White Rose Maths

Spring - Block 2

Place Value (within 50)

Overview

Small Steps

- Numbers to 50
- Tens and ones
- Represent numbers to 50
- One more one less
- Compare objects within 50
- Compare numbers within 50
- Order numbers within 50
- Count in 2s
- Count in 5s

NC Objectives

Count to **50** forwards and backwards, beginning with 0 or 1, or from any number.

Count, read and write numbers to **50** in numerals.

Given a number, identify one more or one less.

Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least.

Count in multiples of twos, fives and tens.

Numbers to 50

Notes and Guidance

Children count forwards and backwards within 50. They use a number track to support where needed, in particular crossing the tens boundaries and with teen numbers.
Children build on previous learning of numbers to 20
They learn about grouping in 10s and their understanding of 1 ten being equal to 10 ones is reinforced.

Mathematical Talk

How can we count a larger number of objects more easily.
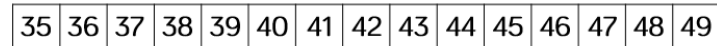
What happens when we get to 10? 20? 30?

___ ones make ___ ten.

How many groups of 10 can we see in the number ___ ?

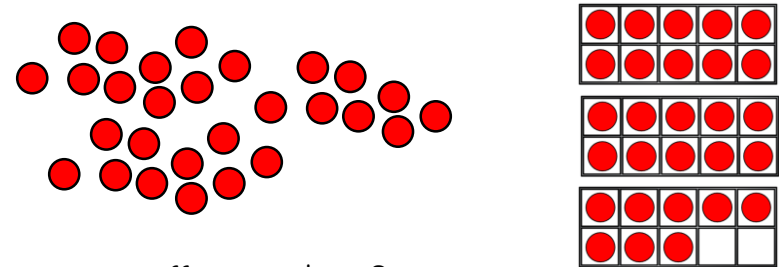Which practical equipment is best for showing groups of 10?

Varied Fluency

Use the number track to
- count forwards from 35 to 49
- count back from 46 to 38

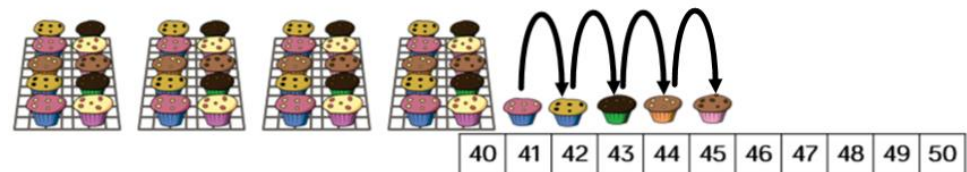| 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 |

Can you count from ___ to ___ without a number track?

These images both show the same number of counters. Which counters are easier to count? Why?
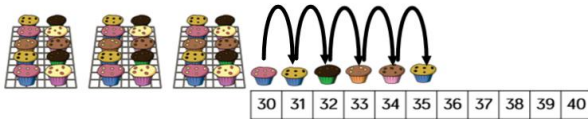

How many muffins are there?

| 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |

Annie counts how many muffins she has.

I have 35 muffins.

| 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |

Do you agree with Annie?

Explain your answer.

Possible answer:
I do not agree with Annie because she has counted 30 twice. There should be 36 muffins.

Eva is counting from 38 to 24

Will she say the number 39?
Will she say the number 29?
Will she say the number 19?

Explain how you know.

Eva will not say 39 or 19 because they are not between 38 and 24
She will say 29
Children could show this on a number track.

Ron and Whitney are counting.
Ron says:

43, 42, 41, 40, 41, 42

Whitney writes:

10 11 12 13 41 15

Can you spot their mistakes?

Ron has started counting up after 40 when he should have continued counting back.
Whitney has also written 41 instead of 14. She has reversed her digits.

Tens and Ones

Notes and Guidance

Children use practical equipment to represent numbers to 50 They continue to build their understanding that ten ones can be grouped into one ten. They need to practice grouping equipment into tens themselves (straws, cubes, lolly sticks, 10 frames) before introducing ready made tens or place value counters.

It is important that children understand how a number is made up of tens and ones, e.g. 34 = 3 tens and 4 ones.

Mathematical Talk

How many have we got? How can we make them easier to count?
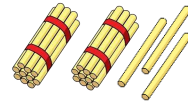How many tens are there?
How many ones are there?
I have ___ tens and ___ ones. What number does that make?
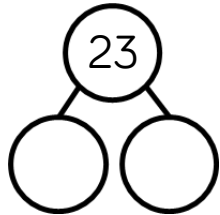How do we record this number in words?

Varied Fluency

Count out 23 straws. How many bundles of 10 can you make?

There are ___ tens and ___ ones.

___ tens + ___ ones = 23

23

What number is represented in the grid?

Tens	Ones

There are ___ tens and ___ ones.
___ tens + ___ ones = ___

Match the pictures and words.

- Four tens and three ones

- Two tens and five ones
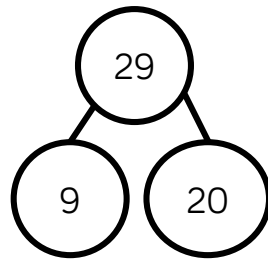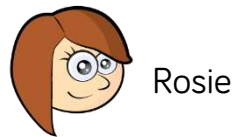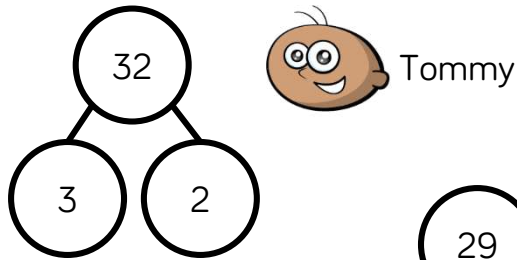
- Three tens and four ones

- Three ones and five tens

How many?

Tens and Ones

Reasoning and Problem Solving

The children are completing the part whole models.

32
3   2
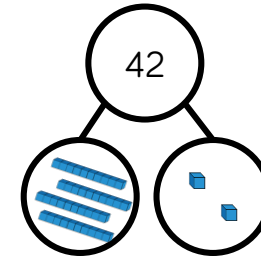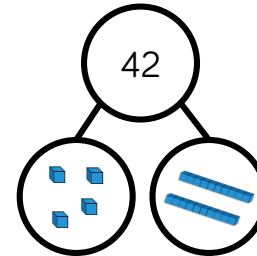
Tommy

Rosie

29
9   20

27
10   10   7

Jack

Are they correct?
Explain why.

Tommy is wrong. He has wrote 3 which should be 30 or 3 tens.

Rosie is correct – she has just recorded the ones first.

Jack is correct. 10 + 10 = 20 Two tens is the same as twenty.

Dora and Amir both try to build the same number.

Dora   Amir

42   42

Who is correct?

Can you explain the mistake that has been made?

Amir is correct.

Dora has got mixed up with tens and ones and shown 4 ones and 2 tens (24).

Represent Numbers to 50

Notes and Guidance

Children continue to represent numbers to 50 using a variety of concrete materials.

Children should continue to see the groups of tens and ones in each number to support their understanding of place value.

Mathematical Talk

Which digit represents the tens?

Which digit represents the ones?

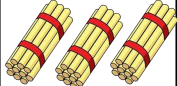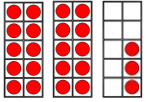What do you notice about the numbers 30, 40, 50?

How many tens are there? How many ones?

How do we say/write/represent/partition this number?

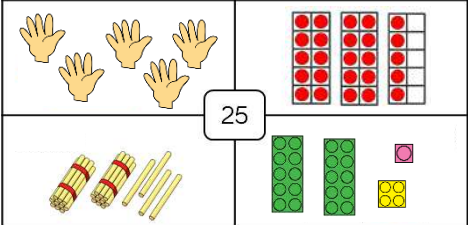What's the same about your representations? What's different?

Varied Fluency

Complete the table.

Number	Tens and Ones	Ten Frame	Straws	Words
26	2 tens 6 ones			Twenty-six
	___ tens ___ ones			Thirty
	___ tens ___ ones			
	___ tens ___ ones			Seventeen

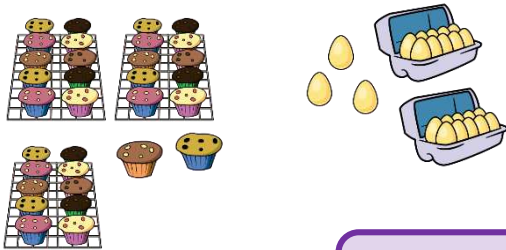How many different ways can you represent the following numbers?   Here is an example for 25
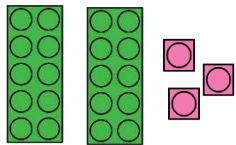
- 34
- 28
- 40
- 16

Reasoning and Problem Solving

Sort the representations in to two groups.

23

Three tens and 2 ones

Twenty and three

Explain how you have sorted them.

Can you add your own representations?

Children sort the representations in to those which show 23 and those which show 32
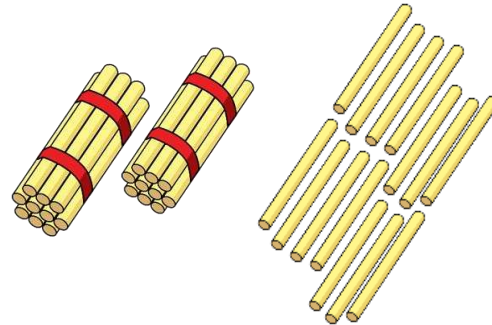
Whitney says,

I have 2 tens and 14 ones.

How many straws does Whitney have?

Whitney has 34 She could also make 3 groups of ten and four ones.

One More One Less

Notes and Guidance

Children find one more and one less than given numbers up to 50. Children build numbers concretely before using number tracks and 1–50 grids. As they have already found one more and one less within 10 and 20, they should be able to use this knowledge with larger numbers. Encourage them to notice that it is the ones column that changes most of the time apart from when the ones number is a nine. If they know that 8 is one more than 7 then they also know that 48 is one more than 47
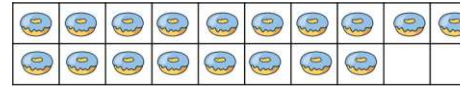
Mathematical Talk

How many do we have? What number does this represent?
What would be the number after/before…?
What is one more/one less than…?
When finding one more and one less, which digit changes? Why? Does this always happen?

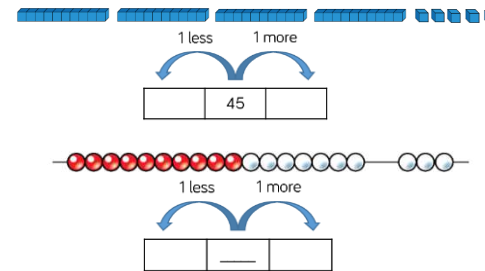## Varied Fluency

Fill in the blanks:

There are ___ donuts.
One more than ___ is ___
There are ___ donuts. One less than ___ is ___

Build and find one more and one less.

One more than ___ is ___
One less than ___ is ___

One more than ___ is ___
One less than ___ is ___

Find one more and one less:

One more than ___ is ___
One less than ___ is ___

One more than ___ is ___
One less than ___ is ___

One more than ___ is ___
One less than ___ is ___

One More One Less

Reasoning and Problem Solving

Always, sometimes, never…

When you find one more than a number, only the ones digit will change.

Convince me using some examples.

Sometimes.
One more than 19 is 20
The tens and ones digit has changed..
One more than 24 is 25
Only the ones has changed.

Use the clues to work out the number.

- I have a number with 3 tens.
- One less than my number makes the tens digit change.
- One more than my number has 1 one.

What is my number?
Can you make some clues to describe your secret number?

30

Choose the correct numbers to make the sentences correct.

| 28 | 26 | 33 | 45 |
| 36 | 43 | 35 | 49 |

26
35
45
49

☐ is one less than 27

34 is one less than ☐

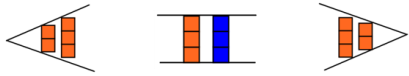☐ is one more than 44

50 is one more than ☐

Compare Objects within 50

Notes and Guidance

Children compare two sets of objects using the language 'more than', 'less than' and 'equal to'. Children also use the inequality symbols to compare the sets of objects.

If children are struggling to understand how to use the inequality symbols a visual may help them, for example,

Mathematical Talk

How could we arrange the objects to help us compare them?

What do <, > and = mean?

How do you know you have more or less?

Can you record your ideas in a different way?

Varied Fluency

Teddy and Eva each have some muffins.
Who has more muffins?
Which picture helps you to compare?

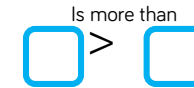___ is more than ___

__ > __

_____ has more muffins.

Teddy

Eva

Fill in the blanks:

Is less than

☐ < ☐

Is more than

☐ > ☐
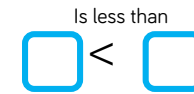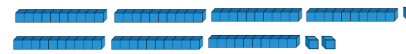
Complete each box using <, > or =
Say and write the number sentences for each one.

(base ten hundreds/ones)		(base ten tens/ones)
(dice ten-frames)		number line 35 36 37 38 **39** 40 41
2 tens and 8 ones		3 tens and 6 ones

Reasoning and Problem Solving

Jack and Eva are playing a game.
They each collect a handful of cubes.
They arrange their cubes to see who has more.

Jack

Eva
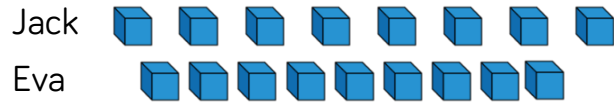
Jack says: **I have more.**

Eva says: **I have more.**

Who is right?
Practise comparing objects with your friend.

Jack looks like he has more but his cubes are spread out.
Eva has more.

This illustrates the importance of lining up the objects carefully when comparing.

Dexter compares two numbers.

30 is less than 33

Tens	Ones

>

Tens	Ones

Do you agree with Dexter?

Explain your answer.

Dexter is correct but he has used the wrong symbol.

Pick a card. **<** **>** **=**

Draw pictures in the boxes to make the comparison true.

Encourage children to use the correct language of 'more than', 'less than' or 'equal to'

Compare Numbers within 50

Notes and Guidance

Building on previous learning of comparing practical objects within 50, children now compare two numbers within 50 using the inequality symbols.

Children continue to use the language 'more than', 'less than' and 'equal to' alongside the correct symbols to compare numbers.

Mathematical Talk

Which number is more? Which is less?
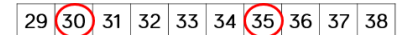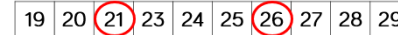
What could we use to represent the numbers?

What do <, > and = mean?

How do you know you have more or less?

What could you use to help you compare?

Varied Fluency

Use the number track to compare the two numbers using words and inequality symbols.

| 19 | 20 | (21) | 23 | 24 | 25 | (26) | 27 | 28 | 29 |

| 29 | (30) | 31 | 32 | 33 | 34 | (35) | 36 | 37 | 38 |

21 is _____ than 26

26 is _____ than 21

☐ is more than ☐

☐ is less than ☐

21 ◯ 26   26 ◯ 21

☐ > ☐   ☐ < ☐

Use the 1-50 grid to compare the numbers.

12 ◯ 21

38 ◯ nineteen

40 ◯ 39 + 1

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

Use a number line or 1-50 grid to compare:

fifteen ◯ 50   48 ◯ 39

28 ◯ 29   2 tens < ☐

Reasoning and Problem Solving

Teddy is comparing two numbers.

My number is larger than 19 but not one more than 19

23 >

What could Teddy's number be?

What can't it be?

Teddy's number could be 21 or 22 It can't be 20 as this is one more than 19
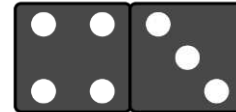
Dora compares the two values.

23 < 3 tens and 3 ones

Change one thing in the values so they are equal.

Dora could change 23 = 2 tens and 3 ones or 33 = 3 tens and 3 ones.
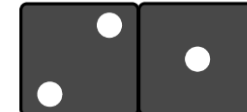
Pick two dominoes to represent two two-digit numbers.
For example,

43   21

Then compare them using <, > or =
43 > 21   21 < 43
Explain how you know.

Children could do this with a partner.

Possible response: 43 is larger than 21 as it has more tens.

Order Numbers within 50

Notes and Guidance

Children order numbers using the language, 'largest', 'smallest', 'more than', 'less than', 'least', 'most' and 'equal to'. They continue to use inequality symbols to order numbers in ascending and descending order.

Children should be able to justify the order of numbers using their place value knowledge. They need to know that they should compare the highest place value column first (tens), then move onto the ones if the tens are equal.
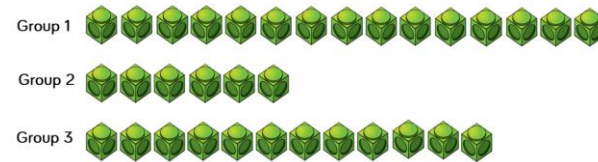
Mathematical Talk

Which group has the most? Which group has the least? How does knowing this help us order the groups from largest to smallest?

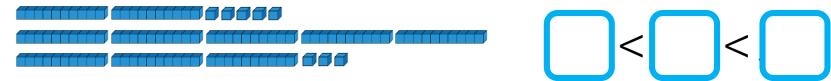Can you build the groups using equipment and compare?

What is the smallest/largest number that could complete the empty box?

Varied Fluency

Order the groups of cubes from smallest to largest.

Group 1

Group 2

Group 3

Order the base 10 from smallest to largest:

$\boxed{} < \boxed{} < \boxed{}$

Using base 10, build and order from largest to smallest:
- 23, 49, 19
- 11, 33, 22
- 41, 14, 42, 24

Use the four numbers to complete the statement.

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

$\boxed{} > \boxed{} > \boxed{} > \boxed{}$

Order Numbers within 50
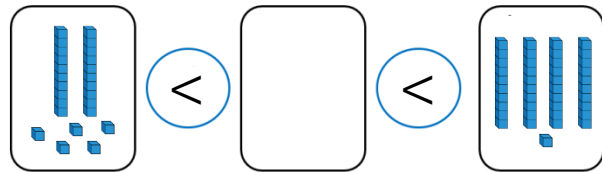
Reasoning and Problem Solving

Spot the Mistake

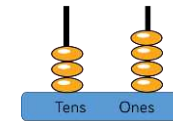12 > 21 > 33 > 35

Can you correct it?

The wrong inequality symbol has been used.
It should be
12 < 21 < 33 < 35
or
35 > 33 > 21 > 12

Find at least 5 different numbers that could complete the statement.
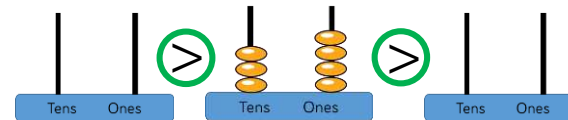

Any number from 27 to 40

Alex has this abacus.

She uses 6 discs on each empty abacus.
Her numbers must have some tens and some ones.
Draw on the abacus what her numbers could be.

Can you find more than one answer?

51 > 34 > 33
51 > 34 > 24
51 > 34 > 15
42 > 34 > 33
42 > 34 > 24
42 > 34 > 15

Count in 2s

Notes and Guidance

Children build on their previous knowledge of counting in multiples of 2 and go beyond 20 up to 50

They will apply previous learning of one more and one less to counting forwards and backwards in twos. For example, two more than and two less than. The 1-50 grid can be used to spot and discuss patterns that emerge when counting in 2s.

Mathematical Talk

How can we count the pairs?
What does it mean to count in pairs?

Can we use tens frames to help us count in 2s?
Can you see any patterns when you count in 2s?

Varied Fluency

How many socks are there?

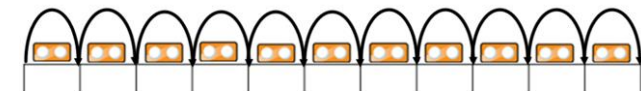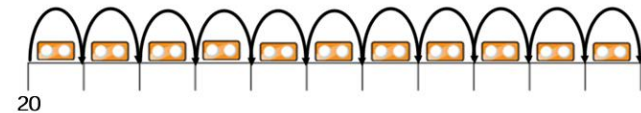There are ___ socks in total.

How many gloves are there?

There are ___ gloves in total.
Represent the gloves using ten frames.

Continue colouring in 2s on the grid. What do you notice?

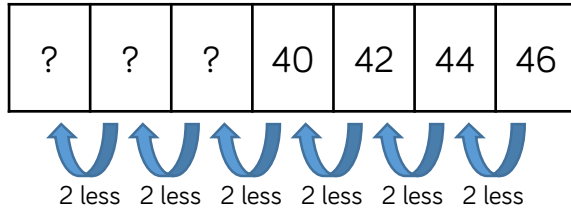| 1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50

Complete the number lines by counting in 2s.

20

36

Count in 2s

Reasoning and Problem Solving

Count in 2s backwards to complete the number track.

?	?	?	40	42	44	46

2 less 2 less 2 less 2 less 2 less 2 less

If you continue counting, will you say the number 25?

38, 36, 34
Possible answer: Children will not say 25 because it is not a multiple of 2, they will say 28, 26, 24 and 22

Always, sometimes, never…

When you count in twos, your digits will be 0, 2, 4, 6, 8

Prove it!

Sometimes. It depends on your starting number. For example 1, 3, 5…
Also for 12, 14, 16, the tens digit is 1

Rosie counts back from 50 in 2s.
Amir counts up from 12 in 2s.

50, 48, 46, 44...

12, 14, 16...

They say their numbers together.
Who will say 30 first.

Rosie says 11 numbers to reach 30
Amir says 10 numbers to reach 30
So Amir will get there first.

Count in 5s

Notes and Guidance

Children build on previous learning of counting in fives to go beyond 20 and up to 50

The 1-50 grid can be used to spot and discuss patterns that emerge when counting in 5s.

Mathematical Talk

How can we count the groups of 5?

Can you describe the pattern when you count in 5s?

Will _____ appear on our number line? Why/why not?

Varied Fluency

How many fish are there?

There are ___ fish in each tank.
There are ___ tanks.
There are ___ fish altogether.

How many grapes are there?
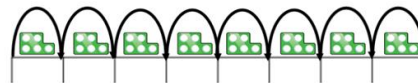

There are ___ grapes in each bunch.
There are ___ bunches.
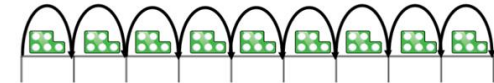There are ___ grapes altogether.

Continue counting in 5s on the grid.

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

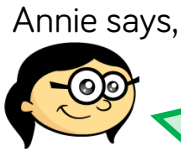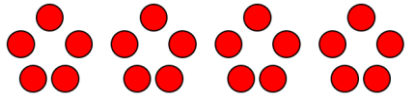Complete the number lines by counting in 5s.

10

35

Count in 5s

Reasoning and Problem Solving

Amir is making this flower pattern with counters.

Annie says,

If you make 9 flowers, you will use 43 counters.

Do you agree with Annie?
Explain your answer.

Annie is wrong because 43 does not end in a 5 or a 0

If she makes 9 flowers she will use 45 counters.

Odd One Out

25

27

30

45

Which is the odd one out? Explain your answer.

27 because you would not count it if you were counting in 5s. Children also may give other responses.

Work in groups.
Create a circle with your hands. You can choose to put in one hand or both hands.

Count how many fingers and thumbs you can see altogether.

Can you predict how many? Count to check.

Children can practise counting in 5s and recognise one hand is worth 5 They may start to spot patterns and reason about how many there will be.