Years 1/2

Small Steps Guidance and Examples

Block 2: Addition and Subtraction

White Rose Maths

Overview

Small Steps

Year 1	Year 2
Fact families: Addition facts Number bonds for numbers within 10	Fact families: Addition and subtraction bonds to 20
Number bonds to 10	Check calculations
Compare number bonds	Compare number sentences
	Related facts
	Bonds to 100 (tens)
Addition: Adding together	Add and subtract 1s
Addition: Adding more	Add and subtract 10s
Finding a part	Add a 2-digit and 1-digit number – crossing ten
Subtraction: Taking away	Subtract a 1-digit from a 2-digit number – crossing 10 and 100
Subtraction: Finding a part	Add two 2-digit numbers- not crossing ten- add ones, add tens
Fact families: The 8 facts	Add two 2-digit numbers – crossing ten – add ones, add tens
Subtraction: Counting back	Subtract 2-digits from 2-digits – not crossing ten
Subtraction: Finding the difference	Subtract 2-digits from 2-digits – crossing ten
Comparing number statements (1)	Bonds to 100 (tens and ones)
Comparing number statements (2)	Add three 1-digit numbers

Fact Families - Addition

Notes and Guidance

Once children have shown understanding of the initial number sentence, they build on this looking at addition fact families. Here children see that the order of the addition sentence can be varied and they begin to discover that addition is commutative.

E.g. $3 + 2 = 5$ $2 + 3 = 5$

$5 = 3 + 2$ $5 = 2 + 3$

Mathematical Talk

Is the equal sign always at the end of a number sentence?

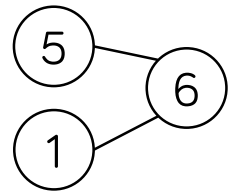
What is the same about the four addition sentences?

What's different about the four addition sentences?

If two of the numbers in the part whole model are the same, can we still write four addition sentences? Prove it.

Varied Fluency

1. Fill in the missing numbers.



$1 + \square = 6$

$\square + 1 = 6$

$\square = \square + 1$

$6 = \square + \square$

2. Complete the number sentences.

$\square + \square = 7$ $7 = \square + \square$

$\square + \square = 7$ $7 = \square + \square$

3. Use the number cards to make 4 addition sentences.

4	7	3

Fact Families - Addition

Reasoning and Problem Solving

Kim has 3 number cards.

3	5	2

She has written two number sentences.

$3 + 5 = 2 \quad 3 = 5 + 2$

Explain what Kim has done wrong.

Correct her number sentences and complete the fact families.

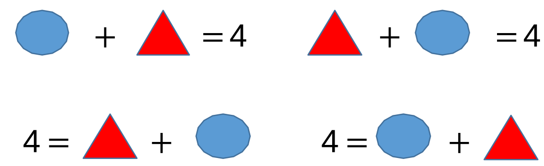
Kim has placed the numbers in the order she was given them, rather than moving them to make the number sentence correct.

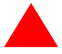
$3 + 2 = 5$

$2 + 3 = 5$

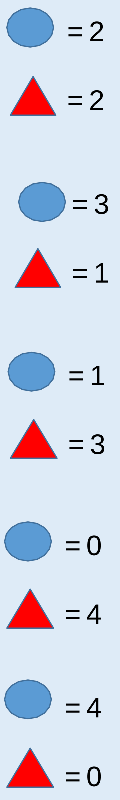
$5 = 3 + 2$

$5 = 2 + 3$



What could the  and the  be worth?

Possible answers:



Number Bonds within 10

Notes and Guidance

Children combine their knowledge of the part-whole model and addition facts, to explore number bonds within 10.

Starting with the whole, children break numbers into parts and explore how many different ways a number can be partitioned.

e.g. $5 = 3 + 2$

$5 = 4 + 1$

Mathematical Talk

Does the whole always stay the same?

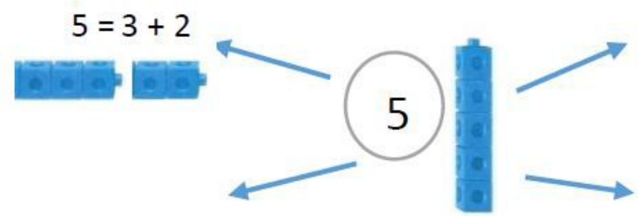
Do the parts stay the same or change?

If 8 is the whole, what could the parts be?

Varied Fluency

1. Here are 5 cubes.

Break them apart in different ways to find all the number bonds to 5.
One is done for you.



2. Use seven double sided counters.

How many different ways to make 7 can you find?
Record your findings in number sentences.

3. If 9 is the whole, what could the parts be?

Show your findings in part whole models.
Can you write an addition sentence for each part whole model?

Number Bonds within 10

Reasoning and Problem Solving

All the dots have fallen off 2 toad stools.

How many different ways can you put them back on?

There are 9 altogether.

Children could put:
8 + 0 or 0 + 8,
7 + 1 or 1 + 7,
6 + 2 or 2 + 6,
5 + 3 or 3 + 5,
4 + 4

Always, sometimes, never?

The bigger the number, the more number bonds it has.

Sometimes, children can prove this by comparing the number bonds for a few numbers.
5 has 5 + 0, 4 + 1, 3 + 2
6 has 6 + 0, 5 + 1, 4 + 2, 3 + 3
7 has 7 + 0, 6 + 1, 5 + 2, 4 + 3
6 has more bonds than 5, 7 has the same number of bonds as 6

Which number bond is the odd one out?

3 + 4　　5 + 2　　6 + 1　　3 + 5

Explain your answer.

3 + 5 is the odd one out because all the other number bonds are equal to 7

Fact Families

Notes and Guidance

Children apply their understanding of known addition and subtraction facts within 20 to identify all related facts.
This will include an understanding of the relationship between addition and subtraction and knowing the purpose of the equals sign as well as the addition and subtraction signs.
This will be supported with showing the link between representations, such as the part whole model and bar model.

Mathematical Talk

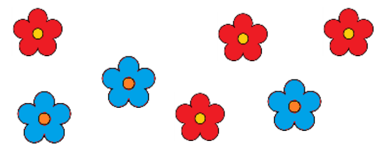
What if we took away the red flowers? What are the parts? What is the whole?

Does it change the answer if we add the blue and red flowers in a different order?

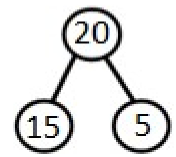
What does each circle represent on the part whole model?

Varied Fluency

1. Using concrete apparatus, can you talk about the relationships between the different flowers?



2. One relationship shown by this part whole model is
$15 + 5 = 20$
Can you write all associated fact facts in the sentences below?



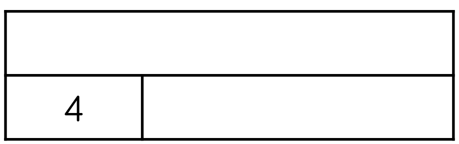
3. Look at the bar model below. Can you write all of the sentences in the fact family?

17	
13	4

Fact Families

Reasoning and Problem Solving

Here is an incomplete bar model.
The total is greater than 10 but less than 20
What could the numbers be?
How many different combination scan you find?



7 and 11
8 and 12
9 and 13
10 and 14
11 and 15
12 and 16
13 and 17
14 and 18
15 and 19

$8 - 5 = 3$

$8 - 3 = 5$

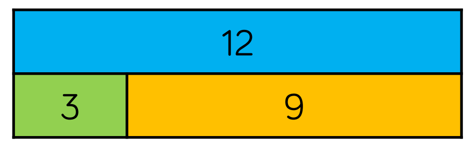
$8 = 5 - 3$

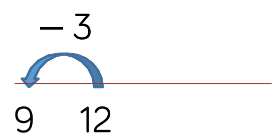
$3 = 8 - 5$

Laura says, "I think that all of these facts are correct because the numbers are related."
Sam disagrees.
Who is correct? Can you prove it?

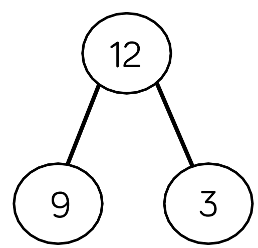
Sam is correct because 8 does not equal 5 – 3

Which of the representations are equivalent to the bar model?





$12 = 9 + 3$



There were 9 cars in the car park.
3 cars have left.

$9 - 3 = 12$

The number line, the part whole model and $12 = 9 + 3$

Number Bonds to 10

Notes and Guidance

Focusing on the number 10, children use a variety of representations to explore number bonds to 10 systematically e.g. ten frames, bead strings, fingers.

Mathematical Talk

How many more do I need to make 10?

How many number bonds can I make if 10 is the whole?

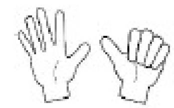
Can I order the number bonds systematically?

True or False: Number bonds to 10 only contain one digit numbers.

Always, sometimes, never: Number bonds to 10 contain two different numbers added together.

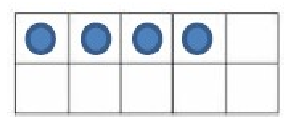
Varied Fluency

1. Sam shows a number on his fingers.

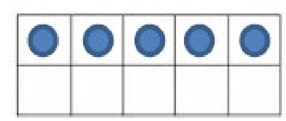


How many fingers are needed to make 10?

2. Use the ten frames to complete the number bonds to 10.



$4 + \square = 10$



$5 + \square = 10$

Can you make the ten frame that comes before in the sequence? Can you make the ten frame that comes next in the sequence?

3. All the ladybirds should have 10 spots.
Some of the ladybirds have lost their spots. Complete the spots and the number sentences.

$4 + \square = 10$

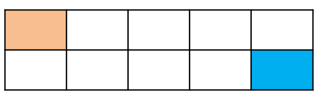
$2 + \square = 10$

Number Bonds to 10

Reasoning and Problem Solving

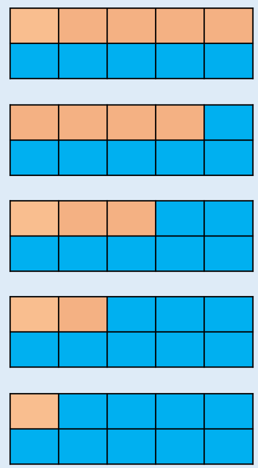
Beth needs to colour in the boxes in two different colours.

One box of each colour has been coloured.



How many different ways can she colour the boxes?

Possible answers:



This can also be the other way where there are 9 oranges and 1 blue, 8 oranges and 2 blues, 7 oranges and 3 blues, 6 oranges and 4 blues.

I have 10p to spend.

Which two items could I buy?

How many different ways can you do it?

Possible answers:

A chew bar and a muffin.

A banana and a chocolate bar.

A banana and a bottle of pop.

An apple and a bar of chocolate.

An apple and a bottle of pop.

Etc.

Check Calculations

Notes and Guidance

It is essential that children have the opportunity to discuss and share strategies for checking addition and subtraction calculations.

Checking calculations is not restricted to using the inverse.

Teachers should discuss using concrete resources, number lines and estimating as part of a wide range of checking strategies.

Mathematical Talk

What resources could you use to check your calculation?

Can you check it in more than one way?

Why do we need to check our calculation?

Varied Fluency

1. Use concrete objects to check and prove whether the calculations are correct.

   $12 - 4 = 8$

   $7 + 8 = 15$

2. Can you use the inverse operation to check $5 + 12 = 17$?

   How many possible inverse calculations are there?

3. Erin writes this calculation: $18 - 5 = 13$

   Which of the following could she use to check her work?

   $13 + 5$ $\quad$ $13 - 5$

   $18 - 13$ $\quad$ $5 + 13$

Check Calculations

Reasoning and Problem Solving

Emily did the following calculation: $12 - 8 = 4$ She checked it by using the inverse. She did $12 + 8 = 20$ and said that her first calculation was wrong. What advice would you give her?	It should have been $8 + 4 = 12$
Theo is checking Ellen's work but doesn't do an inverse calculation. He says, "these calculations can't be right." How might he know? $24 + 6 = 84$ $25 - 23 = 12$ $18 - 3 = 21$	All of the calculations involve errors: 6 has been added to the tens instead of the ones. 25 and 23 are very close in value and therefore can't result in such a large difference. 18 and 3 have been added instead of subtracted.

Compare Number Bonds

Notes and Guidance

Drawing on their place value and number bonds knowledge, children compare using symbols and language.

e.g. $5 + 5 = 10$ so $5 + 5$ is greater than 8
$5 + 5 = 8 + 2$

Mathematical Talk

Can you use equipment to prove that the number bonds are equal?

Can you find more than one way to complete the comparison?

Do I have to solve both sides to see if the number bonds are equal?

Varied Fluency

1. Match the number bonds that are equal.

$4 + 5$	$7 + 1$
$2 + 6$	$6 + 3$
$4 + 2$	$3 + 3$

2. Compare using <, > or =

$5 + 5 \bigcirc 10$

$5 + 5 \bigcirc 8$

$2 + 5 \bigcirc 5 + 3$

3. Complete the number sentences.

$5 + 3 = 4 + \square$

$7 + 3 > \square + 2$

Compare Number Bonds

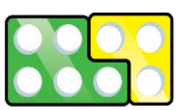
Reasoning and Problem Solving

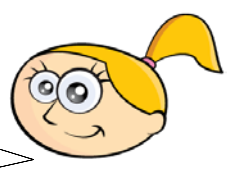
How many different ways can you complete the number sentence?

$$3 + \_\_ < 3 + \_\_$$

Max and Stacey have both created their own number bonds.

My total is larger because I have a 5 and a 3





My total is bigger because I have 9 altogether.

Who do you agree with?
Explain your answer.

$3 + 1 < 3 + 2$

$3 + 2 < 3 + 3$

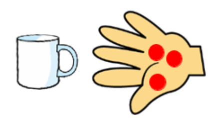
$3 + 3 < 3 + 5$

Any combination where the number on the right is larger than the number on the left.

Stacey is right because 9 ones is greater than 3 ones and 5 ones (8 ones).

Tim has 5 counters in his hand and some in a cup.

Max has 3 counters in his hand and some in a cup.



They have the same amount altogether.

They each have less than 10 counters.

How many counters could be in Tim's cup?

How many counters could be in Max's cup?

Possible answers:

Tim has 1, Max has 3
Tim has 2, Max has 4
Tim has 3, Max has 5
Time has 4, Max has 6

Compare Number Sentences

Notes and Guidance

Children should be encouraged to examine number sentences to find missing values by using structure rather than calculation.

The focus of this small step is using numbers within 20 to explore mathematical relationships within the context of familiar numbers.

Children should compare similar calculations using greater than, less than and equals signs.

Mathematical Talk

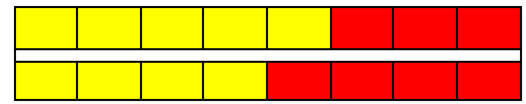
What other numbers make the same total?

Do we need to calculate to find the answer?

Do you notice a pattern? What would come next?

Varied Fluency

1. How can we use the following representation to prove $5 + 3 = 4 + 4$?



2. Fill in the missing symbols:

$6 + 4 \bigcirc 6 + 5$

$6 + 4 \bigcirc 3 + 6$

$11 - 4 \bigcirc 12 - 5$

$11 - 4 \bigcirc 12 - 4$

3. Fill in the missing numbers:

$5 + 3 = 6 + \square$

$5 + 3 = \square + 6 = 7 + \square$

$\square + 3 = \square + 4 = 5 + 5$

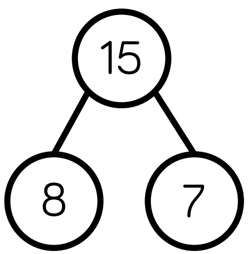
You could also do this for subtraction relationships.

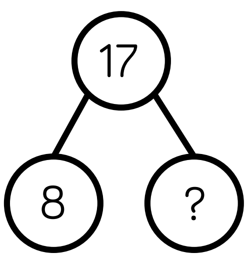
Compare Number Sentences

Reasoning and Problem Solving

Deb thinks she knows the missing number without calculating the answer.

Can you explain how this could be possible?





17 is two more than 15, so the missing number must be two more than 7

The missing number must be 9

Both missing numbers are less than 10

$$7 + \square < 7 + \square$$

How many different possible answers can you find?

Lots of different combinations, the left number has to be smaller than the right.

Possible answers:
1 and 2
1 and 3
1 and 4
1 and 5
1 and 6
1 and 7
1 and 8
1 and 9
Etc.

Related Facts

Notes and Guidance

Children should have an understanding of calculations with similar digits. For example, $2 + 5 = 7$ so $20 + 50 = 70$.
This involves both addition and subtraction.
It is important to highlight the correct vocabulary and help children to notice what is the same and what is different between numbers and calculations.
'Tens' and 'ones' should be used to aid understanding.

Mathematical Talk

What is the same?

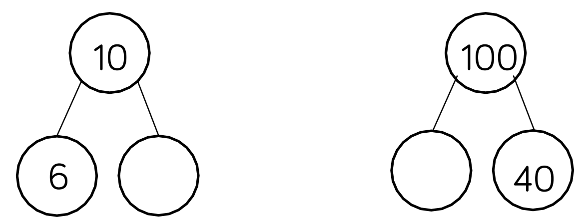
What is different?

Varied Fluency

1. I have 3 blue pens and 4 black pens. Together I have 7 pens. Tom has 30 blue pens and 40 black pens. How many does he have in total?

   Use concrete apparatus to show your thinking.

2. Complete the part whole models below:



3. Find the missing numbers in the related facts.

$5 + 4 = 9$	$8 = 3 + 5$	$4 = 10 - 6$
$50 + 40 = \square$	$80 = 30 + \square$	$40 = \square - 60$

Related Facts

Reasoning and Problem Solving

Continue the pattern. 90 = 100 – 10 80 = 100 – 20 70 = 100 – 30 What are the similarities and difference between this pattern and the following one? 9 = 10 – 1 8 = 10 – 2 7 = 10 – 3	The digits are the same but the place value changes.
Kim says, "If I know 9 + 1 = 10, I can work out 90 + ___ = 100" Find the missing number and explain how Kim knows.	10 All the numbers are ten times bigger.

Scott goes to the fruit shop. **One apple costs 6p.** **A bag of 10 apples costs 50p.** If he needs 20 apples, what's the cheapest way to buy them?	Two bags of 10 costing £1 is cheaper.
What would the difference be between buying 20 single apples and 2 bags of 10 apples?	The difference between buying 20 single apples and 2 bags of 10 is 20p.
How much does each apple cost if he buys a bag of 10? Explain your answer.	In a bag, each apple costs 5p because 50p ÷ 10 = 5p

Bonds to 100 (Tens)

Notes and Guidance

Teachers should focus at this stage on multiples of 10 up to and within 100.

Links should be made again between single digit bonds and tens bonds.

Using a 10 frame to represent 100 would be a useful resource to make this link.

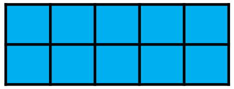
Mathematical Talk

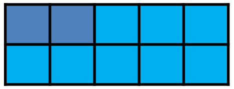
What does this represent?

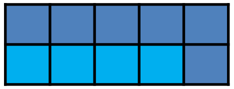
Why is it different to a normal ten frame?

Varied Fluency

1. Match the 10 frames to the sentences below:







One hundred equals eighty plus twenty

$100 = 100 + 0$

$40 + 60 = 100$

2. Fill in the missing numbers

$2 + 6 = 8$

$2\square + \square 0 = 80$

$20 + 60 = \square\square$

$80 = \square 0 + 6\square$

3. Continue the pattern

$90 = 100 - 10$

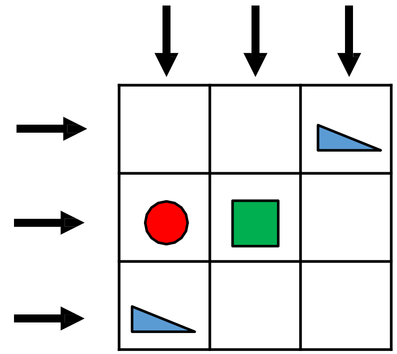
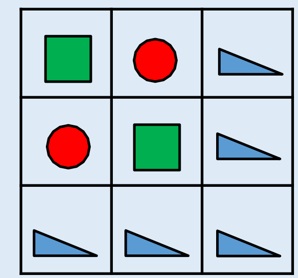
$80 = 100 - 20$

Can you make up a similar pattern starting with the numbers 60, 30 and 90?

Bonds to 100 (Tens)

Reasoning and Problem Solving

Sara thinks there are 10 different number bonds to 90 using multiples of 10 Beth thinks there are only 5 Who is correct? Can you help the person who is wrong to understand their mistake?	Beth because 0 + 90 is the same as 90 + 0 Sara has repeated her answers the other way round.
Using multiples of 10, how many number bonds are there for the following numbers? 20 30 40 50 What do you notice about the amount of bonds for each number? If 80 has 5 bonds, predict how many 90 would have.	20 and 30 both have 2. 40 and 50 both have 3. When the tens digit is odd it has the same number of bonds as the previous tens number. 90 would also have 5

 Squares are worth 10 Triangles are worth 20 Circles are worth 30 Can you complete the grid above so that all horizontal and vertical lines equal 60? Can children create another pattern on an empty grid where each line equals 60? How many possible ways are there to solve this?	Solution  Lots of possible solutions available.

Adding Together

Notes and Guidance

Once children have shown an understanding of how to use a part whole model they will be able to apply this to understand the concept of addition. Children would have already seen the addition symbol when working with number bonds, so this is developed at this stage. Language such as: total and altogether is introduced within this small step. The equals sign is shown at both ends of the calculation to recap what it means.

Mathematical Talk

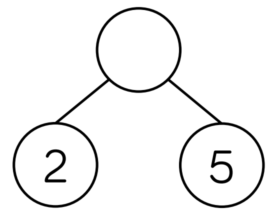
What does each circle represent on a part whole model?

What else can we use to represent the cars? Can we only use counters and ten frames?

How does the ten frame help us when finding the total? Did we need 2 ten frames for 5 and 4? Why?

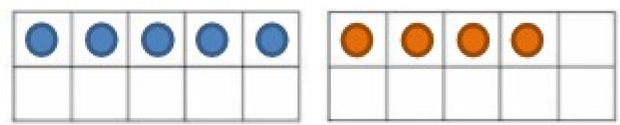
Varied Fluency

1. If 2 is a part and 5 is a part, what is the whole?



$\square + \square = \square$

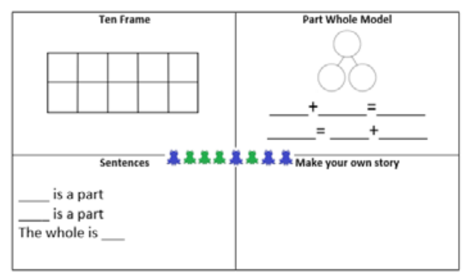
2. There are 5 red cars and 4 blue cars. How many cars are there altogether?



$\square + \square = \square$

$\square = \square + \square$

3. Complete the table to represent the toads.

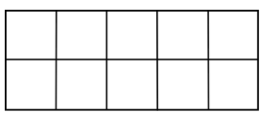


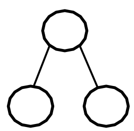
Adding Together

Reasoning and Problem Solving

There are 8 cubes. Some are red and some are yellow.

How many different ways can you make a total of 8?





You could show your working on a part whole model or a ten frame.

Could be: 8 red and 0 yellow, 1 red and 7 yellow, 2 red and 6 yellow etc.

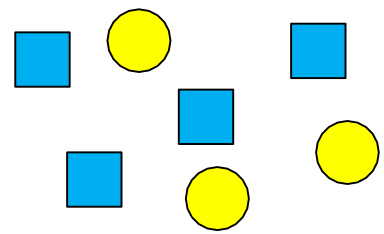
There are 9 sweets altogether.
3 have a red wrapper and 7 have a blue wrapper.

Is this correct?

Explain how you know.
What can you use to help you show your thinking?

Children could use cubes/ten frame to represent the problem a possible answer could be 'this is wrong because the total of 3 and 7 is 10

Which sentence is correct?



A: 5 is a part, 2 is a part and the whole is 7

B: 4 is a part, 3 is a part and the whole is 8

C: 4 Is a part, 3 is a part and the whole is 7

What mistakes have been made in the incorrect sentences?

A is wrong because the parts are not right.

B is wrong because the whole should be 7 not 8

C is correct.

Add and Subtract 1s

Notes and Guidance

Children at this point should start seeing the pattern with what happens when we add and subtract 1

This is the step before finding ten more than or ten less than, as bridging beyond a 10 should not be attempted yet.

The pattern should be highlighted also by adding 2 (by adding another one) and then adding 3

Mathematical Talk

What happens when we add 2?

What is the link between adding 1 and adding 2?

What about if we cant to add 3?

Varied Fluency

1. Create sentences based on the picture.

Example

There are 4 children playing in a park. One more child joins them so there will be 5 children playing together.

2. Continue the pattern

$$22 = 29 - 7$$
$$22 = 28 - 6$$

Can you create an addition pattern by adding in ones and starting at the number 13?

3. Continue the number tracks below.

31			34		

		45			48

				67	

	13				

Add and Subtract 1s

Reasoning and Problem Solving

True or False?

These four calculations have the same answer.

$1 + 4 + 2$ $4 + 2 + 1$

$2 + 4 + 1$ $4 + 1 + 2$

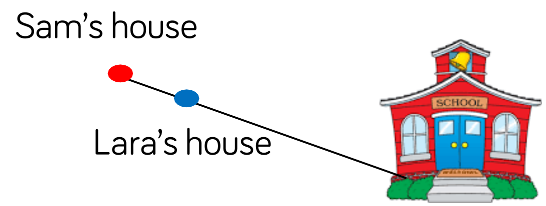
True because they all equal 7 and addition is commutative

These four calculations have the same answer.

$7 - 3 - 2$ $2 - 3 - 7$

$3 - 2 - 7$ $7 - 2 - 3$

False because subtraction isn't commutative



Sam lives 5km from school.
Laura lives 4km from school in the same direction.

What is the distance between Sam's and Laura's houses?

1km

After travelling to and from school, Sam thinks that he will walk 1km more than Laura. Is he correct?
Explain your answer.

No, he will walk 2km further. 1 on the way to school and 1 on the way home.

What will be the difference in distance walked after 2 school days?

4km

Adding More

Notes and Guidance

Children need to move from counting all to counting on. The aim is for children to develop a mental strategy rather than relying on counters and number tracks/lines. It is important that children are exposed to calculations given them in a different order, for example, the smallest number first. This will lead to children understanding that addition can be done in any order.

Mathematical Talk

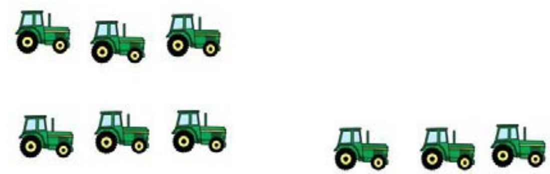
What if I start from the smallest number? Will I get the same total? Why?

What could another story for the calculation be?

Do we have to be shown both numbers to help us count on?

Varied Fluency

1. How many tractors are there in total?



$6 + \square = \square$

There are ….. tractors.

2. How many aeroplanes are there altogether?

$\square + \square = \square$

There are ….. aeroplanes.

3. There are four pennies in a bag and I add two more. How many do I have now?

$\square + \square = \square$

There are ….. pennies.

Adding More

Reasoning and Problem Solving

True or false? Explain why.

'If I add 0 to a number, the number stays the same'

Can you use a number line or counters to help you explain your answer?

True because when you add 0 you are not adding any more.

Tom has used the number track to complete 4 + 2
He thinks the total is 5

1	2	3	4	5	6	7	8	9	10

What mistake has he made?
How could Tom use the track to find the correct answer?

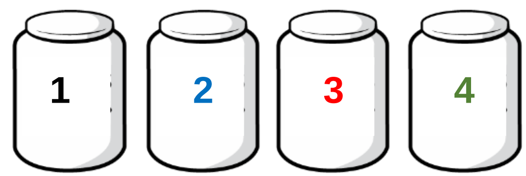
He has included his starting number.

The two ways he could have used the track are:

- Start at 2 and count 4 more.
- Start at 4 and count 2 more.

Sid has two bean bags.

He is throwing them into jars.



What is the highest score he can get?

What is the lowest score he can get?

Explain why he can't get a total of 9

The highest score is 8 if he gets two 4s

The lowest score is 0 if he misses all jars..

He can't get 9 because the highest is 4 and two 4s make 8 so that's the highest.

Add and Subtract 10s

Notes and Guidance

Building on from the previous step, children should make use of place value to add and subtract 10s from a given number within 100.
The key teaching point again is that the importance of the tens digit within the given numbers and children should be encouraged to see the relationship.

For example **6**4 + **2**0 = **8**4

Mathematical Talk

Which column changes?

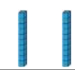
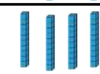
Which column stays the same?

Varied Fluency

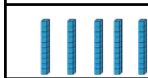
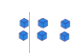
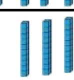
1. Continue the number track by adding 20 each time..

23				

2. Use the place value charts and concrete materials to complete the calculations.

Tens	Ones
	
	

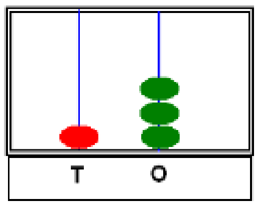
$$\begin{array}{r} 2\ 3 \\ +\,4\ 0 \\ \hline \\ \hline \end{array}$$

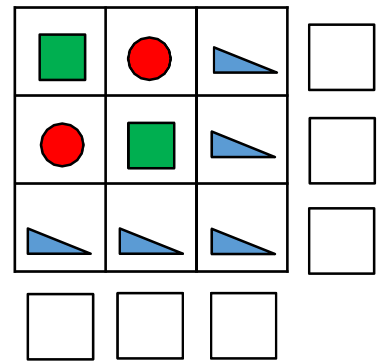
Tens	Ones
	
	

$$\begin{array}{r} 5\ 6 \\ -\,3\ 0 \\ \hline \\ \hline \end{array}$$

Add and Subtract 10s

Reasoning and Problem Solving

 Tom has three spare red beads. What numbers could he make? Explain your answer.	23 33 43 He doesn't have to use all of the beads.
Here are class 2s crayons.  They are given a new box of 10 each day for a week. How many crayons do they have at the end of the week?	Discussion could be had about whether it's a full week or a school week. Answers would be 96 or 76 respectively.

 Circles represent 20 Triangles represent 10 Squares represent 50 What Is the value of each row and column?	Rows (top to bottom) 80 80 30 Columns (left to right) 80 80 30

Finding a Part

Notes and Guidance

At this stage, children should apply their understanding of number bonds to solve missing number problems. To build on from counting on, children should start from the given part and count on to the whole, to find the missing part. Children should also be exposed to problems with one part and the whole being the same so they understand the role of zero.

Mathematical Talk

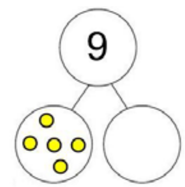
How can we count on to find the missing part?

Where will the numbers from the word problem go in the part whole model?

My story is there are 9 sweets. 6 of them are purple and 3 of them are yellow. What could your story be?

Varied Fluency

1. Complete the part whole model.

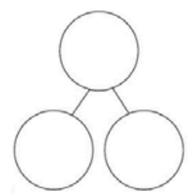


$\square + \square = \square$

$\square = \square + \square$

5 is a part,
.... is a part.
The whole is 9

2. There are seven cars in total. Seven of them are green. How many of them are yellow?

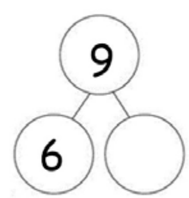


$\square + \square = \square$

$\square = \square + \square$

7 is a part,
.... is a part.
The whole is 7

3. Write your own story to complete the part whole model.



Finding a Part

Reasoning and Problem Solving

I spend 10p on a chocolate bar and something else. What else could I have bought? Explain how you know.

Tom spent 6p on a chocolate bar and something for his sister. What did he buy for his sister? Explain how you know.

Ellie spent 9p on a banana and a muffin.
How much is the muffin?
Explain how you know.

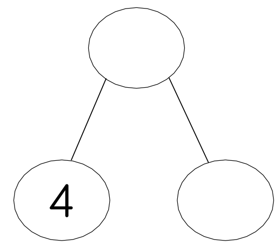
Banana or apple because $4 + 6 = 10$

Two chew bars because $1 + 1 = 2$ and $4 + 2 = 6$

It cost 3p because $6 + 3 = 9$

Using the digits 0 – 9, how many part whole models can you complete?

One of the parts always has to be 4



You can only use each digit card once.

Explain why you can't use 0

What other digits can't you use and why?

It could be:

- 4, 1 and 5
- 4, 2 and 6
- 4, 3 and 7
- 4, 5 and 9

We would have to use 4 twice if we used 0
Can't be 4 because it would be repeated, or 8 because we would need another 4

Add 2-digits and 1-digit

Notes and Guidance

Before crossing the 10 with addition, children need to have a strong understanding of place value. The idea that ten ones are the same as one ten is essential here. Children need to be able to count to 20 and need to be able to partition 2 digit numbers in order to add them. They need to understand the difference between one digit and two digit numbers and line them up in columns. In order to progress to using the number line more efficiently, children need to be secure in their number bonds.

Mathematical Talk

Using Base 10, can you partition your numbers?

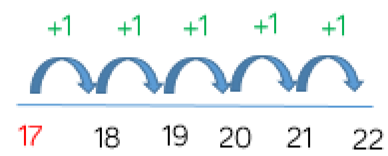
Can we exchange 10 ones for one ten?

How many ones do we have? How many tens do we have?

Can you draw the base 10 and show the addition pictorially?

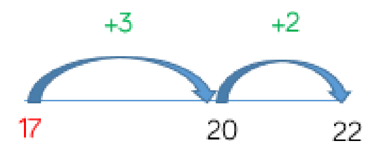
Varied Fluency

1. $17 + 5 =$



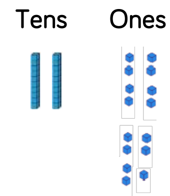
Can you put the larger number in your head and count on the smaller number? Start at 17 and count on 5

2. Can we use number bonds to solve the addition more efficiently?



We can partition 5 into 3 and 2 and use this to bridge the 10

3. Find the total of 28 and 7



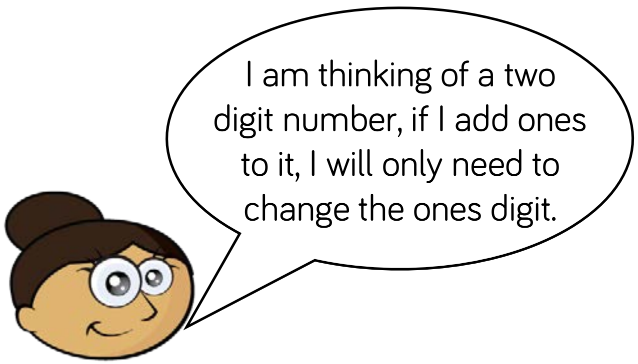
$$\begin{array}{r} 2\ 8 \\ +\ \ \ 7 \\ \hline 3\ 5 \\ \hline {\scriptstyle 1} \end{array}$$

- Partition both the numbers.
- Add together the ones.
- Have we got 10 ones?
- Exchange 10 ones for 1 ten.
- How many ones do we have?
- How many tens do we have?

Add 2-digits and 1-digit

Reasoning and Problem Solving

Always, sometimes, never?



Explain your answer.

Sometimes because if your ones total 10 or more you will have to exchange them which will change the tens digit.

Here are three digit cards.

6 7 8

Place the digit cards in the number sentence.

How many different totals can you find?

☐☐ + ☐ =

What is the smallest total?

What is the largest total?

$67 + 8 = 75$
$68 + 7 = 75$
$76 + 8 = 84$
$78 + 6 = 84$
$86 + 7 = 93$
$87 + 6 = 93$

75 is the smallest total.

93 is the largest total.

How Many Left (1)

Notes and Guidance

Within this small step, the language of subtraction is introduced, rather than the subtraction symbol being explored straight away.

'Taking away' is used in a range of real life contexts such as flying away and eating.

The use of zero is important so children know that when nothing is taken away the start number remains the same.

Mathematical Talk

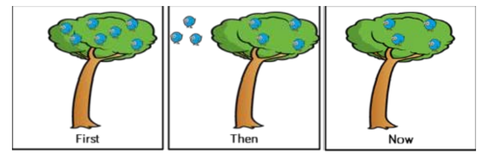
How many objects were there to start with? Do we need to count all or can we count on?

What could the story be? How many did we start with?

What number can we use to show that nothing has gone away/been taken away?

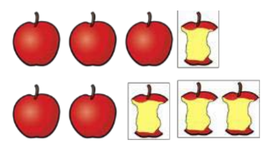
Varied Fluency

1. There were 7 birds in a tree and 3 fly away.



At first there were____birds in the tree. Then____flew away. Now there are____birds in the tree.

2. Complete the sentences to create a story and draw a part whole model.



At first there were ___________.

Then________were eaten.

Now there are_____________.

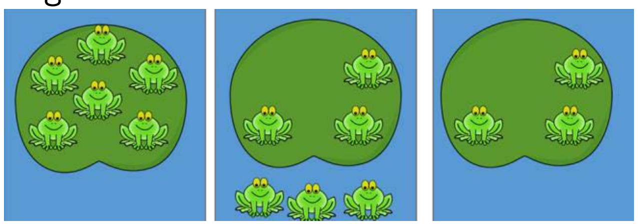
3. Complete the sentences and draw the missing horses required.

First there were ____ horses in the barn. Then ____ galloped away.
Now there are ____ horses in the barn.

How Many Left (1)

Reasoning and Problem Solving

Some frogs are on a lily pad.
Three frogs jumped off and there are three frogs left on.



First Then Now

Complete the sentences:

At first there were_.
Then _____.
Now there are ___.

In the ‘then’ picture, do the 3s show the same thing? Why not?

What if 4 jumped off, what would the start number be?

Explain how you know.

At first there were 6 frogs. Then 3 jumped off. Now there are 3 frogs left.

No, the 3 on the lily pad show how many are left. The 3 in the water show how many were taken away.

If 4 jumped off the start number would have been 7 because 4 and 3 make 7

Some cakes have been eaten.

There are 2 cakes left.

How many cakes could there have been, and how many could have been eaten to be left with 2?

Explain your reasons.

I could have had 10 and eaten 8, 9 and eaten 7. Children might use cubes/ten frame etc. to help them get two left.

Subtract 1-digit from 2-digits

Notes and Guidance

Just as with addition, children need to have a strong understanding of place value and the idea that one ten is the same as ten ones. Children need to be able to count to 20 and need to be able to partition 2-digit numbers in order to subtract from them. They need to understand the difference between one digit and two digit numbers and line them up in columns. In order to progress to using the number line more efficiently, children need to be secure in their number bonds.

Mathematical Talk

Are we counting backwards or forwards on the number line?

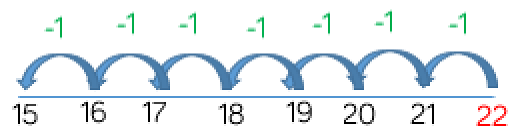
Have we got enough ones to subtract?

Can we exchange a ten for ten ones?

How can we show the takeaway? Can we cross out the cubes?

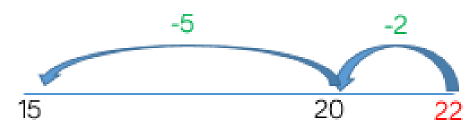
Varied Fluency

1. $22 - 7 =$



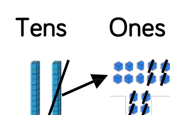
Can you put the larger number in your head and count back the smaller number? Start at 22 and count back 7

2. Can we use number bonds to subtract more efficiently?



We can partition 7 into 5 and 2 and use this to bridge the 10

3. Subtract 8 from 24



$$\begin{array}{rr} {}^{1}\cancel{2} & {}^{1}4 \\ - & 8 \\ \hline 1 & 6 \\ \hline \end{array}$$

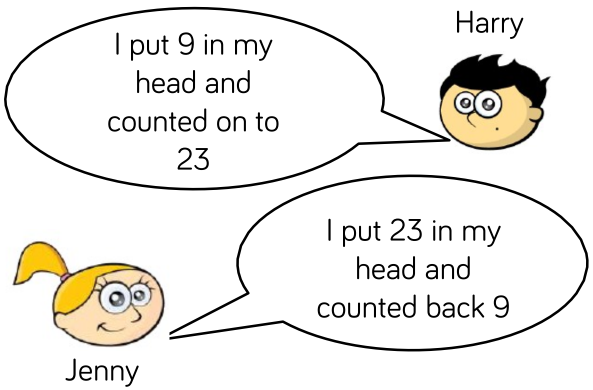
- Can we take 8 ones away?
- Exchange one ten for ten ones.
- Take away 8 ones.
- Can you write this using the column method?

Subtract 1-digit from 2-digits

Reasoning and Problem Solving

Harry and Jenny are solving the subtraction 23 – 9

Here are their methods



Who's method is the most efficient?

Can you explain why?

Can you think of another method to solve the subtraction.

Jenny's method is most efficient because there are less steps to take. The numbers are quite far apart so Harry's method of finding the difference takes a long time.

Jack is counting back to solve 35 – 7

He counts

35, 34, 33, 32, 31, 30, 29

Is Jack correct?

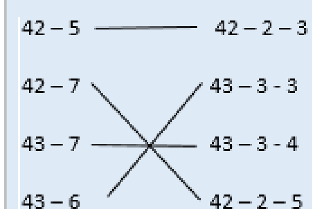
Explain your answer.

Jack is not correct as he has included 35 when counting back.

This is a common mistake and can be modelled on a number line.

Match the number sentences to the number bonds that make the method more efficient.

42 – 5	42 – 2 – 3
42 – 7	43 – 3 – 3
43 – 8	43 – 3 – 5
43 – 6	42 – 2 – 5



Subtraction – Breaking Apart

Notes and Guidance

Once pupils understand the concept of taking away, the symbol can be introduced. It is still important for children to create stories about the calculation so they can deepen their understanding of subtraction.

Mathematical Talk

How many counters at first? How many were taken away?

How many are left? Can you draw an image to show this?

What can we use to represent the cars?

How many will you start with? Why?

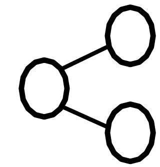
How many will you take away? Why?

What is the same and what is different about the calculations?

Varied Fluency

1. How many dogs do not have spots?

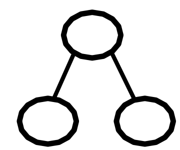
$\boxed{6} - \boxed{2} = \square$



There are___dogs that do not have spots.

2. There are 9 party hats altogether. 4 of them are red. The rest are blue. How many are blue?

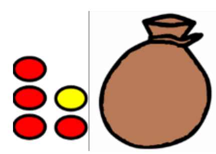
$\boxed{9} - \square = \square$



There are___blue party hats.

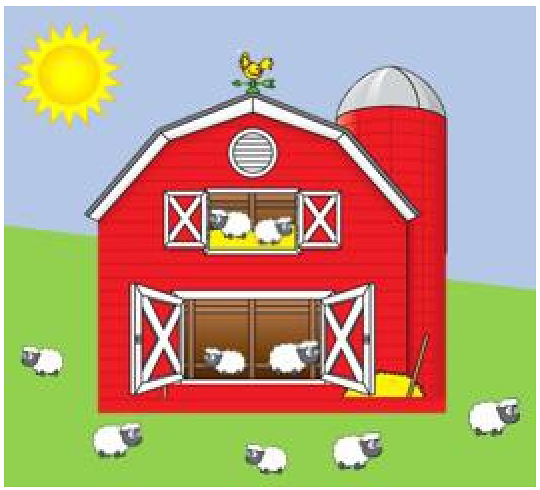
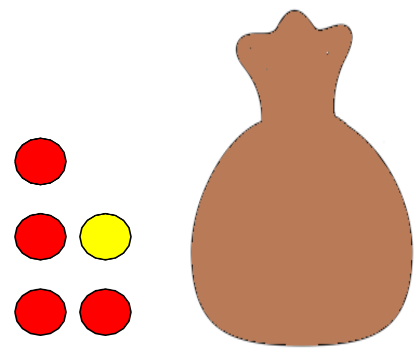
3. In total there are 8 counters. How many are in the bag?

Show this in a part whole model and as a calculation.



Subtraction – Breaking Apart

Reasoning and Problem Solving

Think of two questions to ask your friend about the image.  Represent them about the calculation. $\square - \square = \square$	There are 9 sheep in total. 5 of them are outside the barn. How many are inside? There are 9 sheep in total. 4 of the are inside the barn. How many are outside? 9 – 5 = 4 and 9 – 4 = 5
There are no more than 10 counters in total.  How many counters could be in the bag? Why can't it be six?	There could be 5, 4, 3, 2, 1 or 0 It can't be six because then there would be more than 10 in total

Add 2-digit Numbers (1)

Notes and Guidance

This step is an important pre requisite before children add two digit numbers with an exchange.
Here the teacher focuses on the language of tens and ones and looks at different methods to add the numbers including the column method.
It is important that teachers always show the children to start with the ones when adding using the column method.

Mathematical Talk

Can you partition the number into tens and ones?

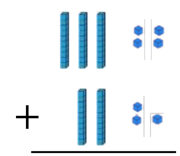
Can you count the ones? Can you count the tens?

Can you show your addition by drawing the base 10 to help?

Can you represent the problem?

Varied Fluency

1. Find the sum of 34 and 23



2. $64 + 12 =$

4 ones + 2 ones = $\boxed{}$

6 tens + 1 ten = $\boxed{}$

$\boxed{}$ tens + $\boxed{}$ ones = $\boxed{}$

3. Hamza has 41 sweets.

Jemima has 55 sweets.

How many sweets do they have altogether?

Add 2-digit Numbers (1)

Reasoning and Problem Solving

Katie has 12 marbles. Jim has 13 marbles more than Katie. How many marbles do they have altogether?	Jim has 25 marbles. Altogether they have 37 marbles
What digits could go in the boxes? $\square 2 + \square 5 = 87$	Possible answers: 1 and 7 2 and 6 3 and 5 4 and 4 5 and 3 6 and 2 7 and 1 Interesting discussion could be had around is 1 and 7 different than 7 and 1? Etc.

Fact Families – 8 Facts

Notes and Guidance

This is the first time children have linked addition and subtraction facts. It is important that children are able to show and understand this relationship.

This step recaps the idea that the equals sign can be positioned at the start or end of a calculation. It is important that children are exposed to the use of zero. Children can struggle with getting four calculations for subtraction e.g. 7 = 9 – 2 and 2 = 9 - 7

Mathematical Talk

How many counters at first? How many were taken away? How many are left? Can you draw an image to show this?

How many will you start with? Why? How many will you take away? Why?

What is the same and what is different about the calculations?

Varied Fluency

1. Using the image, how many calculations can you create?

□ + □ =	□ = □ - □
□ + □ =	□ = □ - □
□ - □ =	□ = □ + □
□ - □ =	□ = □ + □

2. There are 6 hats on a shelf. 5 of them are yellow and 1 is red.

   Complete 8 number sentences.

3. There are 10 ducks in a pond. 10 of them fly away.

   Complete 8 number sentences.

Fact Families – 8 Facts

Reasoning and Problem Solving

Explain the mistakes that have been made.

$5 + 2 = 7$	$7 = 5 + 2$
$2 + 5 = 7$	$7 = 2 + 5$
$7 - 2 = 5$	$7 = 5 - 2$
$7 - 5 = 2$	$7 = 2 - 5$

The last two should be

$2 = 7 - 5$

and

$5 = 7 - 2$

Explain the mistakes that have been made.

$8 + 0 = 8$	$8 - 0 = 8$
$0 + 8 = 8$	$0 = 8 - 0$
$8 = 0 + 8$	$8 - 8 = 0$
$8 = 8 + 0$	$0 = 8 - 8$

$0 = 8 - 0$ should be $0 = 8 - 8$

Add 2-digit Numbers (2)

Notes and Guidance

Building on the last step, children use base 10 and partitioning to add together 2 digit numbers including an exchange.

They have already seen what happens when there are more than 10 ones and should be confident in exchanging 10 ones for one 10.

Mathematical Talk

What is the value of the digits?
How many ones do we have altogether?
How many tens do we have altogether?
Can we exchange ten ones for one ten?
What is the sum of the numbers?
What is the total?
How many have we got altogether?

Varied Fluency

1. $64 + 17 =$

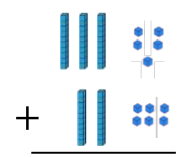
   4 ones + 7 ones = $\boxed{}$

   6 tens + 1 ten = $\boxed{}$

   $\boxed{}$ tens + $\boxed{}$ ones = $\boxed{}$

$$\begin{array}{r} 64 \\ +\ 17 \\ \hline 11 \\ +\ 70 \\ \hline 81 \end{array}$$

2. Find the sum of 35 and 26



- Partition both the numbers.
- Add together the ones. Have we got 10 ones?
- Exchange 10 ones for 1 ten.
- How many ones do we have?
- Add together the tens. How many do we have altogether?

3. Class 3 has 37 pencils.
   Class 4 has 43 pencils.

How many pencils do they have altogether?

Add 2-digit Numbers (2)

Reasoning and Problem Solving

Can you create a calculation where there will be an exchange in the ones, and your answer will have two ones and be less than 100?	There are lots of possible solutions. E.g. 33 + 29 = 62
How many different ways can you solve 19 + 11? Explain your method to a partner. Use concrete or pictorial resources to help explain your method.	Children might add the ones and then the tens. Children should notice that 1 and 9 are a number bond to 10 which makes the calculation easier to complete mentally.

Find all the possible pairs of numbers that can complete the addition.

$$\begin{array}{r} \boxed{1}\,\boxed{} \\ +\ \boxed{2}\,\boxed{} \\ \hline \boxed{4}\,\boxed{2} \\ {\scriptstyle 1}\phantom{\boxed{0}} \end{array}$$

How do you know you have found all the pairs?

What is the same about all the pairs of numbers?

13 + 29

19 + 23

14 + 28

18 + 24

15 + 27

17 + 25

16 + 26

All the pairs of ones add up to 12

Counting Back

Notes and Guidance

To build on counting forwards to add, children can now apply this to count backwards when subtracting. It is an important step to help the children work in the abstract.

Common misconceptions could be that the children count the starting number e.g. 5 – 3; 5, 4, 3- therefore giving the wrong answer. It is vital to model how to count backwards by 'putting the start number in our head and counting backwards'.

Mathematical Talk

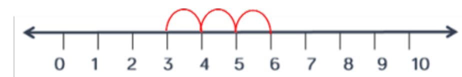
What number comes before 6? What number should we start on?

Which calculations do you know match straight away?

How do you know this?

Varied Fluency

1. Complete:



$\boxed{6} - \boxed{3} = \boxed{}$

$\boxed{4} - \boxed{4} = \boxed{}$

2. Use the number line to count back and match the calculations.

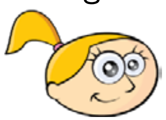
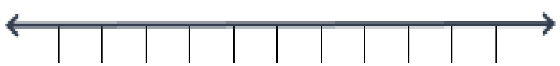
$7 - 3 = \boxed{}$	$6 - 6 = \boxed{}$	$10 - 6 = \boxed{}$
$5 - 0 = \boxed{}$	$9 - 4 = \boxed{}$	$4 - 4 = \boxed{}$

3. Can you think of any other number sentences which could match to them?
I count backwards from 9. How many steps does it take me to get to two? Complete the number sentence:

$\boxed{} - \boxed{} = \boxed{}$

Counting Back

Reasoning and Problem Solving

Tami is calculating 7 – 2 and does this by counting backwards on a number line. She gets an answer of 6   What mistake has she made?	Tami has included 7 when taking away, rather than counting 6, 5
The answer is 2 How many ways can you get to this by counting backwards on a number line to 10?	10 – 8 9 – 7 8 – 6 etc

GAME: Race to zero!

Start at 10 on a number line.

Roll a dice and subtract this amount.

What would you like to roll? Why?

Why would you not want to roll a 1?

Subtract with 2-digits (1)

Notes and Guidance

This step is an important step before children start to look at subtraction where they cross a tens boundary.

Children need to use concrete materials but also draw images of the base 10 so they can independently solve problems.

Mathematical Talk

Do we need to make both numbers in the subtraction before we take away?
Which number do we need to make? The larger number or the smaller?
What are the numbers worth? Tens or Ones?
What happens if we have nothing left in a column? Which number do we write?

Varied Fluency

1. 78 minus 34 = $\boxed{}$

   8 ones – 4 ones = $\boxed{}$

   7 tens – 3 tens = $\boxed{}$

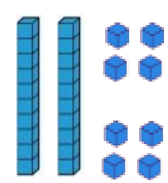
   We have $\boxed{}$ tens and $\boxed{}$ ones.

2. 34 – 13 =

$$\begin{array}{cc} \multicolumn{2}{c}{34} \\ 30 & 4 \\ -10 & -3 \\ 20 & 1 \end{array}$$

- Partition the number 34.
- Partition 13 and subtract the ones and the tens.
- Place the partitioned number back together.

3. Subtract 13 from 28



$$\begin{array}{rr} & 2\ 8 \\ - & 1\ 3 \\ \hline & 1\ 5 \\ \hline \end{array}$$

Subtract with 2-digits (1)

Reasoning and Problem Solving

Jasmine has 33 stickers.

Ollie has 54 stickers.

How many more stickers does Ollie have?

What method did you use to solve the problem?

Here the children are working out the difference.

Children might use subtraction to solve the problem or they might count on to find the difference.

Ollie has 21 more stickers than Jasmine.

Find the missing number.

$$\begin{array}{rcc} & \boxed{1} & \boxed{} \\ + & \boxed{2} & \boxed{} \\ \hline & \boxed{4} & \boxed{2} \\ & {\scriptstyle 1} & \end{array}$$

Make the numbers using Base 10 to help you find your answer.

57

Find the Difference

Notes and Guidance

Once children are secure with subtraction as take away, finding the difference can be introduced. Children often struggle with this concept because both quantities are shown.

Children could use their skills on counting back and counting on to help them find the difference. Alternatively, they can make both amounts and visually see how many more/less a number is.

Mathematical Talk

Who has more? How do you know? How many more does Beth have?

What does the difference mean? Which is most? How do you know? What strategy can we use to help us find the difference?

What image/resource can we use to show this?

How can we complete the sentences?

Varied Fluency

1. How many more cakes does Beth have than Stephen?

Beth has____more cakes that Stephen.

2. What's the difference between 10 and 6?

The difference between 10 and 6 is ___

10 – 6 =

3. Rob has 7 sweets and Kylie has 3 sweets.
How many more sweets does Rob have?
How can you show this using cubes, counters or as an image?
Rob has___more sweets than Kylie.
The difference between 7 and 3 is _____

7 - 3 = __

Find the Difference

Reasoning and Problem Solving

Two numbers have a difference of 4

The larger number is less than 10

What could the two numbers be?

9 and 5

8 and 4

7 and 3

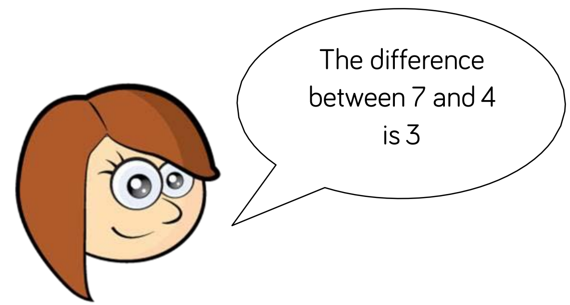
6 and 2

5 and 1

4 and 0

True or false?

Ann says;



Can you show this in more than one way?

Children could show this by representing both numbers using cubes, bead strings, straws etc. or relating it back to counting backwards on a number line.

Subtract with 2-digits (2)

Notes and Guidance

Building on the previous step, children use their knowledge that one ten is the same as ten ones to exchange when crossing a ten in subtraction.

Mathematical Talk

Have we got enough ones to take away?
Can we exchange one ten for ten ones?
How many have we got left?
What is the difference between the numbers?
Do we always need to subtract the ones first? Why do we always subtract the ones first?
Which method is the most efficient? Subtraction or counting on to find the difference?

Varied Fluency

1. Use the number line to subtract 12 from 51.

51

Can you subtract the ones first and then the tens?
Can you partition the ones to count back to the next ten and then subtract the tens?

2. $42 - 15 =$

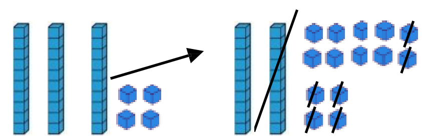
42
40 2
-10 -5

We can't subtract the ones. Can we partition differently?

42
30 12
-10 -5
20 7

Now we can subtract the ones and then subtract the tens.
$42 - 15 = 27$

3. Take 16 away from 34

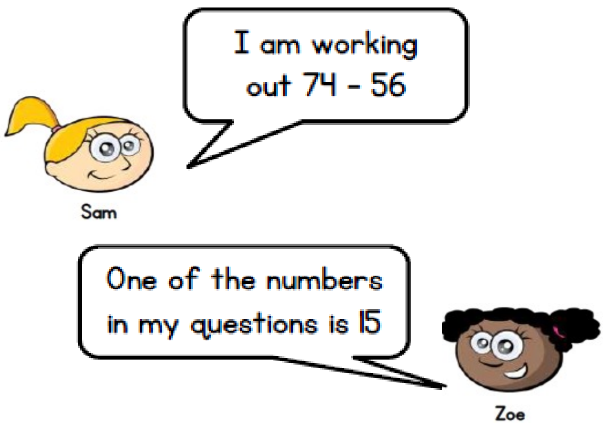


$$\begin{array}{r} {}^{2}\cancel{3}\;{}^{1}4 \\ -\;1\;\;6 \\ \hline 1\;\;8 \\ \hline \end{array}$$

Subtract with 2-digits (2)

Reasoning and Problem Solving

Sam and Zoe are working out some subtractions.



Sam's answer is double Zoe's answer.

What could Zoe's subtraction be?

Sam's answer is 18

Zoe's answer is 9

Zoe's question could be 15 – 6 or 24 – 15

Find the greatest whole number that can complete each number sentence below.

$$45 - 17 > 14 + \boxed{}$$

$$26 + 15 < 60 - \boxed{}$$

Explain your answer.

13

18

Compare Statements (1)

Notes and Guidance

Within this small step, children will recap the use of inequality symbols <, > and =. It is important that 'equal to' is also recapped at this stage with the correct language used.

Children should be encouraged to use concrete manipulatives and draw images to help them complete the statements.

Mathematical Talk

What does greater than mean?

How do we know___+__is greater than___? What else can it be greater than?

What does less than mean? How do we know that __+ _is less than___?

What language is missing? What steps do we need to take to help us complete the problem?

Varied Fluency

1. Complete the sentences.

3 + 1 is greater than 2
3 + 1 is greater than __
3 + 1 is less than 6
3 + 1 is less than ___

2. One hen lays 3 eggs. Another lays 2 eggs.

Complete the sentence using greater than, less than or equal to.
2 and 3 is ________6

3. Complete the number sentences.

$\square$ + $\square$ is equal to $\boxed{7}$

$\square$ + $\boxed{4}$ is less than $\boxed{9}$

$\boxed{5}$ + $\square$ __________ $\boxed{2}$

Compare Statements (1)

Reasoning and Problem Solving

Would you rather have 6 sweets and 2 more sweets, or 8 sweets? Explain your answer. Use cubes or draw an image to help you.	I don't mind because I know that 6 and 2 is equal to 8
Using the numbers 0-10, how many different ways can you complete the boxes? $\square + \boxed{7} = \square$ $\square + \square > \boxed{4}$ $\square + \square < \boxed{9}$	Possible answers: $3 + 7 = 10$ $1 + 4 > 4$ $1 + 1 < 9$

What signs are missing? $7 + 3 \square 10$ $9 \square 3 + 7$ $9 > 10 \square 3$ Explain how you know.	$7 + 3 = 10$ because I know that 7 and 3 is equal to 10 $9 < 3 + 7$ because I know that 9 is less than 10 $9 > 10 - 3$ because I know that 9 is greater than 7

Bonds to 100 (Tens and Ones)

Notes and Guidance

Here children build on their earlier work of number bonds to 100 with tens and number bonds to 10 and 20.

They use their new knowledge of exchange to find number bonds to 100 with tens and ones.

Mathematical Talk

How many more do we need to make 100?

How many tens are in 100?

If I have 35, do I need 7 tens and 5 ones to make 100? Explain why.

Can you make the number using Base 10?
Can you add more Base 10 to the number to make 100?

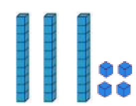
Varied Fluency

1. Use a 100 square.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- 40 squares are shaded, how many are not shaded?
- 45 squares are shaded, how many are not shaded?
- 54 squares are shaded, how many are not shaded?

2. Hamza is making 100 with base 10
How much more does he need if he has:

- 
- 5 tens and 3 ones
- 37

Children could place their base 10 on top of a 100 piece to help calculate.

3. $25 + \square = 100$ $\quad$ $100 - 84 = \square$

$\square + 69 = 100$ $\quad$ $100 - \square = 11$

Bonds to 100 (Tens and Ones)

Reasoning and Problem Solving

Chris has completed the missing number sentence.

46 + 64 = 100

Is Chris correct?
Explain your answer.

Chris is incorrect. He has seen number bonds to 10 but forgotten that he would need to exchange ten ones for one ten.

Complete the pattern

15 + 85 = 100
20 + 80 = 100
25 + 75 = 100
30 + …… = 100
…… + …… = 100

Can you explain the pattern?

30 + 70 = 100
35 + 65 = 100
The first numbers are going up in fives and the second numbers are going down in fives. All of the number sentences are number bonds to 100

Each row and column adds up to 100

Complete the grid.

45	45	
	35	
15		65

45	45	10
40	35	25
15	20	65

Compare Statements (2)

Notes and Guidance

Once children are able to compare simple statements they should begin to directly compare two calculations. Children should be exposed to both addition and subtraction calculations, and the symbols <, = and >.

It is important that children know what the equals sign means and that we can use it to show that two calculations are equal.

Mathematical Talk

Do we need to look at each calculation as a whole or not?

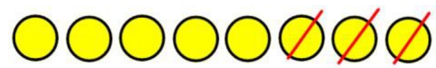
Which symbol should be used?

How can we prove that they are equal?

Varied Fluency

1. Complete the following using <, > or =

□ + □   □ + □

2. 

8 - ___ □ 7 - ___

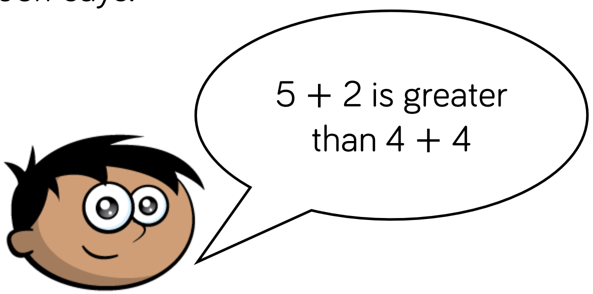
3. Sarah has 8 sweets and eats 4 of them.
Charlotte has 7 sweets and eats some of them.
Complete the number sentence below to show that they now have the same amount of sweets.

8 – 4 □ 7 –

8 – 4 is equal to 7 – ___

Compare Statements (2)

Reasoning and Problem Solving

Jeff says:  Is he correct? Explain your answer.	No because $5 + 2 = 7$ $4 + 4 = 8$ and $7 < 8$
Use the digit cards to complete the sentences. 2 3 4 5 $\square + \square = \square + \square$ $\square - \square = \square - \square$ $\square - \square > \square - \square$ $\square - \square > \square + \square$ Can you write any more number sentences using these cards?	Possible answers: $5 + 2 = 4 + 3$ $5 - 4 = 3 - 2$ $5 - 3 > 4 - 2$ $5 - 2 < 4 + 3$ Etc.

Add Three 1-digit Numbers

Notes and Guidance

Within this step, children need to use their knowledge of commutativity to find the most efficient and quick way to add the three one digit numbers.

They look for number bonds to 10 to help them add more efficiently.

Mathematical Talk

How many more do we need to make 100?

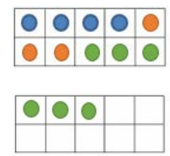
How many tens are in 100?

If I have 35, do I need 7 tens and 5 ones to make 100? Explain why.

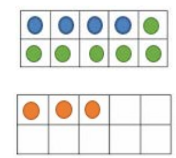
Can you make the number using Base 10?
Can you add more Base 10 to the number to make 100?

Varied Fluency

1. Use ten frames and counters to add the numbers $4 + 3 + 6$



Can you add the numbers in a different way to find a number bond to 10?



$4 + 6 = 10$

$10 + 3 = 13$

2. Find the totals of each row and column.

5	4	2	
3	7	8	
5	7	3	

3. Use $<$, $>$ or $=$ to compare the number sentences.

$5 + 4 + 6 \bigcirc 6 + 5 + 4$ $7 + 3 + 8 \bigcirc 7 + 7 + 3$

$9 + 2 + 5 \bigcirc 8 + 3 + 5$ $8 + 4 + 2 \bigcirc 2 + 5 + 8$

Add Three 1-digit Numbers

Reasoning and Problem Solving

Always, sometimes, never? odd + odd + odd = odd Use one digit numbers to test if this is true. E.g. 3 + 5 + 7	Always – children should show this using different examples. They may recognise that two odds make an even so three odds make an odd.
Which numbers would you add together first in the following number sentences? Why would you add those first? 3 + 5 + 7 = 8 + 2 + 6 = 4 + 3 + 4 = Is there always an easier order to add three one digit numbers?	3 and 7 first – number bond to 10 8 and 2 first – number bond to 10 4 and 4 first – double a number. No, e.g. 5 + 6 + 7

Take 3 consecutive one digit numbers, e.g. 4, 5 and 6 Add them together. What do you notice? Choose different groups of 3 consecutive one digit numbers and see if there is a pattern.	1 + 2 + 3 = 6 2 + 3 + 4 = 9 3 + 4 + 5 = 12 4 + 5 + 6 = 15 5 + 6 + 7 = 18 6 + 7 + 8 = 21 7 + 8 + 9 = 24 If we order the groups, we can see that the totals go up by 3 each time. This is because we are adding one to each number each time so we are adding 3 extra altogether.