

Autumn Scheme of Learning

Year 2

#MathsEveryoneCan

2020-21



New for 2020/21

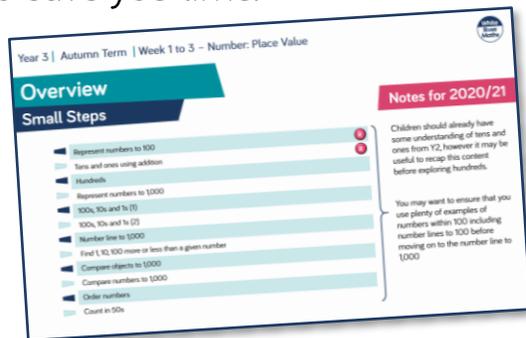
2020 will go down in history. The world has changed for all of us.

We want to do as much as we can to support children, teachers, parents and carers in these very uncertain times.

We have amended our schemes for 2020/21 to:

- ★ highlight key teaching points
- ★ recap essential content that children may have forgotten
- ★ flag any content that you might not have covered during the school closures period.

We hope these changes will add further value to the schemes and save you time.



Lesson-by-lesson overviews

We've always been reluctant to produce lesson-by-lesson overviews as every class is individual and has different needs. However, many of you have said that if blended learning becomes a key feature of school life next year, a weekly plan with linked content and videos could be really useful.

As always, we've listened! We've now produced a complete lesson-by-lesson overview for Y1 to Y9 that schools can use or adapt as they choose. Each lesson will be linked to a free-to-use home learning video, and for premium subscribers, a worksheet. This means that you can easily assign work to your class, whether they are working at home or in school.

Inevitably, this lesson-by-lesson structure won't suit everyone, but if it works for you, then please do make use of this resource as much as you wish.

Teaching for Mastery

These overviews are designed to support a mastery approach to teaching and learning and have been designed to support the aims and objectives of the new National Curriculum.

The overviews:

- have number at their heart. A large proportion of time is spent reinforcing number to build competency
- ensure teachers stay in the required key stage and support the ideal of depth before breadth.
- ensure students have the opportunity to stay together as they work through the schemes as a whole group
- provide plenty of opportunities to build reasoning and problem solving elements into the curriculum.

For more guidance on teaching for mastery, visit the NCETM website:

<https://www.ncetm.org.uk/resources/47230>

Concrete - Pictorial - Abstract

We believe that all children, when introduced to a new concept, should have the opportunity to build competency by taking this approach.

Concrete – children should have the opportunity to use concrete objects and manipulatives to help them understand what they are doing.

Pictorial – alongside this children should use pictorial representations. These representations can then be used to help reason and solve problems.

Abstract – both concrete and pictorial representations should support children's understanding of abstract methods.

Need some CPD to develop this approach? Visit www.whiterosemaths.com for find a course right for you.

Supporting resources

NEW for 2019-20!

We have produced supporting resources for every small step from Year 1 to Year 8.

The worksheets are provided in three different formats:

- Write on worksheet – ideal for children to use the ready made models, images and stem sentences.
- Display version – great for schools who want to cut down on photocopying.
- PowerPoint version – one question per slide. Perfect for whole class teaching or mixing questions to make your own bespoke lesson.

For more information visit our online training and resources centre resources.whiterosemaths.com or email us directly at support@whiterosemaths.com

The image displays three overlapping worksheets from White Rose Maths, each titled "Count objects to 100 and read and write numbers in numerals and words".

Top Worksheet:

- 1. How many pencils are there? (10 pencils) There are pencils.
- 2. How many bread rolls are there? (10 bread rolls)
- 3. What number is represented? (3 ten-frames, each with 10 red dots) numerals words _____
- 4. What number is represented? (4 ten-frames, each with 10 yellow blocks, and 2 single blocks) numerals words _____
- 5. Use base 10 to make the number 45. Draw the base 10.

Middle Worksheet:

- 1. How many pencils are there? (10 pencils)
- 2. How many bread rolls are there? (10 bread rolls) How did you count them?
- 3. What number is represented? (3 ten-frames, each with 10 red dots)
- 4. What number is represented? (4 ten-frames, each with 10 yellow blocks, and 2 single blocks)
- 5. Use base 10 to make the number 45.
- 6. Write the numerals in words. a) 17 b) 21 c) 35 d) 82
- 7. Write the words in numerals. a) twelve b) eighty c) one hundred d) nine e) twenty-seven f) fourteen
- 8. Complete the number tracks.

77	78					84
71		68	67		65	
- 9. Eva has these sweets. (4 ten-frames, each with 10 sweets) How many sweets does she have? Eva's friend gives her some more sweets. Now she has 52. How many sweets does Eva's friend give her? Count to find out.

Bottom Worksheet:

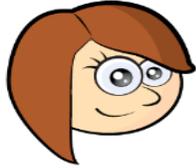
- 1. How many pencils are there? (10 pencils) There are pencils.

Meet the Characters

Children love to learn with characters and our team within the scheme will be sure to get them talking and reasoning about mathematical concepts and ideas. Who's your favourite?



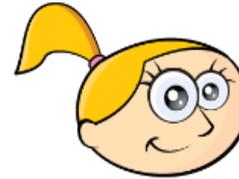
Teddy



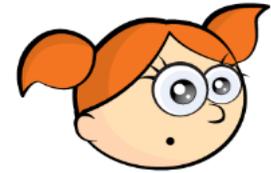
Rosie



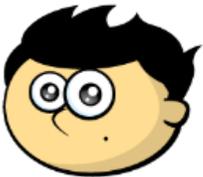
Mo



Eva



Alex



Jack



Whitney



Amir



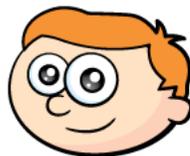
Dora



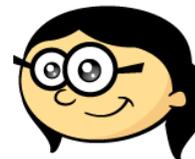
Tommy



Dexter



Ron



Annie

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value			Number: Addition and Subtraction				Measurement: Money		Number: Multiplication and Division		Consolidation
Spring	Number: Multiplication and <u>Division</u>				Statistics		Geometry: Properties of Shape		Number: Fractions			
Summer	Measurement: Length and Height		Geometry: Position and Direction		Consolidation and problem solving		Measurement: Time		Measurement: Mass, Capacity and Temperature		Consolidation	

White

**Rose
Maths**

Autumn - Block 1

Place Value

Overview

Small Steps

Notes for 2020/21

- Counting forwards and backwards within 20 R
- Tens and ones within 20 R
- Counting forwards and backwards within 50 R
- Tens and ones within 50 R
- Compare numbers within 50 R
- Count objects to 100 and read and write numbers in numerals and words
- Represent numbers to 100
- Tens and ones with a part-whole model
- Tens and ones using addition
- Use a place value chart
- Compare objects
- Compare numbers
- Order objects and numbers

It is important to spend time early on recapping numbers within 20 and 50 before moving onto numbers to 100.

Many children will need this recap as they may not be secure in their understanding of tens and ones from Y1, even though they may have met it.

Overview

Small Steps

Notes for 2020/21

- Count in 2s
- Count in 5s
- Count in 10s
- Count in 3s



We have separated the step counting in 2s, 5s and 10s into three recap steps in order to explore them in more detail.

Count & Write Numbers to 20

Notes and Guidance

Children are building on their existing knowledge of counting forwards and backwards by introducing the numbers 11-20. Children should explore the meaning of the suffix 'teen' and what this tells us about a number. 11, 12, 13 and 15 are usually difficult for children to understand because they cannot hear the single digit in the name like others e.g. sixteen – six ones and a ten.

Mathematical Talk

- Let's count together from 9, 10, 11, 12, 13, 14, 15, 16
- What do you notice about the sounds of the numbers?
- Do you notice a pattern with the numbers?
- What comes after the number 10?
- What do you notice about the ends of most of these numbers?
- What does 'teen' tell us about a number?
- How do we say this number?
- How would we write ____?

Varied Fluency



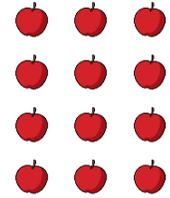
Match the representations to the correct numeral.



12

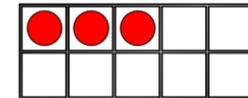
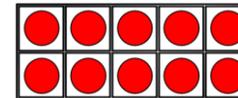


7



10

Write the number shown on the ten frames in numerals and words.



Use your own ten frames to show me the number:
Fourteen 18 Nine 16

Fill in the missing numbers.

	15		17	
--	----	--	----	--

16					11
----	--	--	--	--	----

Count & Write Numbers to 20

Reasoning and Problem Solving



Circle the odd one out and explain why.

11 12 13 14
15 61 17 18

61 is the odd one out. It should be 16, the digits have been swapped round.

Mr Monaghan says,



I am going to count to 20

I will start at 8

Yes because 11 is between 8 and 20

Will Mr Monaghan say 11?

Explain how you know.

Tens and Ones

Notes and Guidance

Children learn each number from 11 to 19 has ‘1 ten and some more’.

They will see 10 and 20 as having just tens and no ones. Children still need to understand that numbers can be seen in different ways. Discuss 1 ten being equal to 10 ones.

Base 10 will be introduced in this step. Children can use these concretely but also draw them as ‘sticks and bricks’. A line represents 1 ten and a dot represents 1 one.

Mathematical Talk

- What numbers come after 10?
- Which numbers have the ‘teen’ sound in them?
- What does the number _____ look like?
- Which is greater 1 ten or 1 one? How do you know?
- What does ‘teen’ tell us about a number?
- Can you swap tens for ones?
- Will it change the amount? Explain.
- Do we need to count the 10 individually?
- Do we need to start counting from 0 every time?
- Can you describe the number _____ using tens and ones?

Varied Fluency

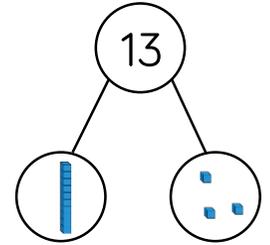


Use the part-whole model to complete the sentences.

My number is _____

One part is _____, the other part is _____

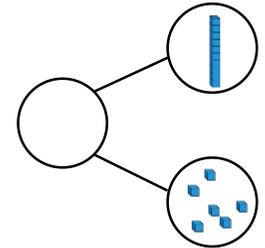
The whole is _____



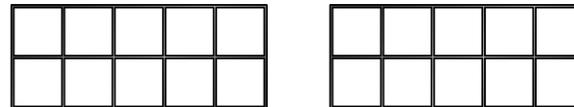
My number is _____

It has _____ tens and _____ ones.

The whole is _____



Fill in the ten frames with counters to show 14 and complete the sentence.



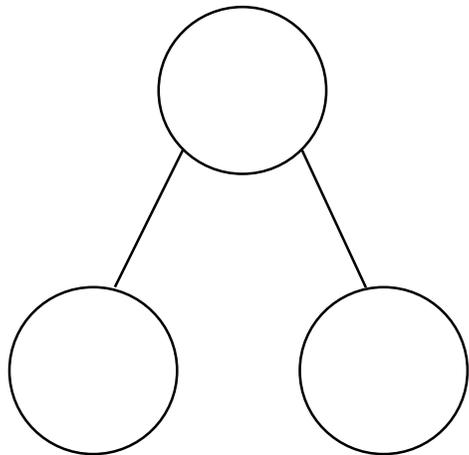
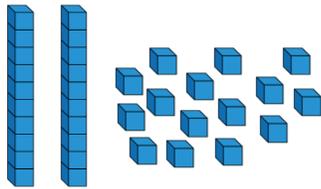
14 has _____ ten and _____ ones.

Tens and Ones

Reasoning and Problem Solving

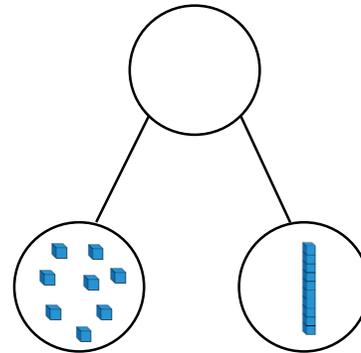


How many ways can you complete the part-whole model to show numbers up to 20, using the Base 10 equipment – you do not have to use it all.

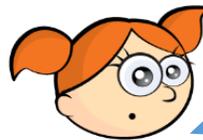


Open ended e.g. 1 ten and 5 ones make 15

Alex makes a part-whole model.



She says:



There are 8 tens and 1 one.

Explain her mistake.

What is her number?

Alex has counted the ones as tens and the tens as ones.

She should say there is 1 ten and 8 ones.

Her number is 18

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?

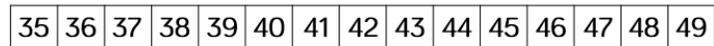
___ ones make ___ ten.

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

Which practical equipment is best for showing groups of 10?

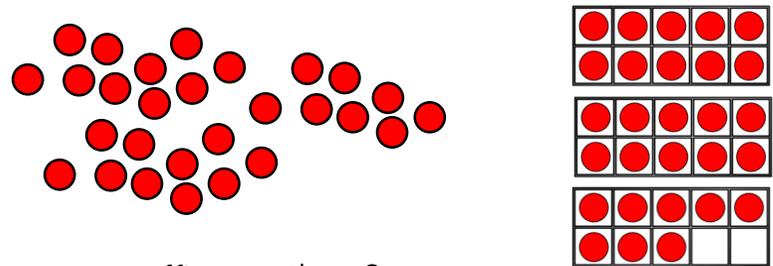
Varied Fluency R

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

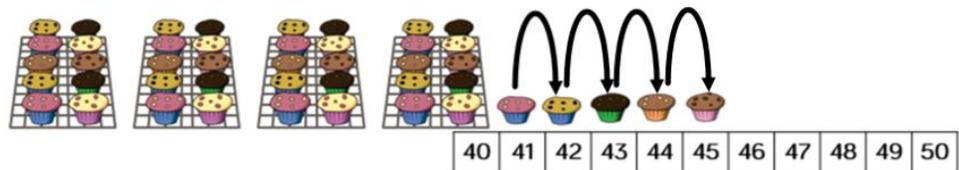


Can you count from ___ to ___ without a number track?

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



- How many muffins are there?



Numbers to 50

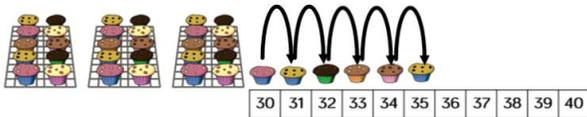
Reasoning and Problem Solving



Annie counts how many muffins she has.



I have 35 muffins.

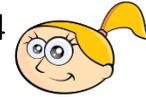


Do you agree with Annie?

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?

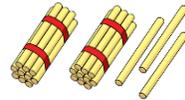
I have ___ tens and ___ ones. What number does that make?

How do we record this number in words?

Varied Fluency

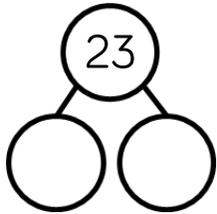


Count out 23 straws. How many bundles of 10 can you make?



There are ___ tens and ___ ones.

___ tens + ___ ones = 23



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?

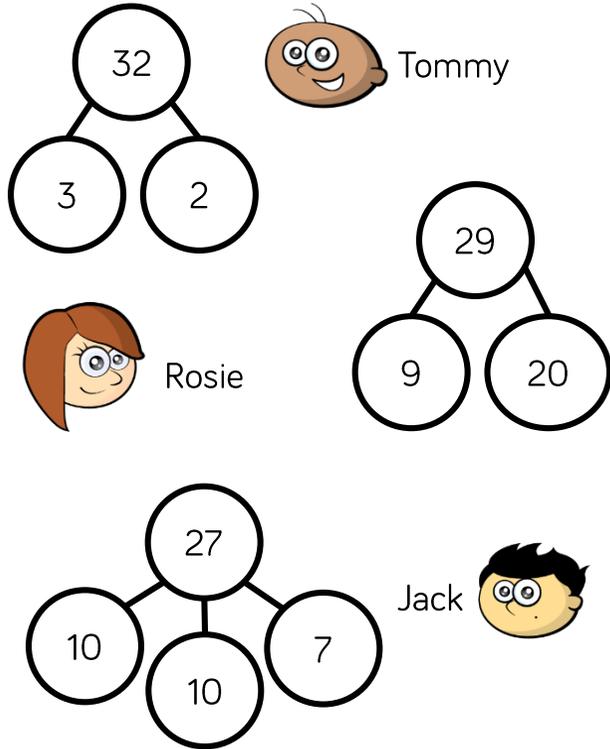
Four empty boxes for recording the number of items in each picture.

Tens and Ones

Reasoning and Problem Solving



The children are completing the part whole models.



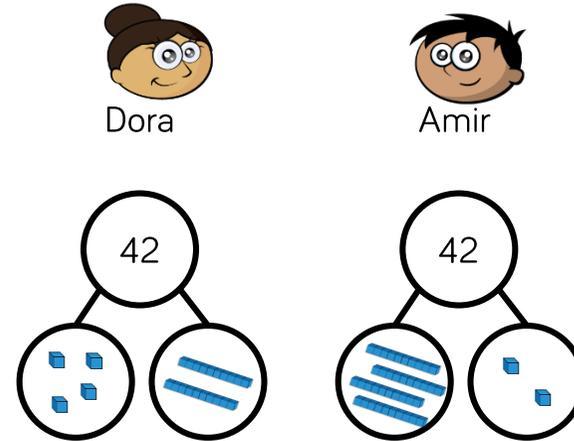
Are they correct?
Explain why.

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.



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).

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.



21 is _____ than 26

26 is _____ than 21

21 \bigcirc 26 26 \bigcirc 21

is more than
 is less than

$>$ $<$

Use the 1-50 grid to compare the numbers.

12 \bigcirc 21

38 \bigcirc nineteen

40 \bigcirc 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 \bigcirc 50

48 \bigcirc 39

18 28 \bigcirc 29

2 tens $<$

Compare Numbers within 50

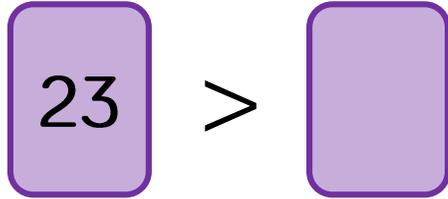
Reasoning and Problem Solving



Teddy is comparing two numbers.



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



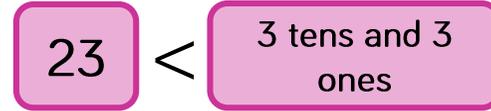
What could Teddy's number be?

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.



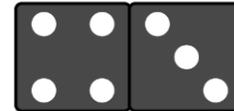
Change one thing in the values so they are equal.

Dora could change $23 = \underline{2}$ tens and 3 ones or $\underline{3}3 = 3$ tens and 3 ones.

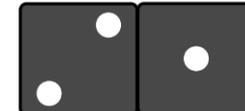
Pick two dominoes to represent two two-digit numbers.

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.

Count Objects to 100

Notes and Guidance

To build on skills learned in Year 1, children need to be able to count objects to 100 in words and represent these numbers in numerals.

Problems should be presented in a variety of ways e.g. numerals, words and images. Variation should challenge children by providing them with missing numbers which are non-consecutive.

Mathematical Talk

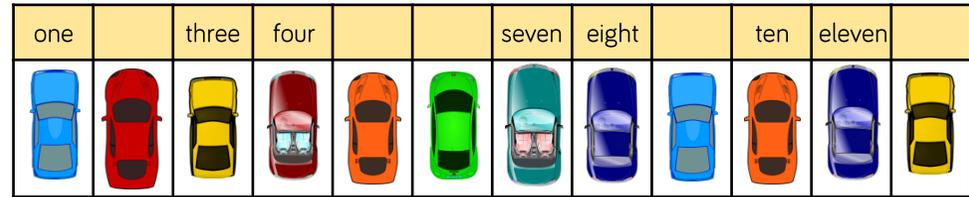
How can you count the cars?
Do you have a strategy?
What is one more/one less?

Which is the largest number?
Which number is tricky to write in words?

Which numbers sound similar?
How are 17 and 70 different? Can you show me?

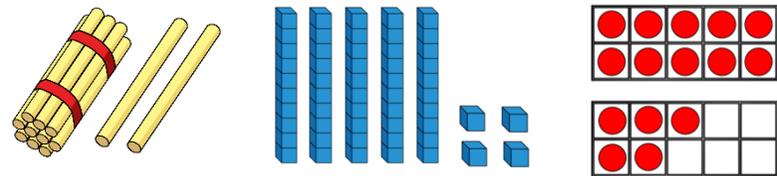
Varied Fluency

Count and write the number of cars in the car park.



There are _____ cars in the car park.

What numbers are represented below?
Write your answer in numerals and words.



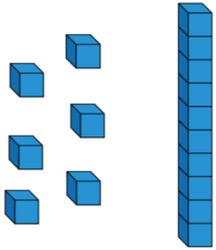
Match the numerals to the words.



Count Objects to 100

Reasoning and Problem Solving

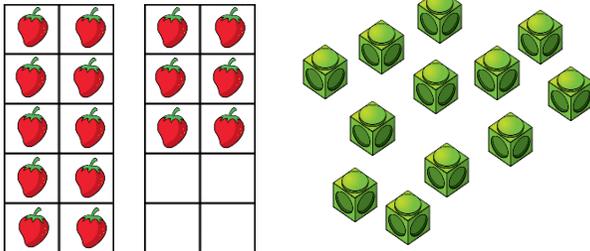
Jack says he has 61
Is he correct?



Explain your reasoning.

Jack is incorrect.
He has 16 not 61

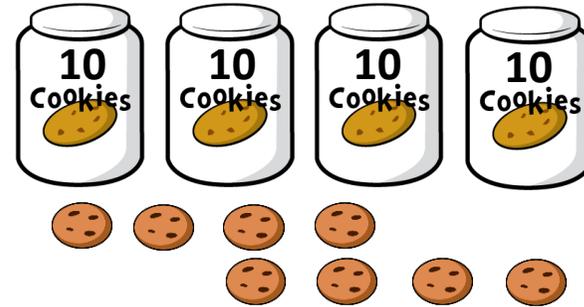
Here are two sets of objects.



Which are easier to count?
Explain your answer.

The strawberries
are easier to count
because they are
set out on ten
frames.

Each jar contains 10 cookies.



How many cookies are there altogether?

Write your answer in numerals and words.

What strategy did you use?

Did your partner use a different method?

What is the best strategy to use?

There are 48
(forty-eight)
cookies altogether.

Children may
count in 10s and
1s or know that
there are 4 tens
which are equal to
40 and then count
on 8 more.

Represent Numbers to 100

Notes and Guidance

Children need to be able to represent numbers to 100 using a range of concrete materials, such as bead strings, straws, Base 10 equipment etc.

Children should also be able to state how a number is made up. For example, they can express 42 as 4 tens and 2 ones or as 42 ones.

Mathematical Talk

How have the beads been grouped? How does this help you count?

Can you show me the tens/ones in the number?

Which resource do you prefer to use for larger numbers? Which is quickest? Which would take a long time?

Varied Fluency

Here is part of a bead string.



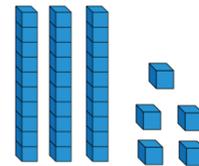
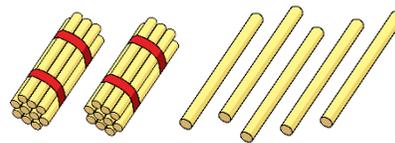
Complete the sentences.

There are _____ tens and _____ ones.

The number is _____.

Represent 45 on a bead string and complete the same sentence stems.

Match the number to the correct representation.



One ten and five ones

Thirty-five

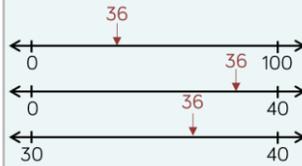
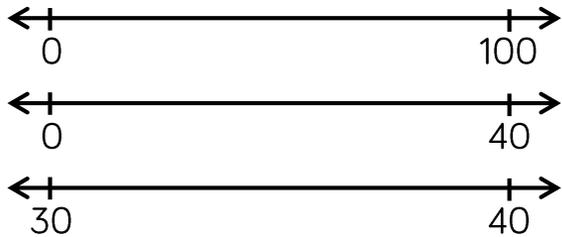
25

Represent 67 in **three different** ways.

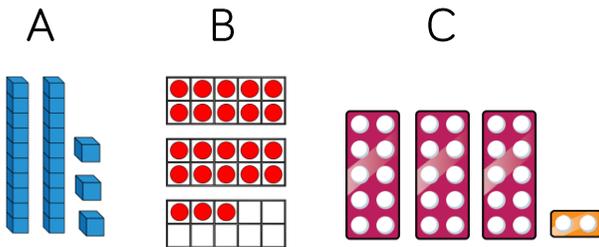
Represent Numbers to 100

Reasoning and Problem Solving

Where would 36 go on each of the number lines?

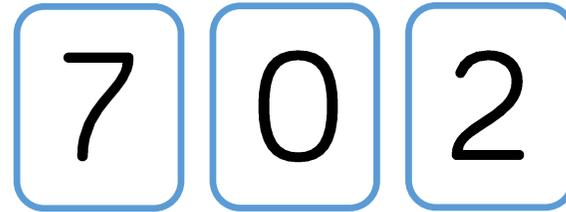


One of these images **does not** show 23. Can you explain the mistake?



C does not show 23, it shows 32. They have reversed the tens and ones.

How many two digit numbers can you make using the digit cards?



What is the largest number? Prove it by using concrete resources.

What is the smallest number? Prove it by using concrete resources.

Why can't the 0 be used as a tens number?

70, 20, 72, 27

The largest number is 72

The smallest number is 20

Because it would make a 1 digit number.

Tens and Ones (1)

Notes and Guidance

Children should have an understanding of what each digit represents when partitioning a number.

It is important that children can partition numbers in a variety of ways, not just as tens and ones. For example, 58 is made up of 5 tens and 8 ones or 4 tens and 18 ones, or 2 tens and 38 ones, etc.

Mathematical Talk

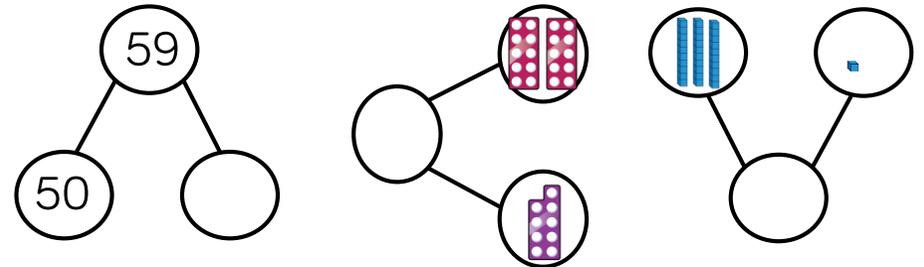
Which part do we know? How can we use the whole and part to work out the missing part?

Can you use concrete resources/draw something to help you partition?

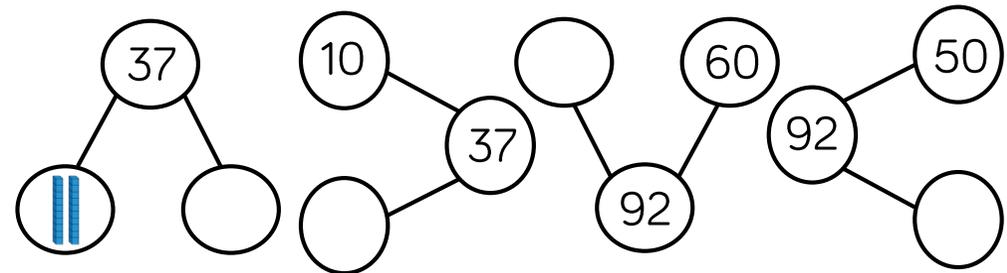
How can you rearrange the counters to help you count the lemon and strawberry cupcakes?

Varied Fluency

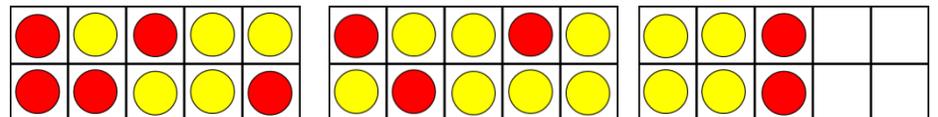
Complete the part-whole models.



Complete the part-whole models.



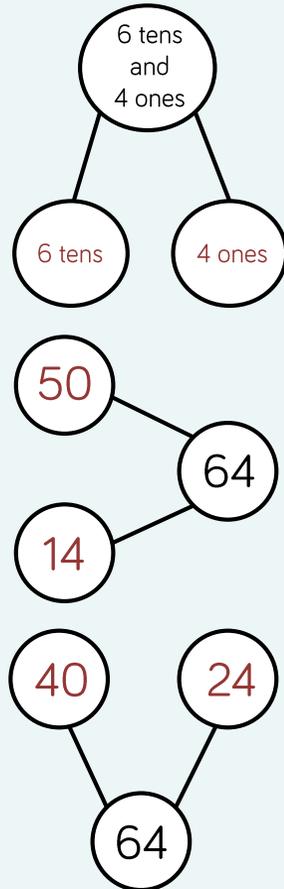
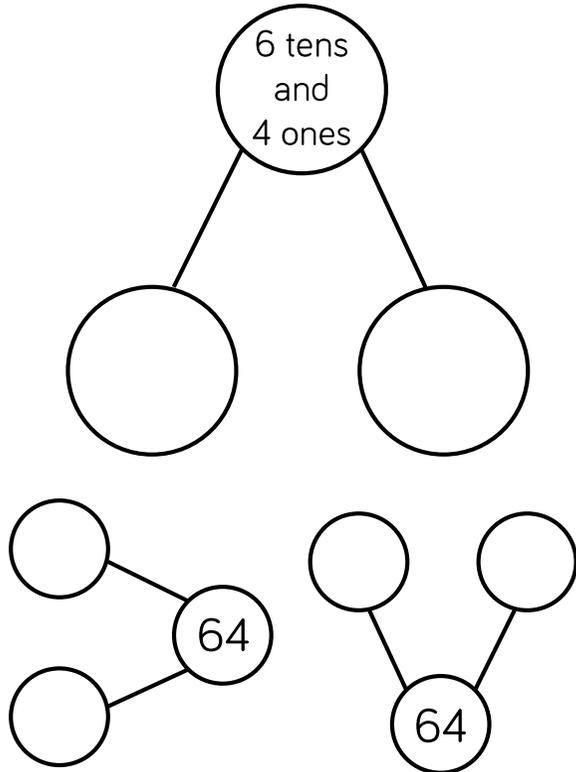
The ten frames represent lemon and strawberry cupcakes. Draw a part-whole model to show how many cupcakes there are altogether.



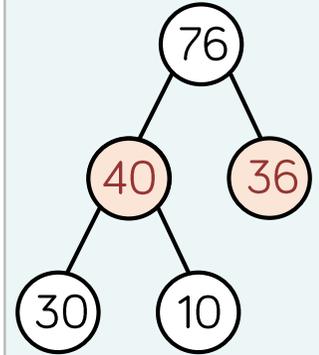
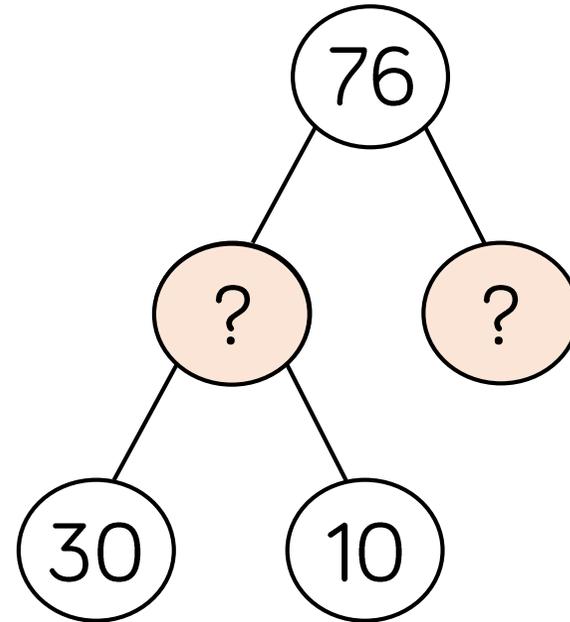
Tens and Ones (1)

Reasoning and Problem Solving

Complete each part-whole model in a different way.



Complete the extended part-whole model.



Tens and Ones (2)

Notes and Guidance

Children continue to use a part-whole model to explore how tens and ones can be partitioned and recombined to make a total.

Children will see numbers partitioned in different ways. For example, 39 written as $20 + 19$

This small step will focus on using the addition symbol to express numbers to 100. For example, 73 can be written as $70 + 3 = 73$

Mathematical Talk

What clues are there in the calculations? Can we look at the tens number or the ones number to help us?

What number completes the part-whole model?

What is the same/different about the calculations?

What are the key bits of information? Can you draw a diagram to help you?

Varied Fluency

- Match the number sentence to the correct number.

$20 + 19$

$10 + 4$

$40 + 0$

$80 + 1$

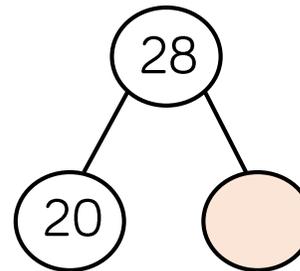
40

14

81

39

- Complete the part-whole model and write four number sentences to match.



$$\begin{array}{l} \underline{\quad} + \underline{\quad} = \underline{\quad} \\ \underline{\quad} + \underline{\quad} = \underline{\quad} \\ \underline{\quad} = \underline{\quad} + \underline{\quad} \\ \underline{\quad} = \underline{\quad} + \underline{\quad} \end{array}$$

- Dora has 20 sweets and Amir has 15 sweets. Represent the total number of sweets:

- With concrete resources.
- In a part-whole model.
- As a number sentence.

Tens and Ones (2)

Reasoning and Problem Solving

Teddy thinks that,



$$40 + 2 = 402$$

$40 + 2 = 42$
Teddy has just combined the numbers to make 402 without thinking about their place value.

Explain the mistake he has made.

Can you show the correct answer using concrete resources?

Fill in the missing numbers.

$$1 \text{ ten} + 3 \text{ ones} = 13$$

$$2 \text{ tens} + \underline{\quad} \text{ ones} = 23$$

$$3 \text{ tens} + 3 \text{ ones} = \underline{\quad}$$

$$\underline{\quad} \text{ tens} + 3 \text{ ones} = 43$$

What would the next number in the pattern be?

$$1 \text{ ten} + 3 \text{ ones} = 13$$

$$2 \text{ tens} + 3 \text{ ones} = 23$$

$$3 \text{ tens} + 3 \text{ ones} = 33$$

$$4 \text{ tens} + 3 \text{ ones} = 43$$

$$5 \text{ tens} + 3 \text{ ones} = 53$$

Place Value Charts

Notes and Guidance

Children should formally present their work in the correct place value columns to aid understanding of place value.

It is important for children to use concrete, pictorial and abstract representations in their place value chart.

Mathematical Talk

How many tens are there?

How many ones are there?

What is different about using Base 10 to using place value counters?

Can you write any other number sentences about the place value chart?

Varied Fluency

What number is represented in the place value chart?

Tens	Ones

Complete the place value chart using Base 10 and place value counters to represent the number 56

Tens	Ones

Tens	Ones

What number is represented in the place value chart?

Tens	Ones
9	1

Write two different number sentences for this number.

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

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

Place Value Charts

Reasoning and Problem Solving

How many two digit numbers can you make that have the same number of tens and ones?

Show each one on a place value chart.

Tens	Ones

There are nine possibilities:
11, 22, 33, 44, 55,
66, 77, 88, 99

Do both place value charts show the same value?

A

Tens	Ones

B

Tens	Ones

Yes, they both have the same value of 41

$$40 + 1 = 41$$

$$30 + 11 = 41$$

Same: Both A and B show 41

Different: There are a different number of tens and ones in each place value chart.

What is the same?

What is different?

Compare Objects

Notes and Guidance

Comparing objects is introduced once children have a secure understanding of numbers in a place value chart.

Children are expected to compare a variety of objects using the vocabulary 'more than', 'less than' and 'equal to' and the symbols $<$, $>$, $=$

Mathematical Talk

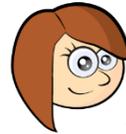
How can you arrange the objects to make them easy to compare?

Do groups of ten help you count? Why?

Do groups of ten help you compare? Why?

Varied Fluency

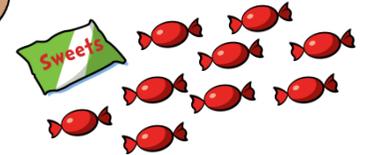
■ A packet of sweets contain 10 sweets.



Rosie's sweets



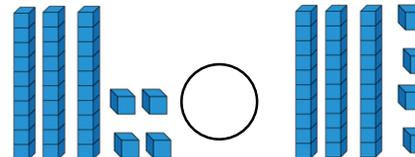
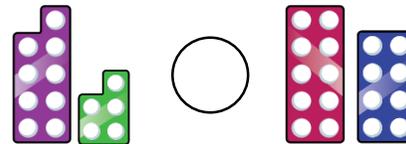
Amir's sweets



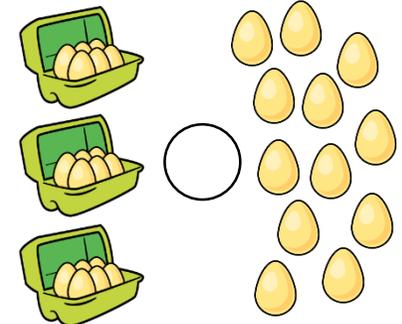
Who has the most sweets?

- Use cubes to show that:
- Eleven is less than fifteen
 - 19 is greater than 9
 - 2 tens is equal to 20

■ Use $<$, $>$ or $=$ to complete.



30



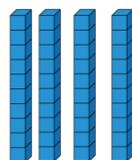
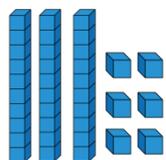
Compare Objects

Reasoning and Problem Solving

Rosie and Amir are comparing numbers they have made.

Rosie's number

Amir's number



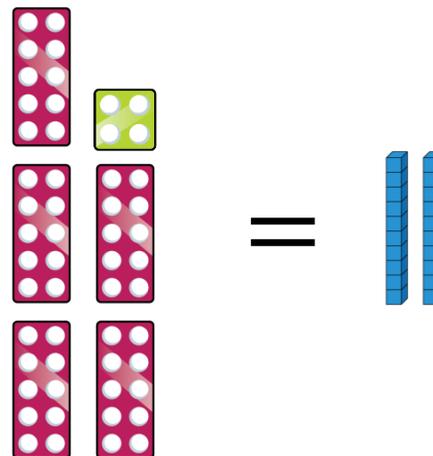
My number is greater because I have more objects.

Is Rosie correct?

Explain your answer.

Rosie is incorrect because Amir has 4 tens which makes 40 and Rosie has 3 tens and 6 ones which makes 36, therefore Amir has more.

Add more Base 10 to make the number shapes and the Base 10 equal.



How much did you add in total to make them equal?

What is the smallest amount you could add if the symbol changed to $<$?

Children should add 3 tens and 4 ones to make 54 on both sides.

If the symbol changed to $<$ the smallest amount they could add is 3 tens and 5 ones.

Compare Numbers

Notes and Guidance

Children compare numbers using the language greater than, less than, more than, fewer, most, least and equal to.

They are able to use the symbols $<$, $>$ and $=$ to write number sentences.

Children should have access to concrete resources to help them justify their answers.

Mathematical Talk

Can you prove your answers using concrete resources?

Can you prove your answers by drawing a diagram?

Is there more than one answer?

Do you need to work the number sentences out to decide which is greater?

Varied Fluency

Complete the statements using **more than**, **less than** or **equal to**.

42 is _____ 46

81 is _____ $60 + 4$

$30 + 8$ is _____ thirty-eight

Complete the number sentences.

4 tens and 9 ones $>$ _____

_____ $<$ $70 + 5$

_____ = eight tens

Put $<$, $>$ or $=$ in each circle to make the statements correct.

28 ○ 30

90 ○ $70 + 28$

$30 + 23$ ○ $40 + 13$

$20 + 14$ ○ 24

Compare Numbers

Reasoning and Problem Solving

How many different numbers can go in the box?

$$13 < \square < 20$$

There are six different numbers:
14, 15, 16, 17, 18, 19

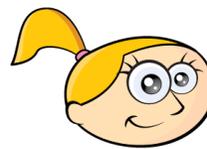
True or False?

One ten and twelve ones is bigger than 2 tens.

Explain how you know.

True
One ten and twelve ones = 22
Two tens = 20

Eva says,



When comparing numbers, the number with the highest number of ones is always the bigger number.

Do you agree?

Give some examples to support your answer.

Disagree, for example 19 is smaller than 21

Order Objects and Numbers

Notes and Guidance

Children order numbers and objects from smallest to greatest or greatest to smallest.

They should be encouraged to use concrete or pictorial representations to prove or check their answers.

Children use the vocabulary ‘smallest’ and ‘greatest’ and may also use the $<$ or $>$ symbols to show the order of their numbers.

Mathematical Talk

How does the number line help you order the numbers?

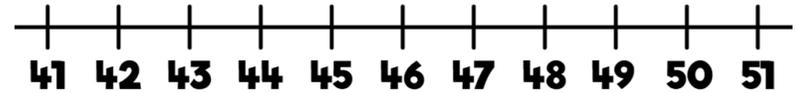
How does Base 10 prove that your order is correct?

How did you know which of the diagrams represented the smallest/greatest number?

Did you look at the tens or ones?

Varied Fluency

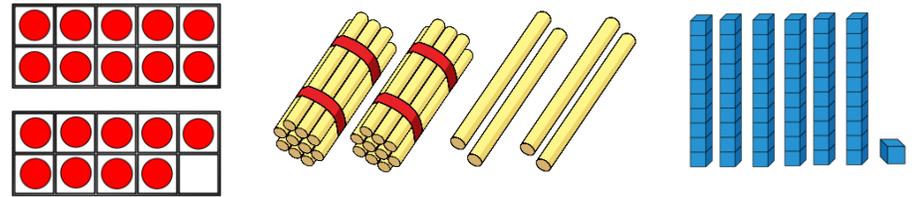
- Circle the numbers 48, 43 and 50 on the number line.



Put the numbers 48, 43 and 50 in order starting with the smallest.

- Use Base 10 to make the numbers sixty, sixteen and twenty-six. Write the numbers in order starting with the greatest number.

- The diagrams represent different numbers.



Circle the greatest number.

Circle the smallest number.

Complete the number sentence _____ $>$ _____

Order Objects and Numbers

Reasoning and Problem Solving

Order the numbers below.
Which would be the fourth number?

33 53 37

29 34 43

Explain how you ordered them.

If I ordered them from smallest to largest:
29, 33, 34, 37, 43, 53 then 37 would be the fourth number.

Alternatively, if I order the numbers from largest to smallest:
53, 43, 37, 34, 33, 29 then 34 would be the fourth number.

Mo has written a list of 2-digit numbers.



The digits of each number add up to five.
None of the digits are zero.

14, 23, 32, 41

Can you find all the numbers Mo could have written?

Write the numbers in order from smallest to largest.

What strategy did you use?

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 R

How many socks are there?



There are ___ socks in total.

How many gloves are there?



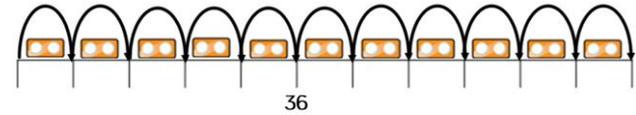
There are ___ gloves in total.

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.

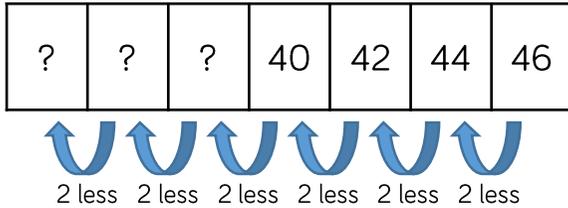


Count in 2s

Reasoning and Problem Solving



Count in 2s backwards to complete the number track.



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

Always, sometimes, never...



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

Prove it!

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

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?

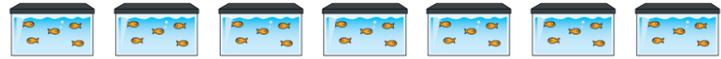
Can you describe the pattern when you count in 5s?

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.

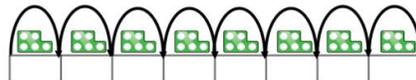
There are ___ bunches.

There are ___ grapes altogether.

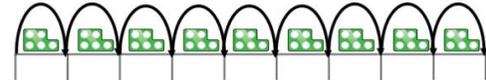
Continue counting in 5s on the grid.

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



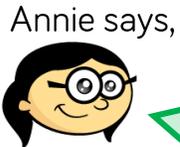
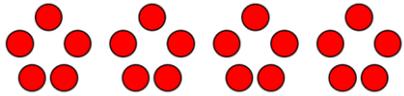
35

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

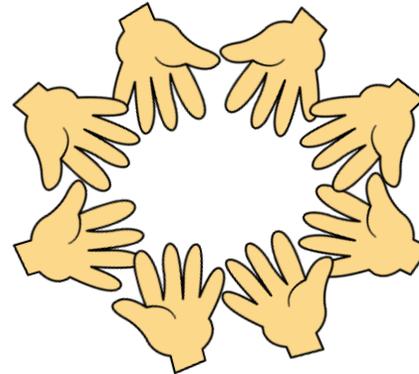
30

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.

Count in 10s

Notes and Guidance

Children count in groups of tens for the first time. Previously they have counted in 2s and 5s. They use pictures, bead strings and number lines to support their counting.

Counting in 10s on a hundred square will also support children to see the similarities between the numbers when we count in tens.

Mathematical Talk

How many birds/flowers are there in total?

How can we use our number lines to help us count them?

Will _____ appear on our number line? Why?

What is the same about all the numbers we say when we are counting in tens?

Varied Fluency

R

How many birds are there altogether?



There are ____ birds in each tree.

There are ____ trees.

There are ____ birds altogether.

How many flowers are there altogether?



There are ____ flowers in each bunch.

There are ____ bunches.

There are ____ flowers altogether.

Use a 0-100 bead string to count in tens.

Can we count forwards and backwards in tens?



Can we count in tens on a number track as well?

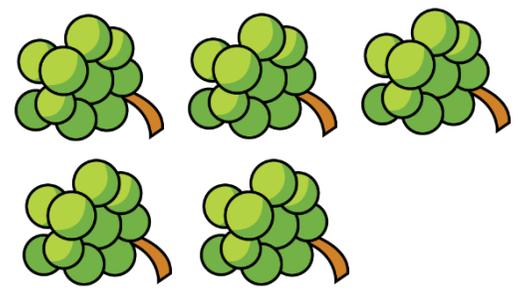
How does this match counting on a bead string?

Count in 10s

Reasoning and Problem Solving



In a shop, grapes come in bunches of 10



Max wants to buy forty grapes.
Are there enough grapes?

Yes there are enough grapes. There are fifty grapes and Max only needs forty.

Jemima is counting in 10s on part of a hundred 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

She starts at 10
Shade in all the numbers Jemima will say.
What is the same about the numbers she says?
What is different about the numbers?

Jemima will say 10, 20, 30, 40 and 50
All the numbers have the same ones digit (0)
They all have different tens digit.
The tens digit goes up by 1 for each new number she says.

Count in 3s

Reasoning and Problem Solving

True or False?



I start at 0 and count in 3s
I say the number 14

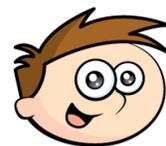
Explain your answer.

False.
If I count in 3s I
say 3, 6, 9, 12, 15...

Teddy is counting in 2s and Jack is counting in 3s.

Teddy	2	4	6	8
Jack	3	6	9	12
+				

Teddy says,



If we add our numbers together as we count we can make a new number pattern.

What pattern do they make?
What happens if both Teddy and Jack count in 5s and they add them together to make a new pattern?

If Teddy and Jack add their numbers together they will be counting in 5s.

If Teddy and Jack both count in 5s their new pattern would be counting in 10s.