac years: the order of animal names (up to12) is decided by where they came in the Great Race: Rat is 1, Ox is 2 and so on.	**Ordinality - number order to 12** **Numerals** This is about the order of numbers to 12, linked to animal names. Children can act out the race with toy animals or pictures and give them each their numeral, in order. (See Mathematical Moment) They could spot errors in the order and sort out muddles. Children could also create their own order with different animals and add creatures with numerals beyond 12.

		This is a story about how we change the environment but can also work to restore it. As more buildings are put in the environment, there are fewer (fantastically illustrated and named) animals and plants, but there is always one Snortlepig to spot.	**Counting and cardinal number values to 512** **Ordinality - number order** **One more /one less** **Doubling** **Square numbers** On each page there is a count of the animals, plants and buildings showing different rates of decrease and increase including doubling and squaring. Children could count and predict the number of animals on each page. Older children could investigate doubling numbers of tens and ones practically, or making square arrays with counters.
	Uno's garden Graeme Base 4 to 7 https://www.youtube.com/watch?v=LHPyWZRWWL0 main story: 1.32-11.15		
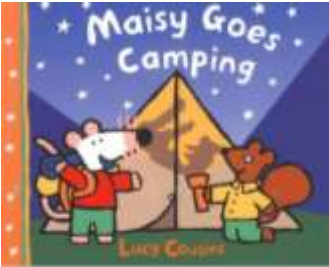
Books focusing on composition		Description	Developing the maths
	1 smile 10 toes Nelleke Verhoeff 3 to 7 https://www.youtube.com/watch?v=81HagFUmZmc	A 'mix & match' board book with split pages. Turning one part of the page produces new mixed up creatures. So you can make silly creatures with different combinations of features, such as 3 beaks & 8 toes, or 4 arms & 1 bum! This book also helps children to learn the names of human and animal body parts.	**Counting and cardinal number values** **Subitising** **Numerals to 10** **Number combinations up to 20** Children can count to check the number of a particular feature or add them to find the total on the page, up to 20. Children could also find or make creatures with a given total e.g.10 features – or the smallest and largest numbers. They could also find creatures on facing pages with the same total number of features: e.g. a crocodile with 10 teeth and 7 scales faces a bird with 9 spikes and 8 toes, or they could make a creature with 6 eyelashes and 6 wings facing one with 8 pigtails and 4 knees, both totalling 12.
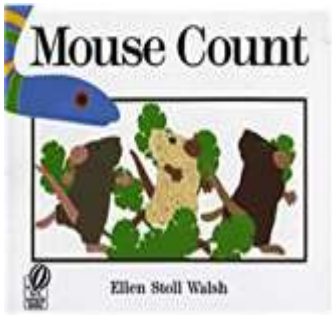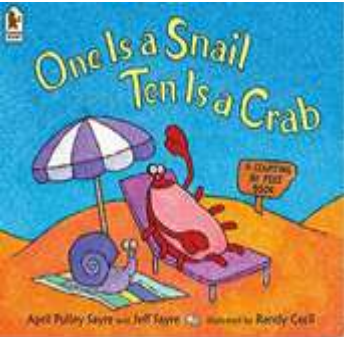
	10 dogs Emily Gravett 5 -6 https://www.tiktok.com/@ thereadingrainbow/video/ 7303639182247939374	There are 10 dogs and 10 sausages. To start, 1 dog has all the sausages, and gradually the number of dogs with sausages increases by one until every dog has one sausage each.	**Counting and cardinal number values** **Ordinality - number order** **One more** **Numerals** **Composition of 10** Children could predict the next number of dogs to have or not have sausages each time. They could show the pairs of numbers making 10 on their fingers and spot the increasing and decreasing patterns. They could also act out the story with 10 soft toys and 10 dog biscuits, or choose another number of toys and food items.
	12 ways to get to 11 Eve Merriam 5 to 7 https://www.youtube.com/ watch?v=rJJ1HhSv4LY	A range of scenes show different ways to make a total of 11, using very varied things, including bites of an apple and triplets, as well as pine cones and acorns.	**Counting and cardinal number values to 11** **Subitising** **Adding by counting on** **Number combinations for 11** This shows combinations of several numbers making 11, so children need to count or add cumulatively to check, by counting on or using number bonds. Children could record their own ways of making 11 with lots of different things.
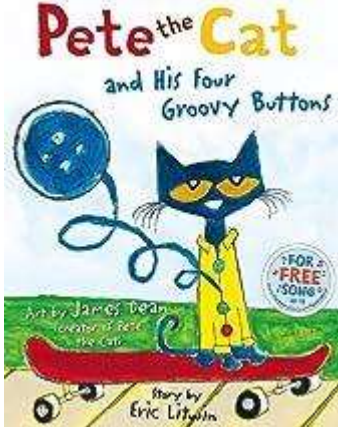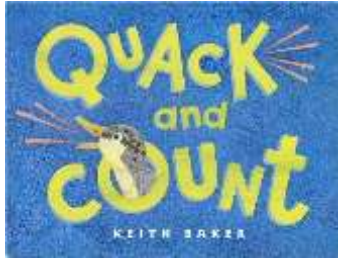
	A mathematician like me Shini Somara 5 to 8 No video currently available	On a strikingly illustrated camping adventure, Aliyah discovers that numbers are everywhere: counting money at the shops, planning trips by train and stargazing in a forest.	**Problem solving** **Reasoning** **Composition** This introduces children to maths in everyday life and problem-solving. As well as solving calculations, Aliyah learns about the brilliant mathematicians who have helped us understand our world.
	Anno's counting book Mitsumasa Anna 2 to 7 https://www.youtube.com/watch?v=tPe2vvbXCWo	The book begins with 0, showing a barren wintry landscape. It continues with opportunities to count buildings, people, trees and other objects in different arrangements within a scene which is developed through the seasons.	**Counting and cardinal number values** **Numerals** **Ordinality - number order** **One more** **Composition** This emphasises the cardinal values for numerals with many different objects and encourages checking and searching to find the given number. (And there are not always the given number of each item e.g. windows). Items are variously grouped, showing the different ways each number can be composed.
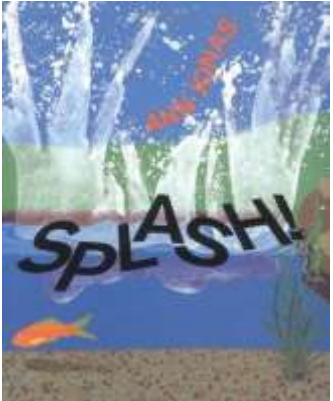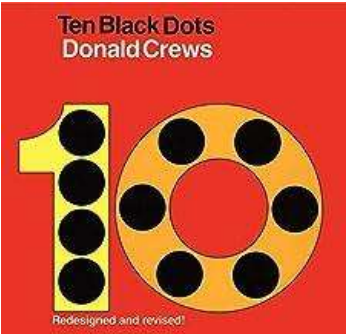
	Baby goes to market Atinuke Illustrated by Angela Brooksbank 3 to 5 https://www.youtube.com/watch?v=WwmgTNzGB_o	The sellers give Baby things to eat without her seeing. Each time he eats one and puts the rest in the basket. Mama is surprised by how heavy her basket has become.	**Counting and cardinal number values** **Ordinality - number order: counting backwards** **One less / subtracting one** The sellers give Baby 6 bananas, 5 oranges and so on. The challenge is to predict how many things he will put in the basket after he has eaten one each time: children could hold up their fingers to show this. There are no numerals so children could identify these. The decreasing numbers of items given and remaining also emphasise counting backwards e.g. 5,4,3,2,1 extra things.
	Fish eyes – a book you can count on Lois Ehlert 3 to 5 https://www.youtube.com/watch?v=3YWKHo1BghI	Counting up to 10 eyes (holes in the pages) of different kinds of fish – bright, darting, stripy, spotty…and adding one more.	**Counting and cardinal number values to 10** **Subitising** **Numerals** **Ordinality - number order** **One more / adding one** Both numerals and words are displayed, with 'plus me' used to add the little fish on each page. Children might count to check the number of fish. You could make subitising cards using the fish. Children could add one more with a 'plus me' fish card or 'plus' other numbers.

	How many feet in the bed? Diane Johnston Hamm Illustrated by Kate Salley Palmer 4 to 7 https://www.youtube.com/watch?v=w8UtWbgjPc0&t=102s	A little girl wants to know how many feet are in the bed. As more and more family members get into bed, the number increases and as they leave, the number of feet decreases.	**Counting and cardinal number values to 10** **Ordinality - number order** **Counting forwards and back in 2s** **Adding / subtracting 2 at a time** Jane counts the feet one by one, then when she reaches ten she counts again in twos. As family members get out of bed, Jane counts down in twos. Children can count along and predict the next number. Children could make increasing and decreasing staircase patterns with pairs of footprints.
	How many legs? Kes Gray 3 to 7 https://www.youtube.com/watch?v=anVfvq-T-J0	This uses a party context where different creatures arrive, including polar bears and squid, creating different numbers of legs. Thankfully, the long addition calculation and the answer are on the last pages of the book.	**Counting and cardinal number values** **Adding** Children are invited to predict How many legs there will be as various combinations of 2, 4, 6 and 8 legged creatures arrive? – and don't forget the table! Children will enjoy counting legs and predicting the total, finding strategies to check. The animals could be pictured on individual cards. You could tell the children how many legs you can see, and they then select a combination of animals e.g. *I can see 2 animals and 10 legs.* Children also enjoy drawing their own party combinations of legs.
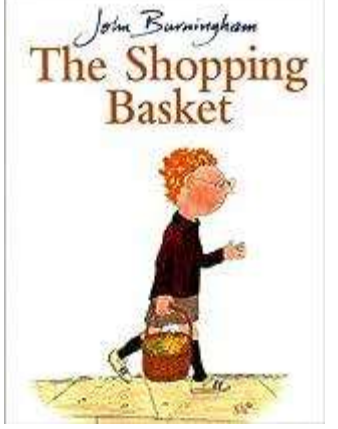
	Leaping lizards Stuart J. Murphy. Illustrated by JoAnn Adinolfi 4 to 7 https://www.youtube.com/watch?v=USK-3jkw0wk	The show cannot start until the 50 leaping lizards all get there. They come in in fives and tens in different ways (swimming, trucks, air balloons).	**Counting and cardinal number values to 50** **Ordinality - number order** **Counting in 5s and 10s** **Subitising groups** This provides a context to count in 5s and 10s up to 50. It provides opportunities for conceptual subitizing based on fives. Children could make their own groups of five objects (e.g. sticks) and count in 5s and 10s.
	Maisie goes camping Lucie Cousins 4 to 6 https://www.youtube.com/watch?v=tQnSv2v4PvI	Maisie and four friends, including Eddie the elephant, try and fit in a tent, but find that five is a squeezy squish-squash.	**Counting and cardinal numbers to 5** **Ordinality - number order** **One more / adding one** **Composition** This provides a useful context for posing problems about how many of the five could be inside and outside the tent. Children can play this as a game in pairs, with a folded card tent and toy animals, challenging each other to work out the number still hidden in the tent. Children might use different subtraction strategies, including visualising, modelling on fingers or number bond recall.

	Mouse count Ellen Stoll Walsh 3 to 5 https://www.youtube.com/watch?v=oA5QeZhDJEs Also available in Spanish	A hungry snake collects sleepy mice into a jar, adding on each time, but the mice trick him and escape, 'uncounting' themselves.	**Counting and cardinal number values to 10** **Ordinality - number order: counting back** **Adding by counting on** The snake demonstrates adding by counting on. Children can use this strategy by adding their own numbers of toy mice or pebbles into a jar and count back as they remove numbers of 'mice'. This video from the Erikson website shows two ways of developing the story, large scale and small scale: https://earlymath.erikson.edu/mouse-collections-preschool-storytime-game/
	One is a snail, ten is a crab April & Jeff Sayre 3 to 7 https://www.youtube.com/watch?v=zDjp7rTXtsk	A counting by feet book: a snail has one foot, a person has 2, a dog has 4, crabs have 10… So 40 can be made with 4 crabs or 10 dogs.	**Counting and cardinal number values to 100** **Adding combinations of 2s, 4s, 10s etc** **Counting in 10s** **Composition** **Problem solving** Children can make numbers to 20 with say, snails people and dogs - or make other numbers with other creatures. You could provide animal pictures or toys and invite children to make numbers in different ways using the animals e.g. *How many ways can you show eight feet?* Children could record their combinations in their own ways. Very young children also enjoy the book: see Mathematical Moment *One is a snail*

	Pete the cat and His four groovy buttons Eric Litwin 2 to 5 https://www.youtube.com/watch?v=dR5N1Z7KN8Y With a groovy song!	Subtracting one from 4, then 3, then 2, then 1 to 0 as Pete the Cat loses his buttons one at a time.	**Counting and cardinal number values to 4** **Numerals** **Ordinality - number order: counting back** **One fewer / subtracting one** As Pete loses one after another of his buttons, the relevant numeral, number word and subtraction equation are all shown. Children can model the action with their own set of 4 buttons, and then other numbers.
	Quack and count Keith Baker 2 to 5 https://www.youtube.com/watch?v=qyFWbhR7MOA	Seven lively ducklings regroup themselves to show various number pairs for 7 as they get ready to fly for the first time.	**Counting and cardinal number values to 7** **Subitising** **Ordinality - number order: forwards and back** **Composition of 7** Children can follow the 7 ducklings as they group and regroup themselves. The number pairs for 7 are shown systematically in order, from '6 plus 1', '5 plus 2' etc. to '1 plus 6'. Children could model the decreasing and increasing number patterns with objects. Children could make up their own number stories with a set of toy ducks and a paper pond. e.g. There are 5 ducks swimming on the pond and 2 ducks sitting on the nest or the bank.

	Splash Ann Jonas 4 to 7 https://www.youtube.com/watch?v=TUg_DEw_GVA	There are 10 creatures, fish, frogs, turtles, a cat and a dog, and a pond. Different numbers fall in and climb back out, often simultaneously. So the question constantly recurs *'How many are in my pond?'*	**Counting and cardinal number values to 10** **Subitising** **Adding and subtracting** **Problem solving** Children can count, or use a range of adding and subtracting strategies, to find out how many creatures are in the pond at any time. As some fall in at the same time as others are climbing out, there are some interesting problems involving inverse operations. Children could also make up their own 'Splash!' stories, with different numbers and creatures.
	Ten black dots Donald Crews 3 to 7 https://www.youtube.com/watch?v=uPJEqUB2CxA	Clear and engaging images of numbers from 1 to 10, made from black dots on various objects and in different arrangements.	**Counting and cardinal number values to 10** **Ordinality - number order** **Numerals** **Subitising** **Composition** Children can count or subitise dots from 1 to 10, and recognise different compositions of the numbers. A final staircase pattern shows numbers 6 to 10 as '5 and some more '. Children could make their own staircase patterns with different objects and create triangular numbers to 15.

	Ten in the bed David Ellwand 3 to 6 board book	The classic rhyme, with photos showing how many bears have fallen out of bed as well as those still in bed. There are numerals for the number of teddies in bed at each stage, but not for the teddies out of bed.	**Counting and cardinal number values to 10** **Subitising** **Ordinality - number order: forwards and back** **Composition** Children can subitise or count to say how many bears have fallen out of bed. You could cover up the side section of the page and challenge children to say the number, then reveal to check. This also provides opportunities to play games with bed and teddy props, where only those out (or in) are visible and children have to say the other number. They can also spot the pattern and predict the increasing and decreasing numbers of teddies in and out of bed.
	The Doorbell Rang Pat Hutchins 4 to 7 https://www.youtube.com/watch?v=A-tqjCPnHLg Also available in Spanish	Ma makes a plate of delicious cookies for her two children to share. But then the doorbell rings—again and again. Each ring of the doorbell brings more friends to share the cookies- until the final doorbell ring…	**Division as equal sharing** **Composition of 12** With the repeated ringing of the doorbell, the children's share of the cookies decreases from 6 to 3 to 2 to 1 each. This is a lovely story to act out with a baking tray and 12 salt dough cookies, making equal groups and showing how sharing between more people means fewer cookies each.

	The great pet sale Mick Inkpen 3 to 7 https://www.youtube.com/watch?v=O9ikTU9ir2s	A lift-the-flap book with charming illustrations of depressed pets, all priced from 1p to 10p, (except the dragon for 25p).	**Numerals** **Adding** **Money** **Composition** Prices are shown to 10p, then 25p - and £1 as the total for all the pets in the sale. Children could select combinations of creatures to buy for a given amount e.g. *What could you buy for 15p?* They could use pennies or other coins to match the prices of animals and count or use different strategies to add.
	The shopping basket John Burningham 3 to 6 https://www.youtube.com/watch?v=s_HYKelQG6Y Also available in French	Steven goes to buy 6 eggs, 5 bananas, 4 apples etc. One of each item disappears as he meets various threatening animals. The whole collection of 21 objects is shown in a triangular arrangement	**Counting and cardinal number values to 6+** **Subitising** **Ordinality - number order** **One fewer / subtracting one** **Triangular numbers** Number words are used throughout, so children could find the matching numerals. As one item is removed from each number to 6, children can work out the number remaining. They could also explore other triangular number arrangements, for 6, 10 and 15.

Guidance

Sharing books with children is an important way of fostering positive attitudes to mathematics. Books are important in their own right and should be enjoyed for their own sake. It is useful for adults to be aware of the possible mathematics opportunities, and then use their own judgement when best to take advantage of these. There are a range of approaches for using picture books for maths with children. You may:

- read, see what children notice and discuss
- read the book a few times before discussing any maths
- pose a few questions, invitations to show fingers etc., but don't ruin the story!
- provide props for re-enactment, through small world or role play
- invite children to make up their own versions
- make up a game (e.g. collect cabbages for the dinosaurs in *Meg's eggs*, or make a track for the *Shopping basket)*
- set a challenge (e.g. collecting creatures with 12 feet altogether from *One is snail, ten is a crab)*

Photograph: Sharon Palfreyman

In the photograph, 'Mouse count' has been developed into a nursery game where children throw soft toy mice into the snake's pot and then count them.

Further guidance, research and more books

- *Harnessing the power of story* article by Cath Gripton and Helen Williams (2022)

- *Number rhymes and picture books:* video by Sue Gifford for Scottish Book Trust (55mins)

- *Mouse Collections; Rosie's Walk*: videos of ways to follow up books, from Erikson Early Math Collaborative

- *How to use picture books* advice & booklists (DREME: Development and Research in Early Mathematics Education)

- *Mathematics through stories:* website including comprehensive research list, as well as books for older children

- *Tips for read-alouds in math*, including research and extensive booklists, from Learning Trajectories

- *Books and rhymes for 2 year olds* include maths, with videos of linked activities, from Sheringham Nursery

- *Exploring maths through stories and rhymes:* a helpful text for getting started (Janet Rees, 2019)

*Mathematical terms explained:

Ordinality is the concept of **number order**- this includes:

- **counting** by reciting the number sequence
- **ordinal numbers** -used to identify positions e.g. house and page numbers:
  We're at number 14, where is number 6? We've gone past it – how far back was it?
- knowing the further you count, the 'bigger' the number, and if you count back, the numbers get smaller
- **ordering numbers** e.g. putting 9, 2, 6, 11 in order
- placing numbers on an 'empty' number line: the relative position of the numbers indicates their size and distances between them relate to differences in number size
- understanding number lines and measuring scales, such as height charts

Cardinality is about **number values**, the 'how many-ness' of numbers:

- · e.g. the 'three-ness' of three, the 'hundred-ness' of 100
- · **cardinal numbers** are used to indicate how many there are
    e.g. *there's 14 people and 6 chairs - we need to get some more!*
- · **counting objects**- knowing the last number you say tells you how many there are (this is the cardinal counting principle)
- · **subitising** means recognising 'how many' without having to count - this helps children learn cardinal numbers

Numerals are number symbols e.g. 2, 7, 10, 100 as distinct from number words, like two, seven, ten or a hundred.

NB lots of everyday numerals are unrelated to number order or values but are measures (e.g. prices) or labels (e.g. bus numbers)

Composition is about numbers being made up of other numbers:

- you can add two or more numbers to make a number e.g. 2 & 3 make 5; 1 & 2 & 3 make 6
- a number can be made up of various combinations of smaller numbers e.g. 5 can be made with 2&3, 4&1, 2&2&1 etc.
- understanding composition of numbers helps to see addition and subtraction as related (inverse operations) e.g. if 2&3 make 5, then 5 take away 3 leaves 2