

# How we learn



## Charlton Kings Infants' School

*Understanding how children learn to read, write  
and calculate at Charlton Kings Infants' School*



# Understanding how children learn to read, write and calculate at Charlton Kings Infants' School.

We believe that all children should feel empowered as learners and experience the feeling of accomplishment in a wide range of areas. Our curriculum therefore gives pupils an excellent mix of academic and personal development; it gives equal importance to core and foundation subjects; physical wellbeing and mental wellbeing are both valued, understood and prioritised by our careful consideration of curriculum design.

Teaching methods regularly change when taking account of research based evidence and we want to share with you ways in which we teach and your children learn the core subjects of reading, writing and mathematics at CKIS. This booklet will help you to help your child.

How to use this guide

You don't need to read it all at once...just use it when needed. For example

- your child could be asking you about subtraction as part of their maths home learning, so you could go to the subtraction pages in the 'Progression in calculation' section
- or, you could be worried about your child's writing progress, so would check the 'Stages of Writing' page in the 'Learn to Write' section'
- or you may want to help your child read at home, so go to the 'Ten Top Tips' in the 'Learn to Read' section

Got any questions?

If you have any questions concerning how your child learns at Charlton Kings, or don't fully understand our teaching methods, please do not hesitate to get in touch. We value each question, so please do speak to your child's class teacher and come along to our parent workshop events throughout the year.



## Stages of Writing

Your child has progressed through several important stages in the development of oral language: cooing, babbling, and playing with sounds. Similarly, written language development follows predictable stages. These are the stages your child is likely to progress through as he or she becomes a competent writer.



### Kindergarten leading into Reception:

**Mark making** – This is the beginning stage at which your child makes simple marks to communicate. You may not be able to tell what the picture is about, but it's important to praise your child's early drawing. Your child will begin to ascribe meaning to the marks they make. You can encourage this by saying 'tell me about your picture.'



**Pictorial** – At this stage, your child begins to draw a somewhat recognisable picture and may tell you about it. He or she may also imitate writing.

'The flower is growing'

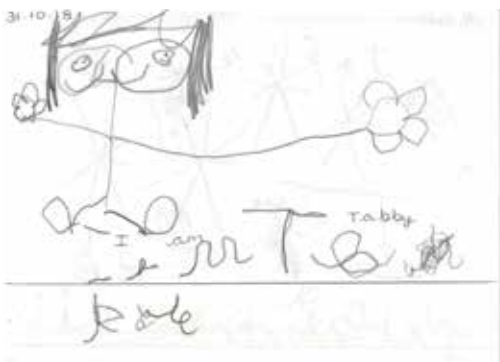


**Pre-communicative** –Your child may now be printing his or her own name or an occasional known word and may be writing strings of letter-like forms or a series of random letters. Sometimes he or she may attempt to read the message back, but you probably can't read it at this stage.



'There are webs in Spidertown'

**Semiphonetic** At this stage, your child begins to use some letters to match sounds, often using the correct beginning letter to write a word. He or she usually writes from left to right but may reverse some letters. The most common reversals are b and d.




'I am Tabby'



Holiday news

26.6.19



I Went to  
Ireland and  
came <sup>back</sup> home  
and I Went  
on a FREE  
ferry

**Transitional** – At this stage, your child is writing words the way they sound, representing most syllables in words. He or she may sometimes be adding an extra silent e at the end of a word or doubling letters when they're not needed while trying visually to remember how spelling works. Now your child usually leaves spaces between words and is spelling some common words correctly as he or she writes more than one sentence.

At this stage, your child spells many common words correctly, although he or she may use phonics-based spelling for advanced words. Remember, we can only expect children to correctly spell words they have already learned! Now your child is often using capital and lowercase letters, full stops, question marks and exclamation marks to demarcate sentences.

I sat on Butchly.  
I made a giraffe  
then I got lost when  
① ~~when~~ I was going home  
then I almost I sawed  
my way home when I  
was home I got in to  
bed the next day I was  
back in the gym.

I went to the magical forest  
and I saw a magical mushroom  
and saw a magical butterfly.  
I had rainy footsteps and then  
saw the straying of the leaves.  
Then I met a old woman  
who was finding her rainy home.

I walked into a magic forest. I looked around and everything was different! I saw wild mushrooms and butterflies and gnomes. I also met a talking butterfly! I found a little gnome's cottage. I was too big to fit in but a gnome saved me! Now I can fit in! In the house I saw a tiny bed and some sofas. I even saw some drawers!

Developing writers use a rich, varied vocabulary. They may still use phonics based spelling for advanced words, but have mastered the spelling of most common exception words. At this stage, in addition to the punctuation used in year 1, your child is using commas to separate items in a list and apostrophes to mark where letters are missing in spelling and to mark singular possession in nouns [for example, the girl's name] .

One time I saw lots of Calgull fish in <sup>the</sup> blue sea  
I saw jell fish sharks in galle like a dolphin in the  
sea. One day I saw a cave inside the dark deep  
cave I saw a mermaid she was point me  
Many friends we can we do said Evie we can go on a  
hunt of wat said Evie gold yes @ us go. Evie I guided  
some gold ore so we have a gold the shark is  
coming we go said the little mermaid we ~~the~~ bear him.  
Mermaid Mermaid we are eye I am was in the deep  
blue sea I looked and looked but she was the ~~from~~ there  
but I <sup>help</sup> gold I <sup>rich</sup> to go I will see you to mine.  
I am going to have mint ice cream now that  
Next day we are up on mermaid day I am going on sea

We went under the sea and I saw an amazing coral with orange spots on it. Then I saw some golden fish swimming past. I ~~was~~ met a diver who led me to a chest of gold. I ate a pink jelly fish who very stung me on the face. Once I met a giant puffer fish that was brown. Then I ~~found it~~ saw a large blue sunfish. It was blue and silver. Silver, yellow and red fish swam past. The top of the water was very shallow and the sun was setting very slowly. It was very nice to watch the sun set. I saw more fish and a diver again. I ate a pink jelly fish that was blue. I saw a monster and a

One day I decided to go out in a big submarine. When I was in the submarine I heard a swirling sound and a seaport opened but I didn't notice. I walked along and suddenly I fell down a deep hole. Because I was meant to be diving the submarine was slowly diving away from me. Just then I noticed something green drifting towards me. I suddenly realised what it was it was a turtle swimming towards me. He spoke said I've lost my tail and everybody is laughing at it. I swam away keeping my eyes open for his tail. Some time later a fishy said can you help please I said, my friend has lost his tail. I by digging at the bottom of the sea. Bill where? I said. Where there is an enormous cave see his fish said so I swam away to find the cave. Eventually I found the cave and swam in. I saw a light I returned and swam back out as fast as I could but when the sharks swam out and swam after me. The one in the front of them opened its enormous jaws and tried to eat me but missed me by an inch. I swam around and headed back for the cave. I swam in

We teach a cursive script at CKIS from the start. This takes time for children to master, but fully encourages them to link letters to create words. We ask you therefore to encourage children to join up their writing as soon as they are forming letters correctly as this is a good habit to form. Whilst it's slow at first, the more it's practised, the easier it becomes.





Reading is a vital skill that we must teach children from a young age. At Charlton Kings Infants’ School we promote reading for enjoyment, so when you hear your child read at home, it must be a pleasurable experience rather than a chore!

At CKIS, we hear every child read frequently during the early stages of their reading development (ie in Reception and during transfer into year 1). As children become more fluent and develop, they are encouraged to read during all lessons to support learning throughout the curriculum. They will read regularly with school staff or volunteers. They are taught the skills of reading during daily phonics and ‘guided comprehension’ lessons and through rich daily reading opportunities across our broad and balanced curriculum.

In order to support your child’s journey as a reader, we ask that they are heard read at home at least 5 times a week, daily if possible. This need only be for 5-10 minutes, but it really does make a difference! Please think carefully about a positive time for reading as placing high expectations on a tired child is often not ideal!

In school, we promote the enjoyment of reading by sharing a daily text, where the class will listen to a story, poem, non-fiction text and everyone will take part in discussing key vocabulary, structure and the feelings evoked by the text.

Listening to and sharing stories together is an important part of childhood. A bedtime story is always a great way to spend quality time with your child, build an enjoyment of books and supports them in developing good sleeping habits.



## Choosing a book

Every child will be sent home with a reading book that is colour banded according to their reading level. They will also have the opportunity to bring home a book they have chosen from the classroom or the library. Your child/ren will have books at home they will enjoy reading with you. We want to encourage all children to be exposed to a range of books and to ensure that they are enjoying their reading experiences. It is through the choosing of books that children develop their own preferences.

Reading the same book time and time again is a good thing. We want the children to really know stories well. This helps them build language and storytelling skills. When a child knows what a book ‘says’ they then have the confidence to read it without fear of getting it wrong.

Libraries are fantastic places to view a range of books. The internet is a good way of finding out what new books have been released.

## What else can your child read?

- Comics
- Magazines
- Travel brochures
- Recipes
- Instructions for games
- Newspapers
- Sports reports
- Shopping Lists
- Manuals

### Creating the perfect reading environment

Here is a list of things you can do to create the perfect reading environment for you and your child:

Choose somewhere calm and quiet at a time that is suitable for you both

Sound excited and enthusiastic when talking about reading

- Have somewhere comfortable to sit together. You will need to see what they are reading and they need to see what you are reading. This could be on their bed, on the sofa etc...make sure the TV is OFF!!
- Talk about the book before, during and after reading it. (There will be suggested questions later in the booklet.)

## Be a good role model for reading

To be a good role model you must:

- Handle books or kindles/ipads with care.
- Let your child see you reading for pleasure.
- Always stay positive and encouraging.

Continually use positive praise – “well done, that was brilliant sounding out...”

Always value time for reading.

## Strategies to help read a book

There are many ways we can help read a book. These are the six main stages we use in school. We may not use all of them every time; it all depends on the text and the need of the child.



## Making sense of a sentence

If a child can’t read a word, it sometimes helps to leave the word and carry on reading to the end of the sentence. You can then go back and read it again. Often the child will then be able to guess what the word is, especially if they look at the initial sound of the word. They could also look at the pictures to help, e.g. if the word they could not read was sandwich in the sentence ‘the boy ate a ham sandwich’. If you read the sentence without the word sandwich, it is quite easy to make a sensible guess.

## Use of Phonics

Use the pure sounds (eg m rather than ‘mu’) the children are taught at school and blend together the letters/sounds they can see. Don’t forget, it’s not always one sound for every one letter. Sometimes two or more letters make one sound, e.g. ‘ea’ makes the long ‘e’ sound. If you are unsure of this, ask the teacher for guidance.

## Rehearsed reading

Rehearsing a page can help build a child’s confidence in reading. In a more challenging book, try reading a page to them first, stressing any difficult words. When modelling the reading, use expression and different voices for different characters. Then give them a few minutes to read it to themselves, and then they can read the page to you. The more you do this, the more words they will be able to recognise.

## Questions to ask before reading

- What do you think this book is about? What clues are there?
- What does the picture on the front page tell you?
- Where is the title? What does it say?
- Discuss the author and talk about other books they have read that have been written by the same author.

## Questions to ask during reading

- What is happening in the picture?
- Why did the character behave that way?
- Have you ever...?
- Why did...?
- Where did...?
- Who did...?
- I wonder what might happen if....?

## Questions for Non-fiction Books

- What fact(s) did you enjoy learning about the most?
- Of the information you learned, which would you like to share with someone else?
- Would you like to read more books about this topic? Why?
- What else would you like to learn about this topic?
- What pictures or illustrations did you find interesting? Why?
- Is this book like any other book that you have read? If so, how are they alike? How are they different?
- Which did you like better? Why?
- What kind of research do you think the author had to do to write this book?
- What questions would you ask the author if you ever had the opportunity to meet him/her?
- How can you learn more about this topic?
- Would the book be different if it had been written 10 years ago?
- Did you discover anything that might help you outside of school?



Questions to ask after reading

- Who was your favourite character? Why?
- Did you like the book? Why?
- What was the most exciting part of the book?
- Would you choose that book again?
- Recall main events in the story.

Reading records

What to write in my child’s reading record:

- It is important that reading records are signed at home as it gives the teacher an idea of how often your child reads and allows you to write brief comments about their progress.
- As children progress as readers, they may wish to write their own comments in their reading record.

Useful reading websites and books

- www.oxfordowl.co.uk – free online Oxford Reading Tree resources
- www.jollylearning.co.uk – Jolly Phonics
- www.parentlink.co.uk – contains ideas to help at home
- www.bbc.co.uk – school section, words and pictures, phonic activities
- www.phonicsplay.co.uk
- www.literacytrust.org.uk

- www.crickwed.co.uk/assests/resources/flash.php?&file=ww
- www.woodlands-junior.kent.sch.uk/interactive/onlinestory.htm
- www.bbc.co.uk/cbeebies/stories
- www.snaithprimary.eril.net/rindex.htm – nursery rhymes
- www.familylearning.org.uk
- www.topmarks.co.uk/Search.aspx?subject=31
- www.readingforlife.org.uk
- www.bookstart.org.ukApps
- Read Me Stories – Children’s Books – Free
- Sentence Reading Magic – Free
- Abc Pocket Phonics Lite – Free
- Abc Pocket Phonics – Pay fee
- Word Magic – Pay fee
- The Story Mouse Talking Books – Free
- ABC Animals – Pay Free
- Reading for Kids – I like reading – Free
- Word Domino – Free
- Read with Biff, Chip and Kipper – Free

Reading is one of the most important skills a child needs to learn.

“A child who reads well is more likely to be successful in later life.”

To help them at home:

Try to read as often as possible with your child.

Create the right environment for reading.

Model a positive attitude and enthusiasm for reading.

- Let your child choose a book they enjoy – they don’t always have to read it to you!
- Don’t forget that memorising a book isn’t cheating, it builds confidence, helps then know the structure of a story and makes reading fun!
- Let your child hold the book.
- Talk about the book as you read.
- Support them in reading new words, don’t jump in too quickly and don’t get cross when they can’t do it.
- If your child is too tired to read to you, it’s ok to read to them.

- Remember that it’s important to read texts that are beyond your child’s individual reading stage. It is in this way that they develop a wider vocabulary and grasp the use of story structure and language!!
- A bedtime story is the best way to get your child ready for sleep.
- Most importantly – ENJOY READING TOGETHER!
- Don’t be in a rush to move them to the next level. Allow time to develop confidence. It’s not a race!

Progression in Calculation

The following pages outline how we will teach progression within the four operations (addition, subtraction, multiplication and division) and the support you can offer your child at Charlton Kings Primary School.

Written methods of calculations are based on mental strategies. Each of the four operations build on secure mental skills which provide the foundations for jottings and informal written methods of recording. Skills need to be taught, practised and reviewed constantly to ensure they are secure. These skills lead on to more formal written methods of calculation.


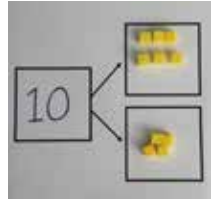


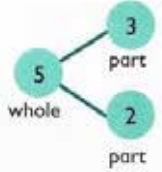

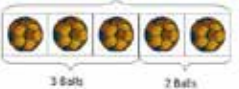

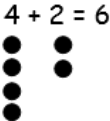
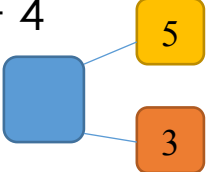


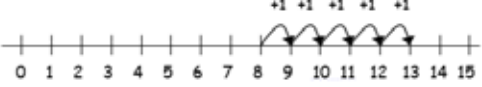
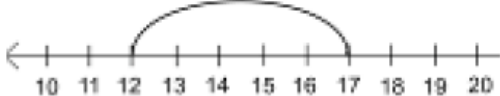

Strategies for calculation must be supported by familiar models and images. When approaching a new strategy it is important to start with numbers that the child can easily manipulate so that they have an opportunity to fully grasp each concept.


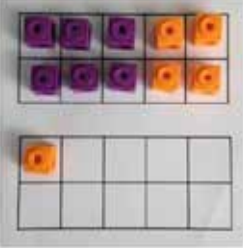
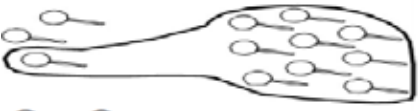
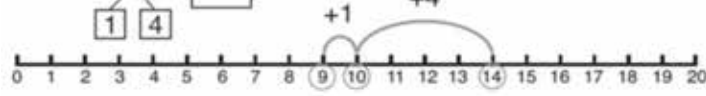



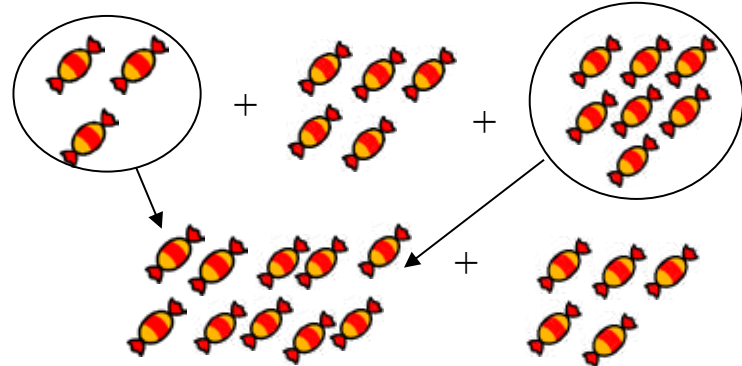


The transition between stages should not be hurried as not all children will be ready to move on to the next stage at the same time, therefore the progression in this document is outlined in stages. Previous stages may need to be revisited to consolidate understanding before progressing. Failure to secure understanding can lead to misconceptions later so it is essential learning is personalised for every child to ensure solid mathematical foundations are laid which can be built on in the future.

A sound understanding of the number system and the patterns within it is essential for children to carry out calculations efficiently and accurately.



Objective and Strategies	Concrete	Pictorial	Abstract
Combining two parts to make a whole: part-whole model	<div></div> <div></div> <div></div> <div></div> <div>2 + 1 = 3 Part – Part Whole</div> <div>Use cubes to add two numbers together as a group or in a bar.</div>	<div></div> <div></div> <div></div> <div></div> <div></div> <div>4 + 2 = 6</div> <div>Use pictures to add two numbers together as a group or in a bar.</div>	<div><math>4 + 3 = 7</math></div> <div><math>10 = 6 + 4</math></div> <div></div> <div>Use the part-part whole diagram as shown above to move into the abstract.</div>
Starting at the bigger number and counting on	<div><math>12 + 5 =</math></div> <div></div> <div>Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer.</div> <div></div>	<div><math>8 + 5 = 13</math></div> <div></div> <div><math>12 + 5 = 17</math></div> <div></div> <div>Start at the larger number on the number line and count on in ones or in one jump to find the answer.</div>	<div><math>5 + 12 = 17</math></div> <div></div> <div>...13, 14, 15, 16, 17</div> <div>Place the larger number in your head and count on the smaller number to find your answer.</div>

Objective and Strategies	Concrete	Pictorial	Abstract
Regrouping to make 10	<div><math>9 + 3 =</math></div> <div></div> <div><math>6 + 5 = 11</math></div> <div></div> <div>Start with the bigger number and use the smaller number to make 10.</div>	<div>Use pictures or a number line.</div> <div></div> <div><math>3 + 9 =</math></div> <div>Regroup or partition the smaller number to make 10.</div> <div><math>9 + 5 = 14</math></div> <div></div>	<div><math>7 + 4 = 11</math></div> <div></div> <div>I know 7 add 3 is 10... then I add 1.</div> <div>If I am at seven, how many more do I need to make 10? How many more do I add on now?</div>
Adding three single digits	<div><math>4 + 7 + 6 = 17</math></div> <div>Put 4 and 6 together to make 10. Add on 7.</div> <div></div> <div>Following on from making 10, make 10 with 2 of the digits (if possible) then add on the third digit.</div> <div></div>	<div></div> <div>When adding together three groups of objects. Group together to make ten and add the remainder.</div>	<div><math>4 + 7 + 6 = 10 + 7 = 17</math></div> <div>Combine the two numbers that make 10 and then add on the remainder.</div>

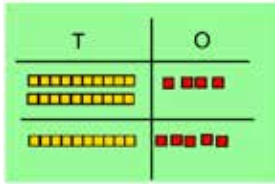
Adding bigger numbers

Concrete

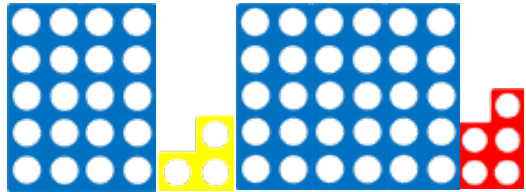
The number 22 represented with 'unifix' cubes to demonstrate tens and ones.



24 + 15 =  
Add together the ones first then add the tens. Using the Base 10 blocks.



23 + 35 =  
Add the tens then add the ones

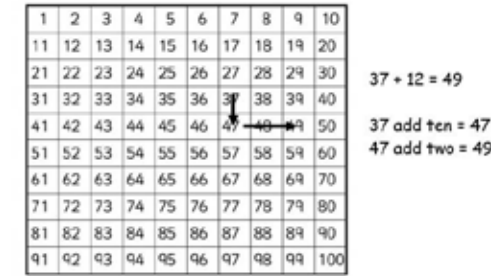


Pictorial & Abstract

After practically using the base 10 blocks children can draw the base ten to help them to solve additions.

13 + 22 = 35

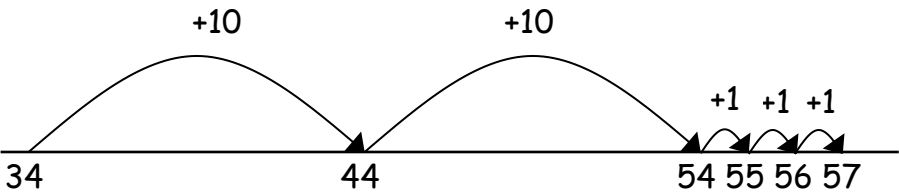
A hundred square can be used to demonstrate addition by counting on. Initially children will use the hundred square to count on in ones. When they are more familiar with the hundred square they employ faster strategies (demonstrated below). The hundred square is used in every year group at Charlton Kings Infants' School.



Children will begin to use 'empty number lines' starting with the larger number and counting on.

✓ First counting on in tens and ones.

34 + 23 = 57



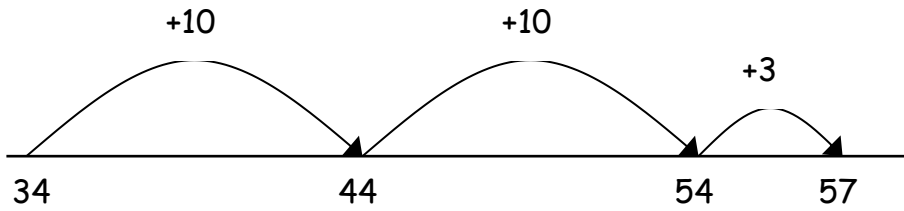
Adding bigger numbers

Concrete

Pictorial & Abstract

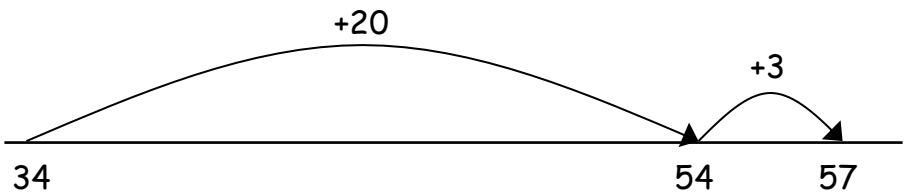
✓ Then helping children to become more efficient by adding the ones in one jump.

34 + 23 = 57



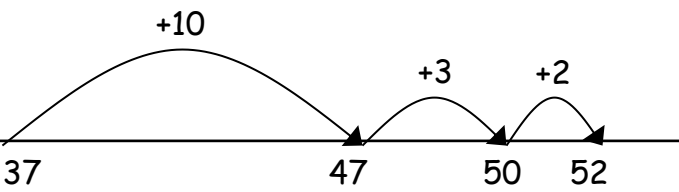
✓ Followed by adding the tens in one jump and the ones in one jump (by using the known fact 4 + 3 = 7).

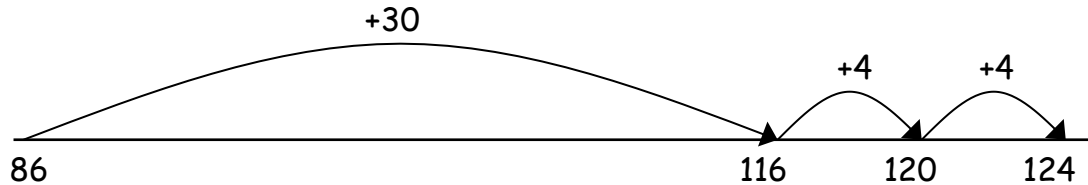
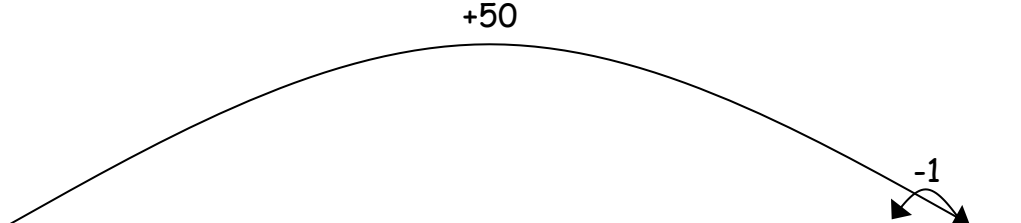
34 + 23 = 57

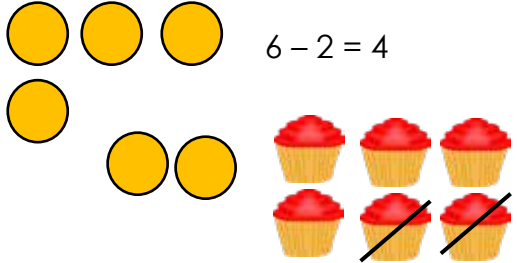

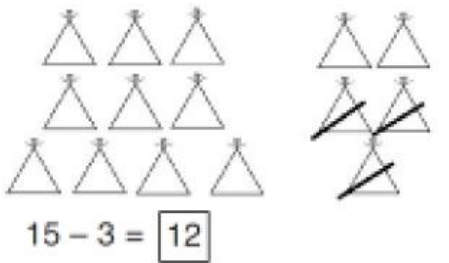
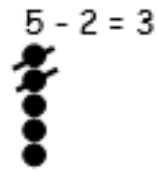


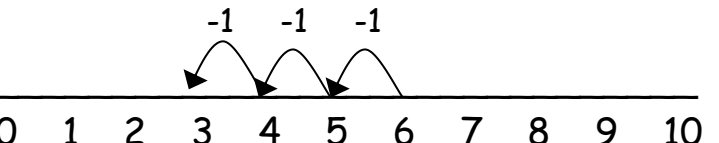


✓ Bridging through ten can help children become more efficient (by using the known fact 3 + 2 = 5).

37 + 15 = 52


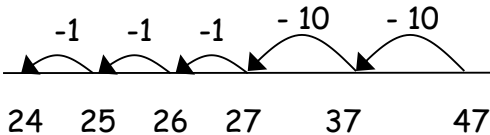
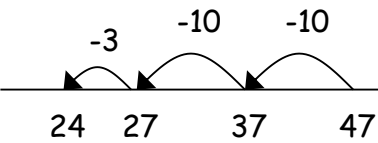
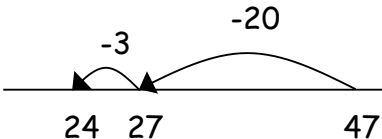


	<p>Children will continue to use empty number lines with increasingly large numbers, including compensation where appropriate.</p> <p>✓ Count on from the largest number irrespective of the order of the calculation. <math>38 + 86 = 124</math></p>  <p>✓ Compensation <math>49 + 73 = 122</math></p>  <p>✓ <b>Partitioning and Recombining</b> Partition the number into tens and ones. E.g. <math>42 \rightarrow 40 + 2</math></p> <table><tr><td><math>42 + 29 =</math></td><td><math>40 + 2</math></td><td><math>20 + 9</math></td></tr><tr><td>Add the tens</td><td><math>40 + 20 = 60</math></td><td></td></tr><tr><td>Add the ones</td><td><math>2 + 9 = 11</math></td><td></td></tr><tr><td></td><td><math>60 + 11 = 71</math></td><td></td></tr></table>	$42 + 29 =$	$40 + 2$	$20 + 9$	Add the tens	$40 + 20 = 60$		Add the ones	$2 + 9 = 11$			$60 + 11 = 71$	
$42 + 29 =$	$40 + 2$	$20 + 9$											
Add the tens	$40 + 20 = 60$												
Add the ones	$2 + 9 = 11$												
	$60 + 11 = 71$												


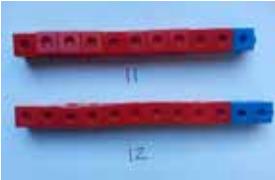
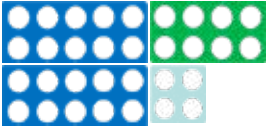
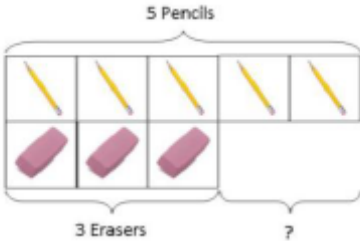
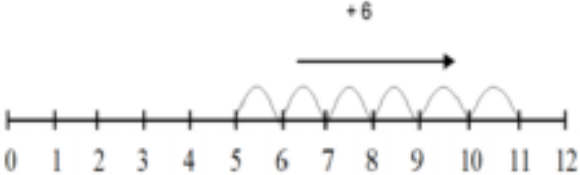
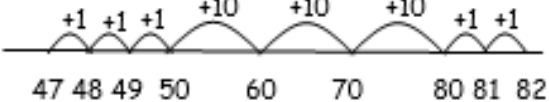
Objective and Strategies	Concrete	Pictorial	Abstract
Taking away ones	<p>Use physical objects, counters, cubes etc to show how objects can be taken away.</p> <p></p> <p><math>6 - 2 = 4</math></p> <p></p> <p><math>20 - 4 = 16</math></p>	<p>Cross out drawn objects to show what has been taken away.</p> <p></p> <p><math>15 - 3 = 12</math></p> <p></p> <p><math>5 - 2 = 3</math></p>	<p><math>18 - 3 = 15</math></p> <p><math>8 - 2 = 6</math></p>
Counting back	<p>Make the larger number in your subtraction. Move the beads along your bead string as you count backwards in ones.</p> <p></p> <p><math>13 - 4</math></p>	<p>Count back on a number line or number track.</p> <p><math>6 - 3 =</math></p> <p></p> <p><math>6 - 3 = 3</math></p> <p></p>	<p>Put 13 in your head, count back 4. What number are you at? Use your fingers to help.</p>



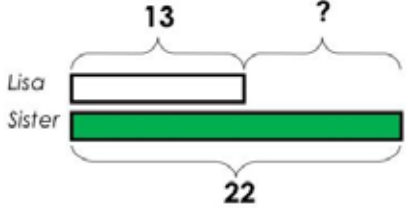
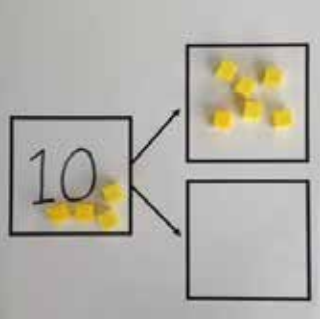
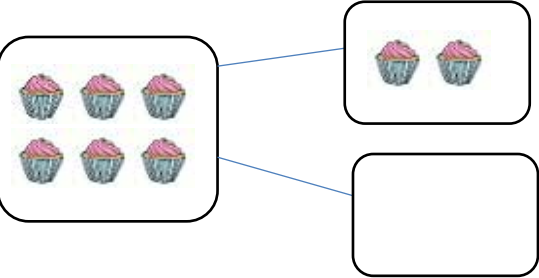
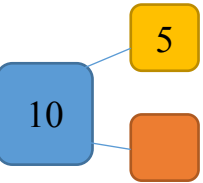
# Subtraction

Objective and Strategies	Concrete	Pictorial	Abstract
	<p>Use counters and move them away from the group as you take them away counting backwards as you go.</p> 	<p>Start at the bigger number and count back the smaller number showing the jumps on the number line.</p> <p>✓ Counting back in tens and ones.</p> <p><math>47 - 23 = 24</math></p>  <p>24 25 26 27 37 47</p> <p>✓ Then helping children to become more efficient by subtracting the ones in one jump (by using the known fact <math>7 - 3 = 4</math>).</p> <p><math>47 - 23 = 24</math></p>  <p>24 27 37 47</p> <p>✓ Subtracting the tens in one jump and the ones in one jump.</p> <p><math>47 - 23 = 24</math></p>  <p>24 27 47</p>	


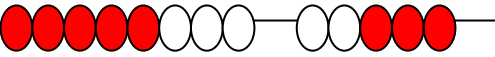
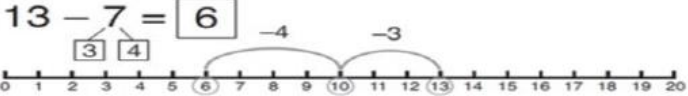
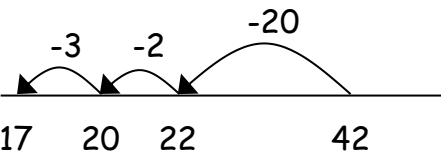
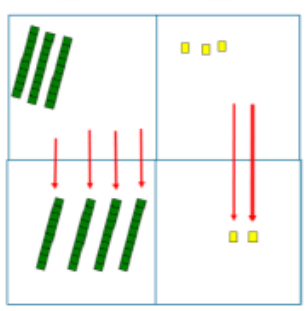
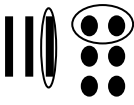
# Subtraction

		 <p><math>47 - 23 =</math></p> <p><math>47</math> subtract twenty = <math>27</math> <math>27</math> subtract three = <math>24</math></p>	
Find the difference	<p>Compare amounts and objects to find the difference. Use cubes or numicon to build towers or make bars to find the difference.</p>   <p>Use basic bar models with items to find the difference.</p> 	<p>Count on to find the difference.</p> <p><math>11 - 6 = 5</math></p>  <p><math>82 - 47 = 35</math></p> <p>Count up from 47 to 82 in jumps of 10 and jumps of 1. Total the amount that was counted on e.g 35.</p>  <p>47 48 49 50 60 70 80 81 82</p>	<p>Hannah has 23 sandwiches, Helen has 15 sandwiches. Find the difference between the number of sandwiches.</p>

# Subtraction

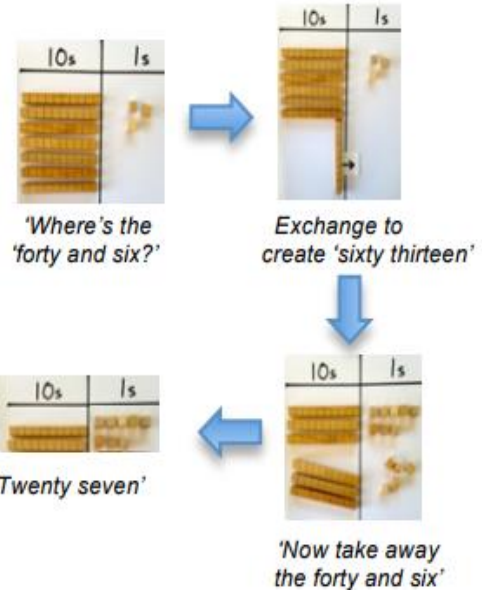
		<p><b>Comparison Bar Models</b></p> <p>Lisa is 13 years old. Her sister is 22 years old. Find the difference in age between them.</p> 	
		<p>Draw bars to find the difference between 2 numbers.</p>	
<b>Part Part Whole Model</b>	 <p>Link to addition- use the part whole model to help explain the inverse between addition and subtraction.</p> <p>If 10 is the whole and 6 is one of the parts. What is the other part? <math>10 - 6 =</math></p>	<p>Use a pictorial representation of objects to show the part part whole model.</p> <p><math>6 - 2 =</math></p> 	 <p>Move to using numbers within the part whole model.</p>

# Subtraction

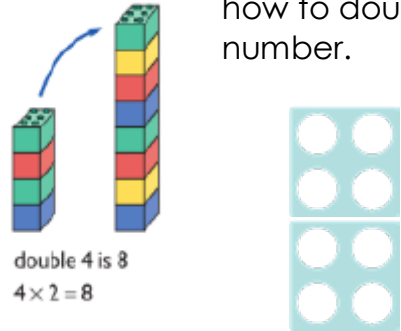


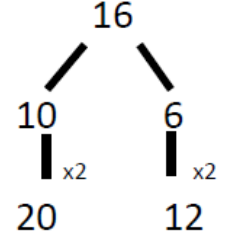
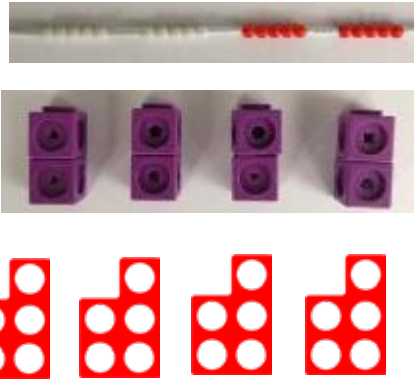
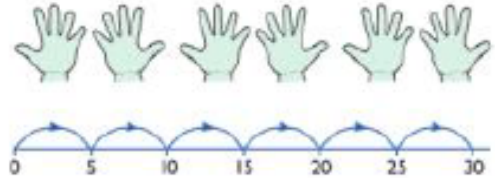
<b>Make 10</b>	<p><math>14 - 5 = 9</math></p>  <p>Make 14 on the ten frame. Take away the four first to make 10 and then takeaway one more so you have taken away 5. You are left with the answer of 9.</p> <p>Bead strings or bead bars can be used to illustrate subtraction including bridging through ten by counting back 3 then counting back 2.</p> <p><math>13 - 5 = 8</math></p> 	<p>Bridging through ten can help children become more efficient.</p> <p><math>13 - 7 = 6</math></p>  <p>Start at 13. Take away 3 to reach 10. Then take away the remaining 4 so you have taken away 7 altogether. You have reached your answer.</p> <p><math>42 - 25 = 17</math></p>  <p>Start at 42. Take away 20 to reach 22. Then take away 2 (to reach the multiple of ten) and then 3, so you have taken away 5 altogether. You have reached your answer.</p>	<p><math>16 - 8 =</math></p> <p>How many do we take off to reach the next 10?</p> <p>How many do we have left to take off?</p>
<b>Partitioning</b>	<p>Use Base 10 to make the bigger number then take the smaller number away.</p>  <p><math>75 - 42 = 33</math></p>	<p>Draw the Base 10 alongside the written calculation to help to show working.</p> <p><math>36 - 12 = 24</math></p> 	<p>Partition the number into tens and ones. E.g.</p> <p><math>89 \rightarrow 80 + 9</math></p> <p>Subtract the tens from the tens and then the ones from the ones.</p> <p><math>89 - 57 =</math></p> <p><math>80 + 9</math></p> <p><math>50 + 7</math></p> <p>Subtract the tens</p>



# Subtraction

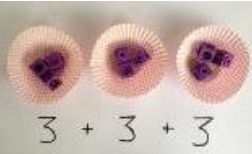


	<p>Taking away and exchanging, 73 – 46</p>  <p>80 - 50 = 30 Subtract the ones 9 - 7 = 2</p> <p>30 + 2 = 32</p>
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# Multiplication

Objective and Strategies	Concrete	Pictorial	Abstract
Doubling	<p>Use practical activities to show how to double a number.</p> 	<p>Draw pictures to show how to double a number.</p> <p>Double 4 is 8</p>  <p>Double 36</p> 	 <p>Partition a number and then double each part before recombining it back together.</p>
Counting in multiples	 <p>Count in multiples supported by concrete objects in equal groups.</p>	 <p>Use a number line or pictures to continue support in counting in multiples.</p>	<p>Count in multiples of a number aloud.</p> <p>Write sequences with multiples of numbers.</p> <p>2, 4, 6, 8, 10</p> <p>5, 10, 15, 20, 25 , 30</p>

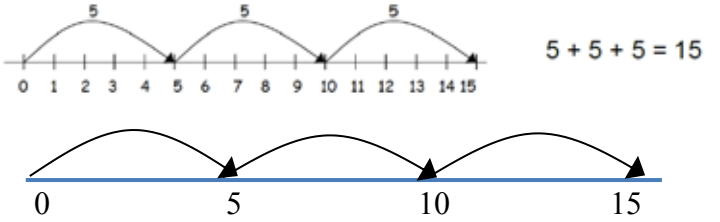

# Multiplication

Repeated addition




Use different objects to add equal groups.


There are 3 plates. Each plate has 2 star biscuits on. How many biscuits are there?





Write addition sentences to describe objects and pictures.



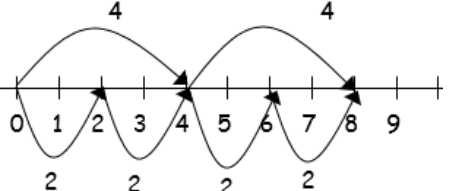
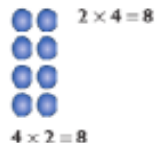


Arrays- showing commutative multiplication



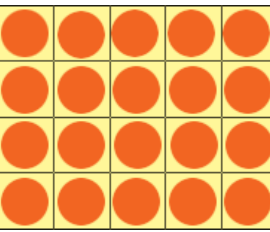
Create arrays using counters/ cubes to show multiplication sentences.




Draw arrays in different rotations to find **commutative** multiplication sentences.



Link arrays to area of rectangles.

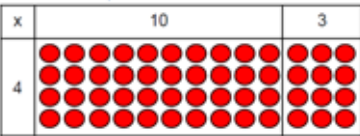


Use an array to write multiplication sentences and reinforce repeated addition.


$$5 + 5 + 5 = 15$$
$$3 + 3 + 3 + 3 + 3 = 15$$
$$5 \times 3 = 15$$
$$3 \times 5 = 15$$

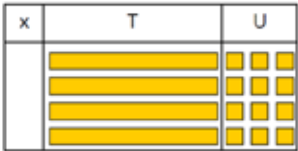
# Multiplication

Grid Method



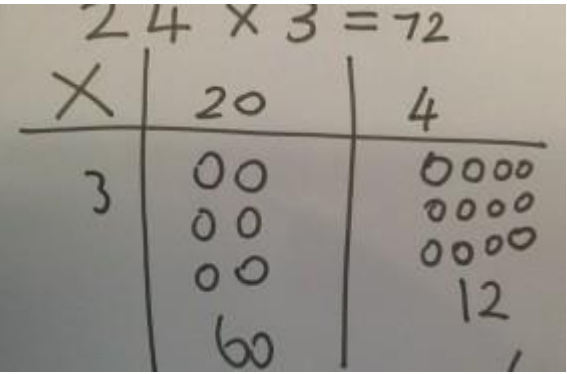
4 rows of 10  
4 rows of 3

Move on to using Base 10 to move towards a more compact method.

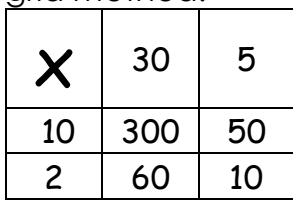


4 rows of 13

Children can represent the work they have done with counters or Base 10 in a way that they understand.



They can draw Base 10 or just use circles in the different columns to show their thinking as shown below.



Start with multiplying by one digit numbers and showing the clear addition alongside the grid.

<b>X</b>	10	2
5	50	10

$12 \times 5 =$   
 $10 \times 5 = 50$   
 $2 \times 5 = 10$   
 $50 + 10 = 60$



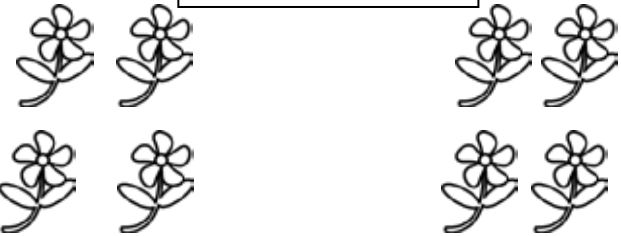


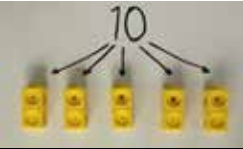
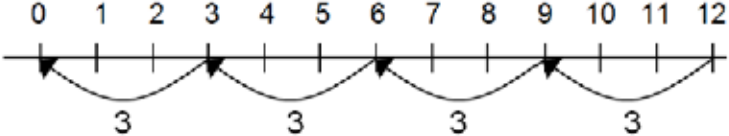
Moving forward, multiply by a 2 digit number showing the different rows within the grid method.

<b>X</b>	30	5
10	300	50
2	60	10


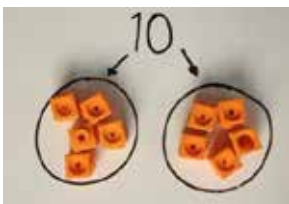
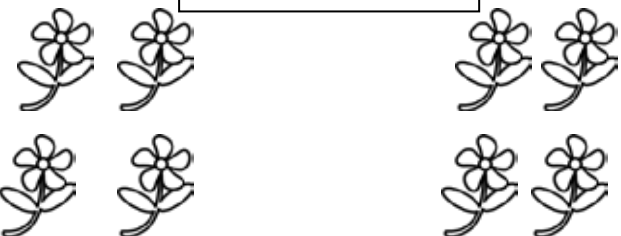



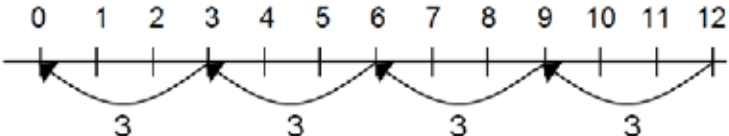
$5 \times 10 = 50$   
 $30 \times 2 = 60$   
 $5 \times 2 = 10$   
 $300 + 50 = 350$   
 $60 + 10 = 70$   
 $350 + 70 = 420$




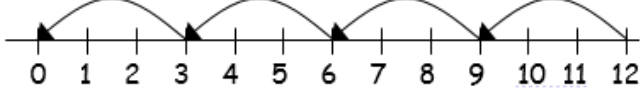
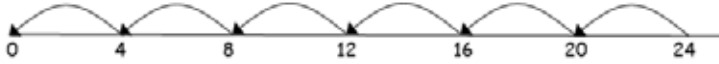
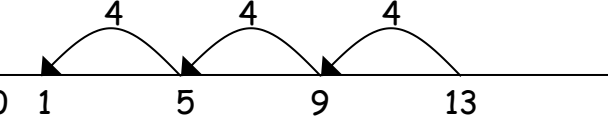
Division

Objective and Strategies	Concrete	Pictorial	Abstract
Sharing objects into groups	<div>10 ÷ 2 = 5</div> <div></div> <div></div> <div>I have 10 cubes, can you share them equally in 2 groups?</div>	<div>Children use pictures or shapes to share quantities.</div> <div><div>8 ÷ 2 = 4</div></div>	<div>Share 9 buns between three people.</div> <div>9 ÷ 3 = 3</div>
Division as grouping	<div>Divide quantities into equal groups. Use cubes, counters or objects to aid understanding. 35 ÷ 5 = 7</div> <div></div> <div></div> <div>12 ÷ 4 = 3</div> <div></div> <div>10 ÷ 2 = 5</div>	<div>Use a number line to show jumps in groups. The number of jumps equals the number of groups. 12 ÷ 3 = 4</div> <div></div>	<div>28 ÷ 7 = 4</div> <div>Divide 28 into groups of 7. How many are in each group?</div>


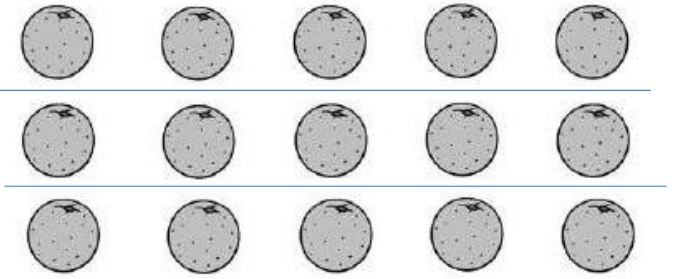
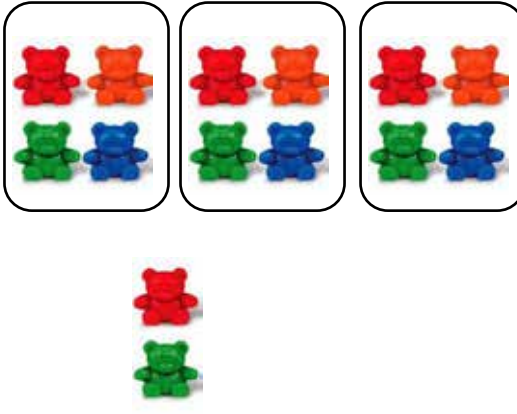


Division

Objective and Strategies	Concrete	Pictorial	Abstract
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# Division

<p>Repeated subtraction</p>	<p>The bead string will help children with interpreting division calculations, recognising that <math>12 \div 3</math> can be seen as 'how many 3s make 12?'</p> 	<p><math>12 \div 3 = 4</math></p> <p>-3</p>  <p>Children will use an empty number line to support their calculation by counting how many jumps backwards they have made.</p> <p><math>24 \div 4 = 6</math></p> <p><math>24 \div 4 = 6</math></p>  <p>Children should also move onto calculations involving remainders.</p> <p><math>13 \div 4 = 3 \text{ r } 1</math></p> 	
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# Division

<p>Division within arrays</p>	 <p>Link division to multiplication by creating an array and thinking about the number sentences that can be created.</p> <p>Eg <math>15 \div 3 = 5</math>    <math>5 \times 3 = 15</math> <math>15 \div 5 = 3</math>    <math>3 \times 5 = 15</math></p>	 <p>Draw an array and use lines to split the array into groups to make multiplication and division sentences.</p>	<p>Find the inverse of multiplication and division sentences by creating four linking number sentences.</p> <p><math>7 \times 4 = 28</math> <math>4 \times 7 = 28</math> <math>28 \div 7 = 4</math> <math>28 \div 4 = 7</math></p>
<p>Division with a remainder</p>	<p><math>14 \div 3 =</math></p> <p>Divide objects between groups and see how much is left over</p> 	<p>Jump forward in equal jumps on a number line then see how many more you need to jump to find a remainder.</p> <p><math>13 \div 4 =</math></p>  <p>Draw dots and group them to divide an amount and clearly show a remainder.</p> <p><math>14 \div 4 =</math></p> 	<p>Complete written divisions and show the remainder using r.</p> <p><math>13 \div 4 = 3 \text{ r } 1</math></p>



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