
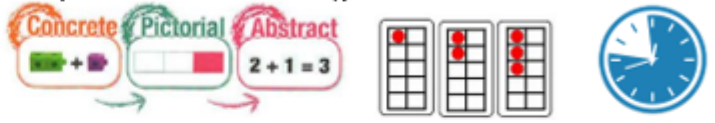




Hindhayes Maths Curriculum Progression of Skills - Addition and Subtraction

Across the school we develop and build on our knowledge and understanding of number. These essential skills help us to work with number as we learn to add and subtract. A systematic approach to Number Sense, consistent use of vocabulary, intelligent use of resources and representations, alongside a carefully crafted curriculum help us achieve skilled mathematicians.

Our Hindhayes Maths Ambition

To grow....

<p>I can attitudes to maths</p>  <ul style="list-style-type: none"> • Offer support through learning partners, scaffolding and modelling. • Explore new vocabulary and expose it's meaning. Make a poster to help us remember. • Have a number sense display to help us make sense of the maths • Celebrate small steps of learning • Use different ways to assess what has been understood and what has not been understood YET • Present learning in manageable chunks 	<p>deeper understanding within maths</p>  <ul style="list-style-type: none"> • The concrete experiences <u>is</u> where the children make discoveries – always start a unit with concrete experiences. Take photo graphs for learning prompt displays and pic collage evidence. • Adults to apparatus to model and expose the maths – silent modelling, two colours of snap cubes for number facts. • Give children time to deepen their understanding, retrieve previous learning and make links across maths concepts eg number doubles and the 2 times table.
<p>our declarative knowledge</p>  <ul style="list-style-type: none"> • Daily Number Sense sessions help us to learn number facts in a systematic and progressive manner • Regular retrieval of known facts helps us free up our working memory • We can use our known facts to help us be effective and efficient mathematicians 	<p>our procedural knowledge</p>  <ul style="list-style-type: none"> • Explicit instruction, modelling and scaffolding helps us to learn HOW to carry out the maths • Using techniques, following short steps and using stem sentences help us to remember what to do.

Developing Early Number Skills

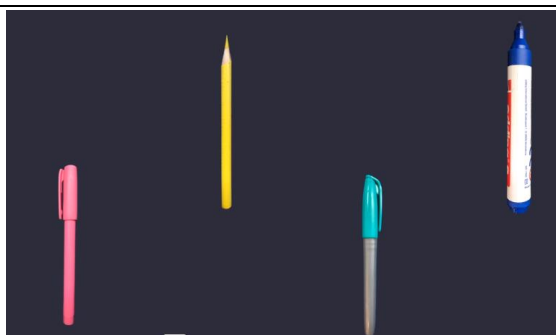
EYFS

Vocabulary

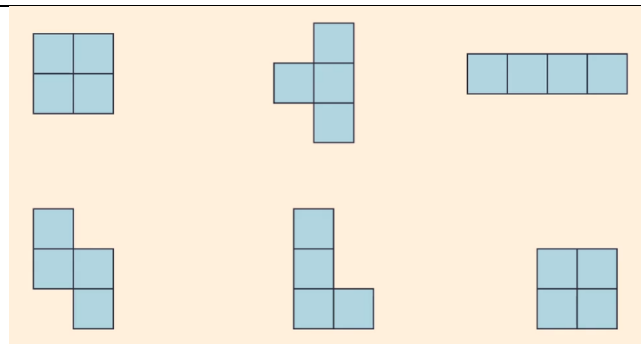
Part, whole, add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number sentence, subitise, equal to, take, take away, less, minus, subtract, leaves, difference between, how many more, how many fewer / less than, most, least, count back, how many left / how much less is_?

Key Skill

Subitising, recognising pattern and composition



Identifying how many, recognising pattern.

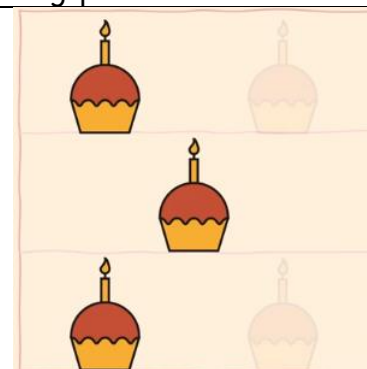


Identifying matching pairs.

I have four apples, now I
add three more apples.
How many do I have
now?



Partitioning known values (up to 10).



Solving problems with known values (up to 10).

Developing Early Number Skills

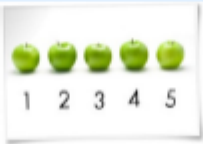
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Vocabulary

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Key Skill

Cardinality, Comparing and Counting

Key Concept	Importance of Concept	Teaching and Learning Points
<p>Pre-counting</p> <p>The key focus in pre-counting is an understanding of the concepts more, less and the same and an appreciation of how these are related. Children at this stage develop these concepts by comparison and no counting is involved.</p> <p>One-to-one counting</p> <p>The key focus of one-to-one counting is developing children's ability to count. Two skills are needed:</p> <ul style="list-style-type: none"> ability to say the standard list of counting words in order ability to match each spoken number with one and only one object 	<p>This is important because these concepts lay the foundation for children to later develop an understanding of the many ways that numbers are related to each other; for example five is two more than three, and one less than six.</p> <p>Counting is important because the <i>meaning</i> attached to counting is the key conceptual idea on which all other number concepts are based.</p> 	<p>Children often have some concept of more; this needs to be extended and refined. Less is a more difficult concept and understanding can be developed by pairing the terms less and more to help develop an understanding of the relationship between the two.</p> <p>Children have often learnt the counting sequence as a rote procedure. They need to learn the meaning of counting by using counting skills in a variety of meaningful situations. Start with counting small numbers, up to five objects.</p> <p>Once children can count reliably their knowledge of the number sequence can be extended to count both forwards and backwards, from any given number.</p>

	<p>Counting sets</p> <p>The key focus of counting sets is developing children's understanding of cardinality. This means that children understand when you count the items in a set, the last number counted tells the size of that set.</p> <p>They also know that the number in a set will remain constant as long as no items are added to the set, or taken from the set. The count</p>	<p>Cardinality is important because it allows numbers to be used to describe and compare sets. This allows sets of items to be combined (addition) and separated (subtraction).</p>	<p>Children develop an understanding of cardinality by counting a variety of objects into different sized sets.</p> <p>Counting the same set several times in a different order or arranging the counting objects in a different pattern develops children's understanding that the number in a set stays the same unless items are added or taken away. Try covering the amount- How many now?</p>	
	<p>will remain the same despite where you start counting.</p> <p>Counting from one to solve number problems</p> <p>The key focus here is counting objects to solve addition and subtraction problems.</p> <p>Children will need to use materials such as buttons, plastic animals, or whatever they may be playing with, to keep track of their counting. For example, children will combine 3 and 2 by first counting out "1,2,3" for the first set, then "1,2" for the second set, then physically join the sets and counting them all "1,2,3,4,5."</p>	<p>Using counting to solve number problems shows children that counting can be used meaningfully in a variety of situations. This helps them understand and appreciate counting as more than a rote procedure.</p> <p>Using counting to combine and separate groups of objects develops children's understanding of the operations of addition and subtraction. Children come to understand that when groups are combined the count gets bigger, and when groups are separated the count gets smaller.</p>	<p>The ability to recognise and write numerals are important skills to develop alongside counting.</p> <p>Encourage children to count a wide variety of concrete materials to solve number problems. Start by joining small sets, with a total of five and then ten items. Identify the first amount and count on from that number.</p>	

Addition and Subtraction

Year 1

Vocabulary

Part, whole, add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, tens, ones, take, take away, less, minus, subtract, leaves, difference between, how many more, how many fewer / less than, most, least, count back, how many left, how much less is_?, number bonds, number facts

Key Skill

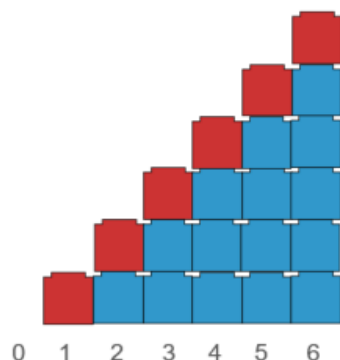
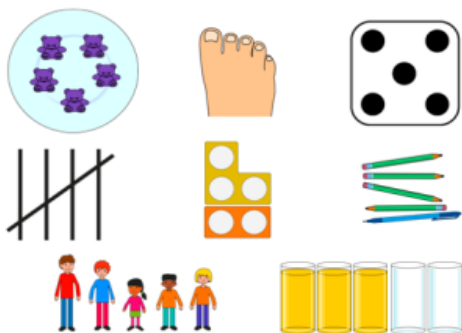
Compose and Partition Numbers to 10



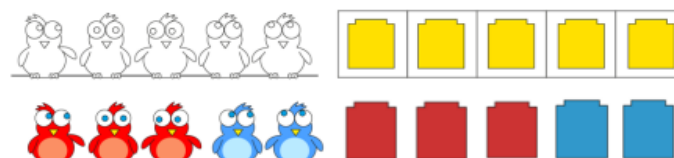
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Understand that numbers to 10 can be represented in many different ways.

Numbers to 5 can be identified without counting (subitising).



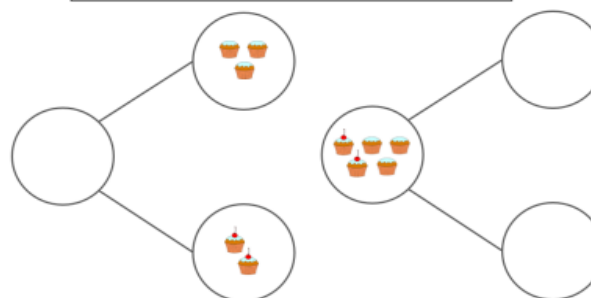
Each number is composed of the previous number and one more.



Each number can be partitioned into two smaller numbers

There are 5 _____. 3 are _____. 2 are _____.

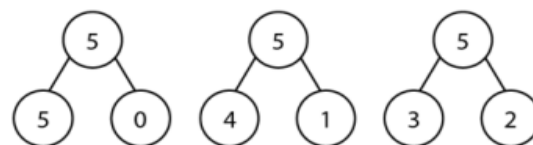
5 is the whole. 3 is a part. 2 is a part.



A number can be partitioned in different ways.

There are 5 _____. 3 are _____. 2 are _____.

5 is the whole. 3 is a part. 2 is a part.



Addition and Subtraction







Year 1

Vocabulary

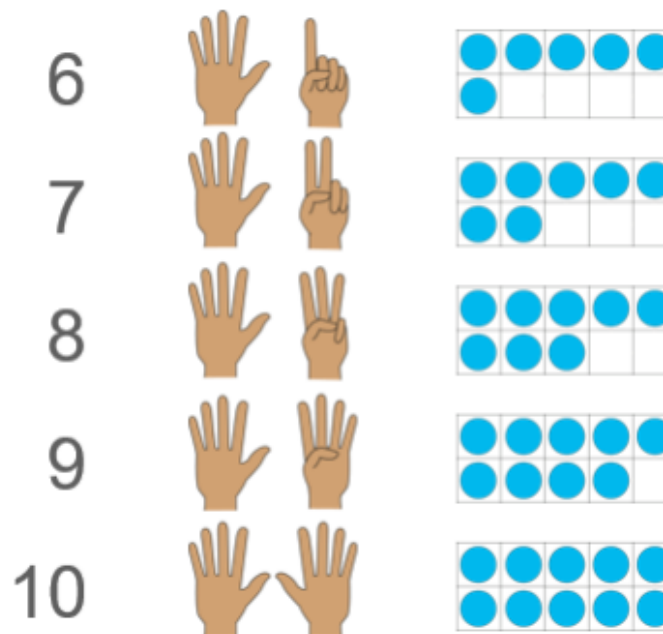
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Key Skill

Compose and Partition Numbers to 10 cont

	Blue	Red
	0	5
	1	4
	2	3
	3	2
	4	1
	5	0

A number can be partitioned in different ways systematically.



Numbers from 6 – 10 are composed of the '5 and a bit' structure.

Addition and Subtraction

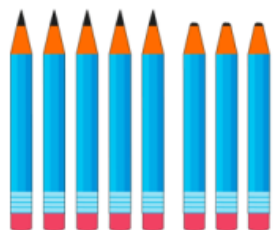
Year 1

Vocabulary

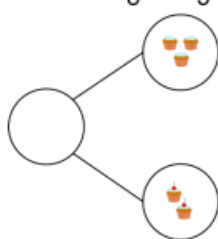
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Key Skill

Read, write and interpret equations



$$8 - 5 = 3$$



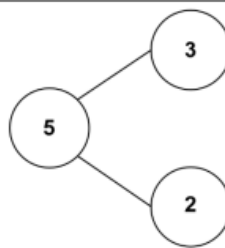
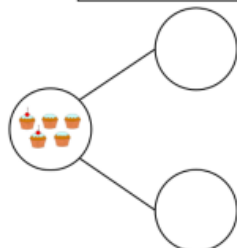
Subtraction can tell us about partitioning.

There are 8 ____ altogether.

5 ____ are ____.

3 ____ are ____.

We can write this as 8 minus 5 is equal to 3.



Make connections between addition and subtraction using the part-part-whole model.

Addition can tell us about combining objects.

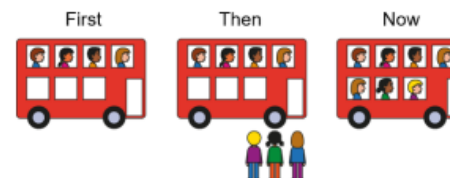
Subtraction can tell us about partitioning objects.

$$2 + 3 = 5$$

$$3 + 2 = 5$$

$$5 - 3 = 2$$

$$5 - 2 = 3$$

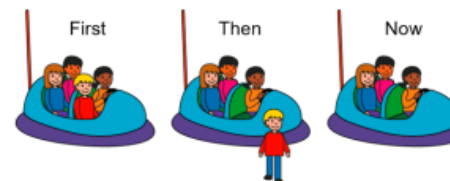


$$4 + 3 = 7$$

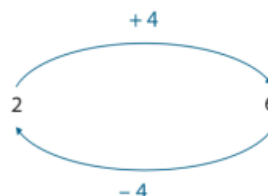
Understand the First, Then, Now structure of addition and subtraction.

Addition can tell us about a quantity increasing.

Subtraction can tell us about a quantity decreasing.



$$4 - 1 = 3$$



Addition and Subtraction undo each other.

Addition and Subtraction

Year 1

Vocabulary

Part, whole, add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, tens, ones, take, take away, less, minus, subtract, leaves, difference between, how many more, how many fewer / less than, most, least, count back, how many left, how much less is_?, number bonds, number facts

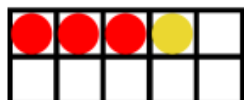
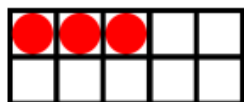
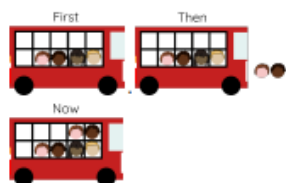
Key Skill

Adding by Counting On Subtracting by Counting Back

Children act out/practically use concrete objects to show 'first..then...now' stories.

E.g. **First** three children were sitting on the carpet. **Then** two more children came to the carpet. **Now** five children are on the carpet.

Build on the story context but add pictorial representations.

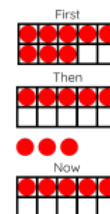
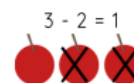


Link to using a number line or number track.

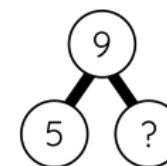


Use physical objects e.g. double sided counters, cubes, bead strings etc. to show how objects can be taken away.

Cross out drawn objects to show what has been taken away.

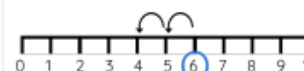


There are 9 children on a train. 5 children get off the train. How many are left?



> Use a bead string
Make the larger number on your bead string.
Move your beads along the bead string as you count backwards in ones.

Count back on a number line or number track.



Put 9 in your head, count back 4. What number are you at?

E.g. Zara counts backwards from 8. How many jumps would it take to get back to 3? Write this as a number sentence.

Addition and Subtraction

Year 1

Vocabulary

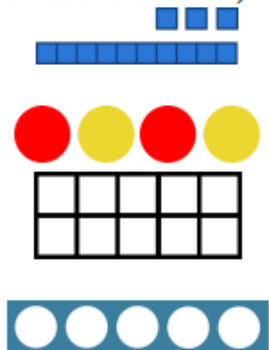
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Key Skill

Bridging Ten - developing understanding

Act out stories - 'A train has ten seats in each carriage. You have to fill up a whole carriage before you can use a new one. There are seven children in the first carriage. Five more get on. How many are there altogether?'

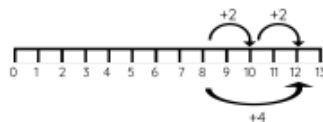
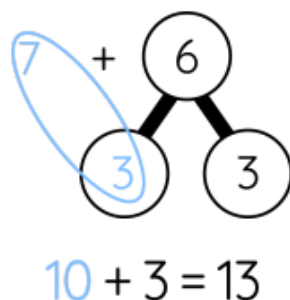
Provide concrete objects to allow children to regroup ten ones as one ten (numicon, dienes, ten frames and counters).



Use pictures or a number line to show how to partition the smaller number and bridge 10.

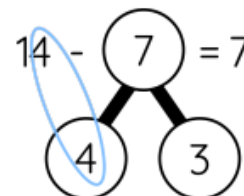
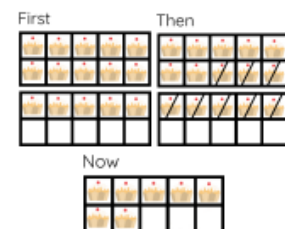


Use a number line or part-whole model.



Act out stories - First there were 12 children on the train. Then 4 children got off. Now there are 8 children on the train.

Use ten frames and counters, number line, to show the children how they can subtract through ten.



Addition and Subtraction

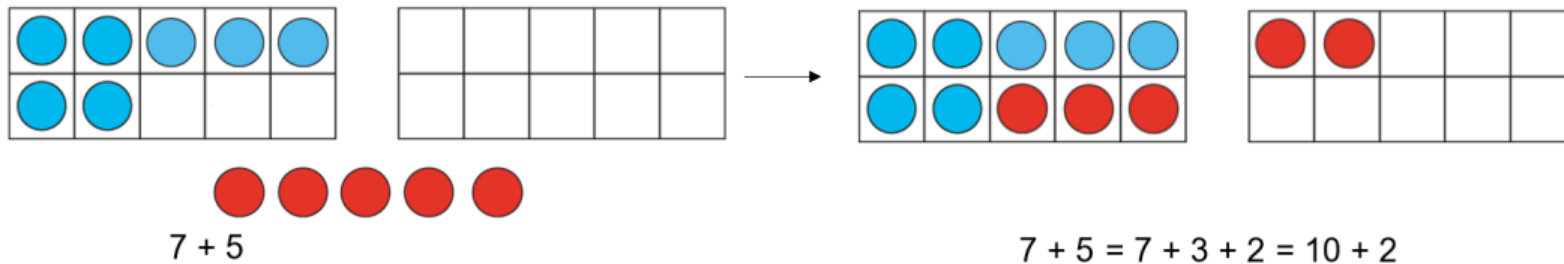
Year 2

Vocabulary

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Key Skill

Bridging Ten (addition) cont

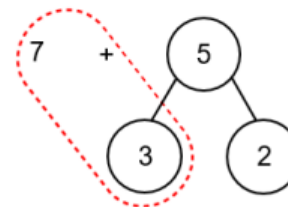
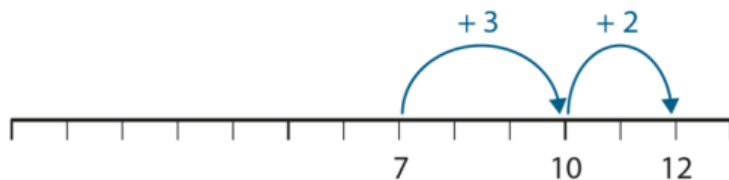


Use knowledge of known facts to bridge 10 using a 'make 10' strategy.

First, I partition the ___ into ___ and ___.

Then, I add ___ and ___ to make 10.

Then, I add the remaining ___ to make ___.



$$7 + 3 = 10$$

$$10 + 2 = 12$$

Addition and Subtraction

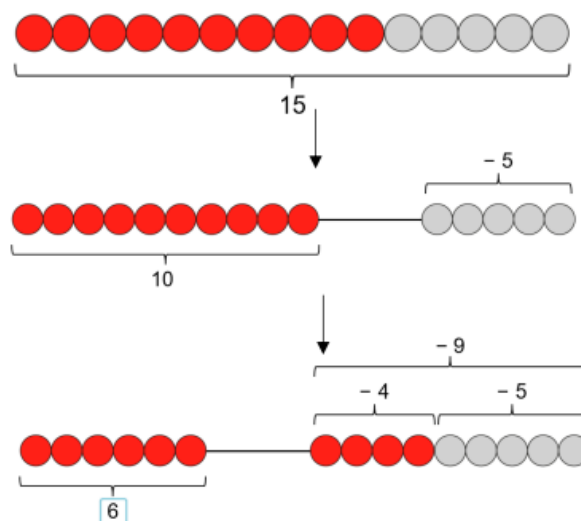
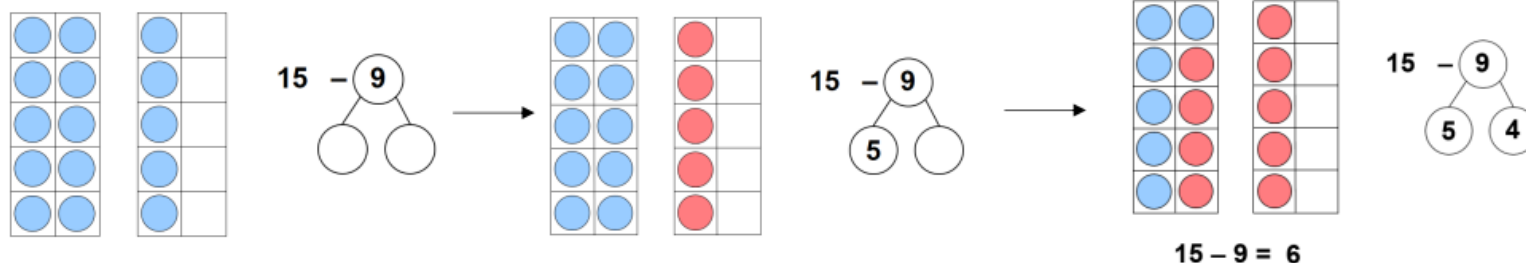
Year 2

Vocabulary

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Key Skill

Bridging Ten (subtraction) cont

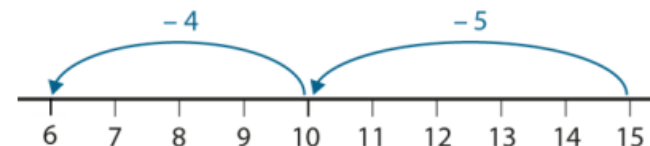


Use knowledge of known facts to subtract **through 10**. We can partition the subtrahend to help us subtract.

First, I partition the ___ into ___ and ___.

Then, I subtract ___ and ___ to get to 10.

Then, I subtract the remaining ___ to make ___.



Addition and Subtraction

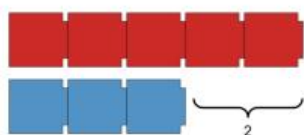
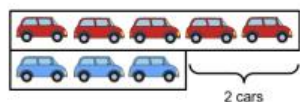
Year 2

Vocabulary

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Key Skill

Solving Problems



Line up sets of objects in a bar model structure to support comparison.

There are 2 fewer blue cars than red cars.

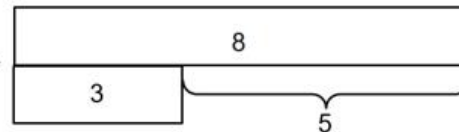
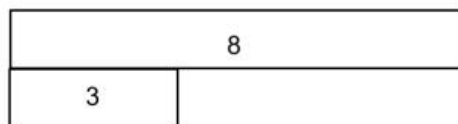
There are 2 more red cars than blue cars.



Represent a range of comparison contexts.

Ben is 7 years older than Charlotte.

Charlotte is 7 years younger than Ben.



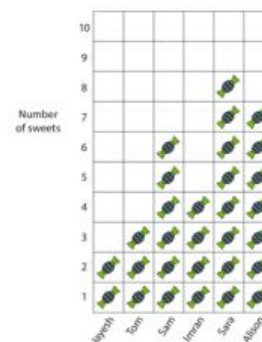
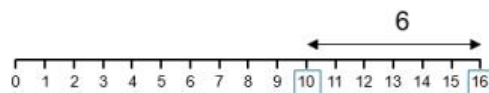
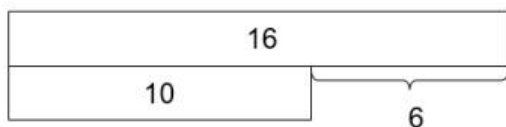
We can use subtraction to help solve difference problems / missing addend problems about 'how many more?' and 'how many fewer?'

$$3 + \underline{\quad} = 8$$

$$8 - 3 = 5$$

Create contexts for recognising the difference/comparative addition structure with all representations below.

$$10 + \square = 16 \quad 16 - 10 = \square$$



Addition and Subtraction

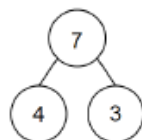
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Vocabulary

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Key Skill

Add and subtract within 100 - using known facts



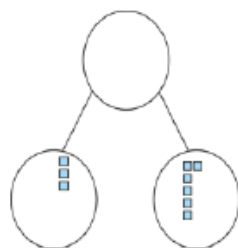
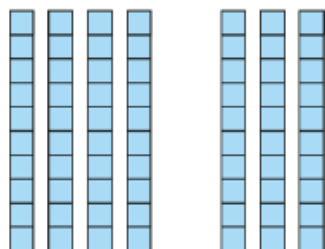
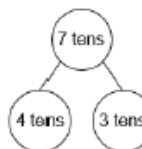
Use known facts within 10 to add/subtract multiples of 10.

I know that 4 plus 3 is equal to 7.

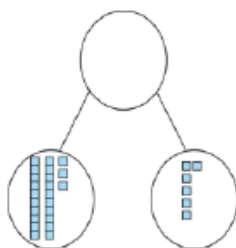
So, 4 tens plus 3 tens is equal to 7 tens.

$$40 + 30 = 70.$$

$$70 - 40 = 30$$



$$3 + 6 = 9$$



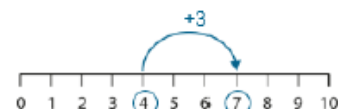
$$23 + 6 = 29$$

Use known facts within 10 to add/subtract ones to/from a 2 digit number.

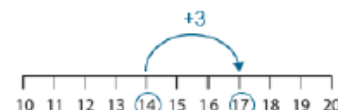
I know that 3 plus 6 is equal to 9.

So, 2 tens and 3 ones plus 6 ones is equal to 2 tens and 9 ones.

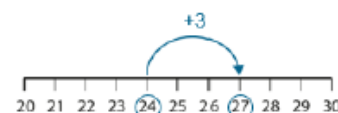
$$23 + 6 = 29.$$



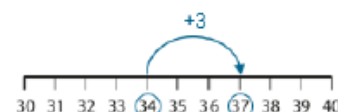
$$4 + 3 = 7$$



$$14 + 3 = 17$$



$$24 + 3 = 27$$



$$34 + 3 = 37$$

Generalise that adding/subtracting within 10 can be applied to adding a 2 digit number with a 1 digit number – not crossing the tens boundary.

I know that 4 plus 3 is equal to 7.

So, 1 ten and 4 ones plus 3 ones is equal to 1 tens and 7 ones.

$$14 + 3 = 17.$$

Addition and Subtraction

Year 2

Vocabulary

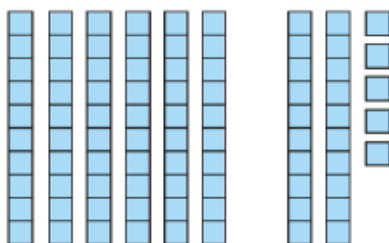
Part, whole, add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, ones, partition, addition, column, tens boundary, partition, recombine, take, take away, less, minus, subtract, leaves, difference between, how many more, how many fewer / less than, most, least, count back, how many left, how much less is_?

Key Skill

Add and subtract within 100 - using known facts cont

$$6 + 2 = 8$$

$$60 + 25 = ?$$



Use known facts within 10 to add/subtract multiples of 10 to a 2 digit number.

I know that 6 plus 2 is equal to 8.

So, 6 tens plus 2 tens is equal to 8 tens. Then add the additional 5 ones.

$$60 + 25 = 85.$$

Use knowledge of subtracting from 10 to subtract a single-digit number from a multiple of 10.

I know that 10 minus 3 is equal to 7.

So, 3 tens minus 3 ones is equal to 2 tens and 7 ones.

$$30 - 3 = 27.$$



$$10 - 3$$



$$30 - 3$$



Addition and Subtraction

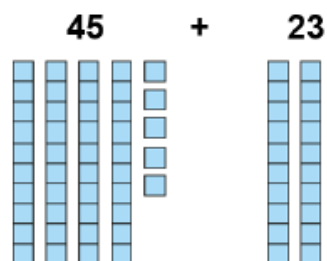
Year 2

Vocabulary

Part, whole, add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, ones, partition, addition, column, tens boundary, partition, recombine, take, take away, less, minus, subtract, leaves, difference between, how many more, how many fewer / less than, most, least, count back, how many left, how much less is_?

Key Skill

Add and subtract within 100 - partitioning

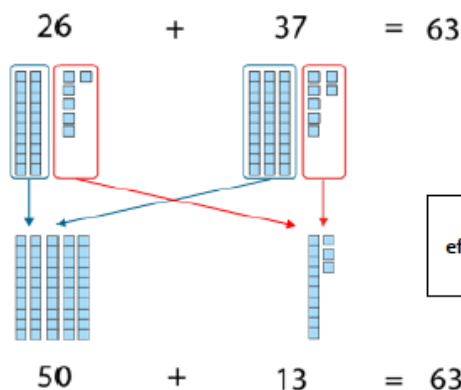


Partition both addends to add efficiently without crossing the tens boundary.

$$40 + 20 = 60$$

$$5 + 3 = 8$$

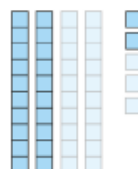
$$60 + 8 = 68$$



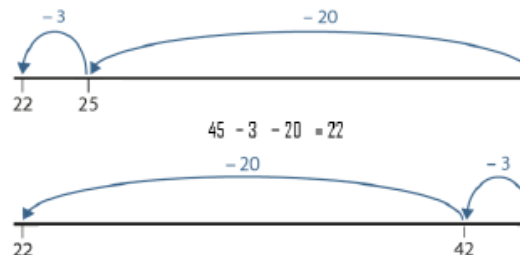
Partition both addends to add efficiently when the ones require an exchange.

$$26 + 37 = 63$$

$$45 - 20 - 3$$



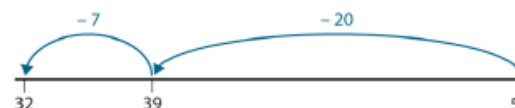
$$45 - 23 = 22$$



Subtract from any two-digit number by subtracting tens then ones without crossing a tens boundary.

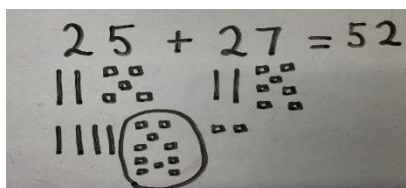
$$59 - 27 = 32$$

Subtract from any two-digit number by partitioning the subtrahend into tens and ones and counting back.

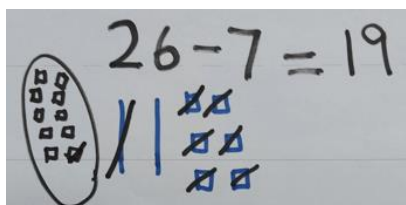


Add two-digit numbers by using the technique:

Build/Group/Count



Subtract from a two-digit number when crossing the tens boundary using the exchange method.

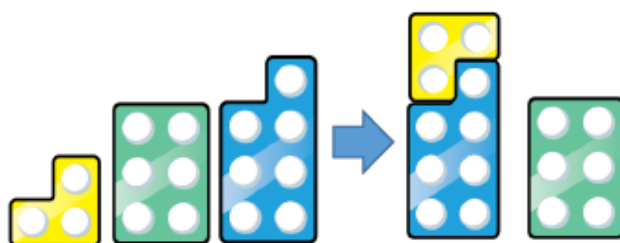
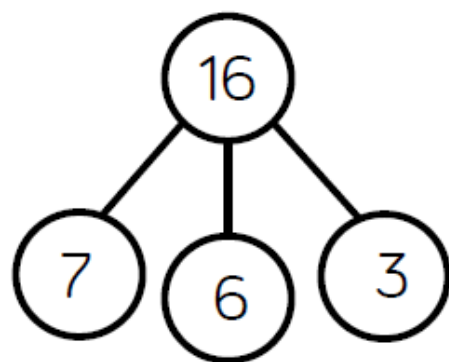


Vocabulary

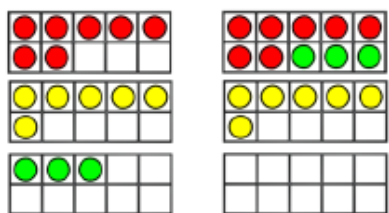
Part, whole, add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, ones, partition, addition, column, tens boundary, partition, recombine, take, take away, less, minus, subtract, leaves, difference between, how many more, how many fewer / less than, most, least, count back, how many left, how much less is_?

Key Skill

Adding 3 single digits - using known facts

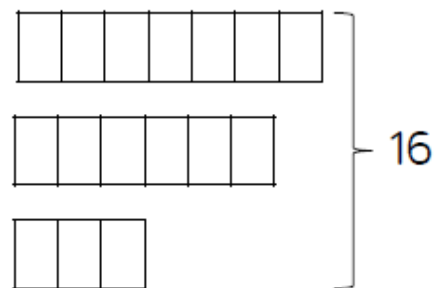


$$7 + 6 + 3 = 16$$



$$7 + 6 + 3 = 16$$

10



When adding three 1-digit numbers, children should be encouraged to look for number bonds to 10 or doubles to add the numbers more efficiently.

This supports children in their understanding of commutativity.

Manipulatives that highlight number bonds to 10 are effective when adding three 1-digit numbers.