# Autumn
## Scheme of learning
# Year 2

#MathsEveryoneCan

White Rose Maths

# The **White Rose Maths** schemes of learning

## Teaching for mastery

Our research-based schemes of learning are designed to support a mastery approach to teaching and learning and are consistent with the aims and objectives of the National Curriculum.

### Putting number first

Our schemes have number at their heart.
A significant amount of time is spent reinforcing number in order to build competency and ensure children can confidently access the rest of the curriculum.

### Depth before breadth

Our easy-to-follow schemes support teachers to stay within the required key stage so that children acquire depth of knowledge in each topic. Opportunities to revisit previously learned skills are built into later blocks.

### Working together

Children can progress through the schemes as a whole group, encouraging students of all abilities to support each other in their learning.

### Fluency, reasoning and problem solving

Our schemes develop all three key areas of the National Curriculum, giving children the knowledge and skills they need to become confident mathematicians.

## Concrete – Pictorial – Abstract (CPA)

Research shows that all children, when introduced to a new concept, should have the opportunity to build competency by following the CPA approach. This features throughout our schemes of learning.

### Concrete

Children should have the opportunity to work with physical objects/concrete resources, in order to bring the maths to life and to build understanding of what they are doing.

### Pictorial

Alongside concrete resources, children should work with pictorial representations, making links to the concrete.
Visualising a problem in this way can help children to reason and to solve problems.


### Abstract

With the support of both the concrete and pictorial representations, children can develop their understanding of abstract methods.

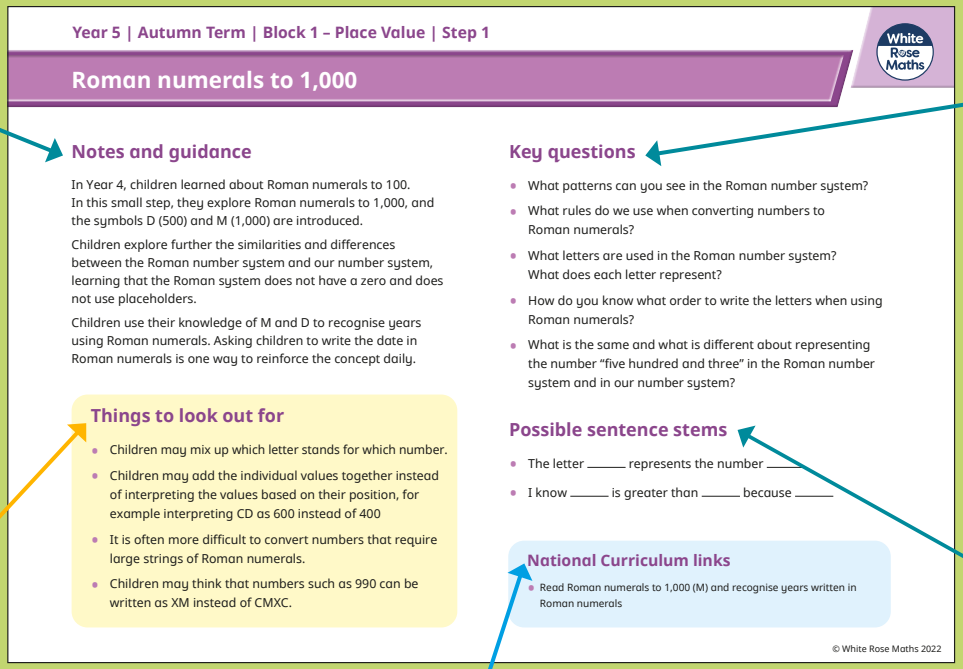
$$5 + 7$$

If you have questions about this approach and would like to consider appropriate CPD, please visit www.whiterosemaths.com to find a course that's right for you.

# Teacher guidance

Every block in our schemes of learning is broken down into manageable small steps, and we provide comprehensive teacher guidance for each one. Here are the features included in each step.

**Notes and guidance** that provide an overview of the content of the step and ideas for teaching, along with advice on progression and where a topic fits within the curriculum.



Year 5 | Autumn Term | Block 1 – Place Value | Step 1

## Roman numerals to 1,000

### Notes and guidance

In Year 4, children learned about Roman numerals to 100. In this small step, they explore Roman numerals to 1,000, and the symbols D (500) and M (1,000) are introduced.

Children explore further the similarities and differences between the Roman number system and our number system, learning that the Roman system does not have a zero and does not use placeholders.

Children use their knowledge of M and D to recognise years using Roman numerals. Asking children to write the date in Roman numerals is one way to reinforce the concept daily.

### Key questions

- What patterns can you see in the Roman number system?
- What rules do we use when converting numbers to Roman numerals?
- What letters are used in the Roman number system? What does each letter represent?
- How do you know what order to write the letters when using Roman numerals?
- What is the same and what is different about representing the number "five hundred and three" in the Roman number system and in our number system?

### Things to look out for

- Children may mix up which letter stands for which number.
- Children may add the individual values together instead of interpreting the values based on their position, for example interpreting CD as 600 instead of 400
- It is often more difficult to convert numbers that require large strings of Roman numerals.
- Children may think that numbers such as 990 can be written as XM instead of CMXC.

### Possible sentence stems

- The letter _____ represents the number _____
- I know _____ is greater than _____ because _____

### National Curriculum links

- Read Roman numerals to 1,000 (M) and recognise years written in Roman numerals



**Key questions** that can be posed to children to develop their mathematical vocabulary and reasoning skills, digging deeper into the content.

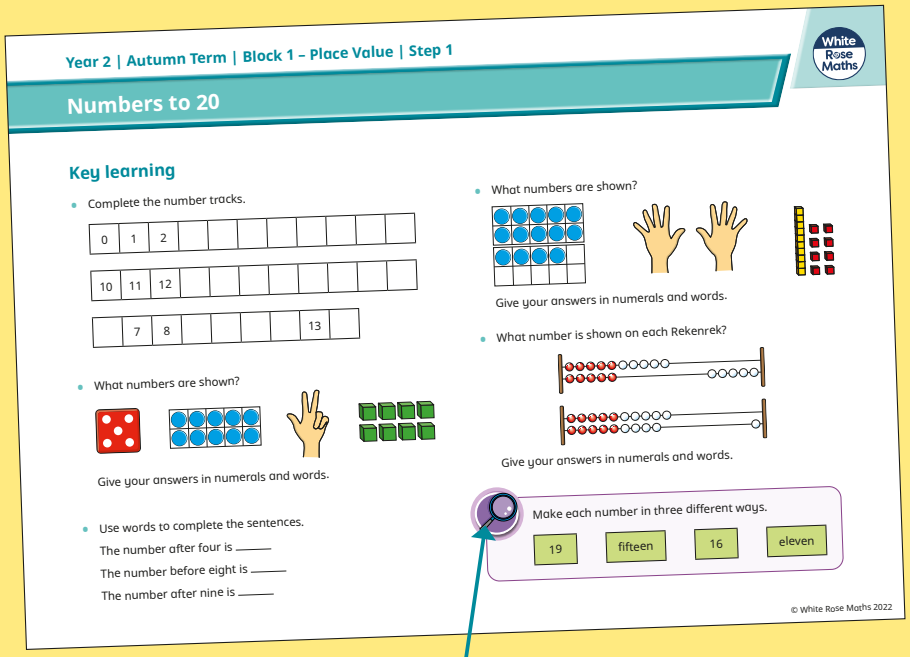
**Things to look out for**, which highlights common mistakes, misconceptions and areas that may require additional support.

**National Curriculum links** to indicate the objective(s) being addressed by the step.

**Possible sentence stems** to further support children's mathematical language and to develop their reasoning skills.

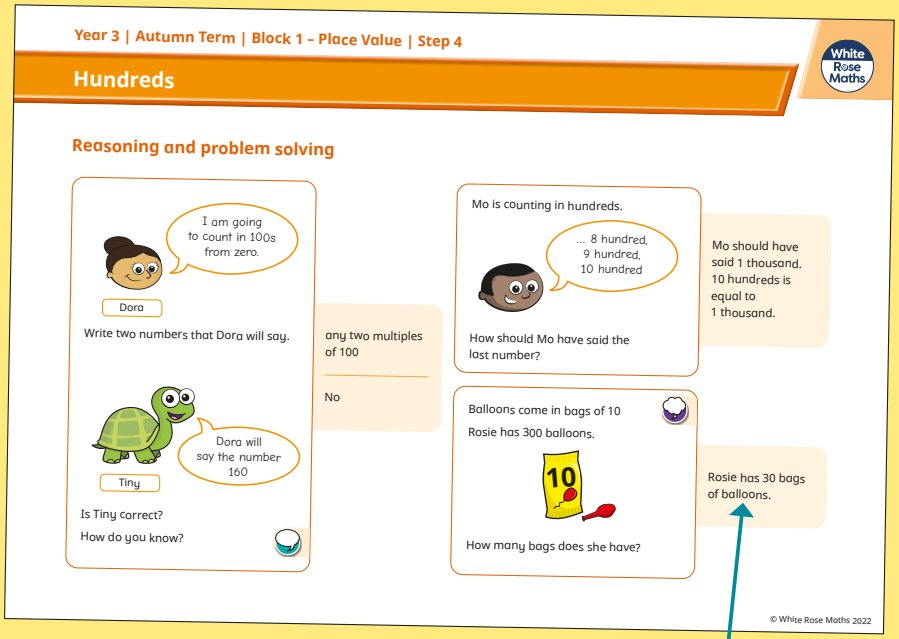
# Teacher guidance

A **Key learning** section, which provides plenty of exemplar questions that can be used when teaching the topic.




Activity symbols that indicate an idea can be explored practically

**Reasoning and problem-solving** activities and questions that can be used in class to provide further challenge and to encourage deeper understanding of each topic.




Answers provided where appropriate

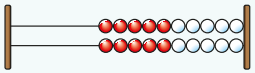
# Activities and symbols

## Key Stage 1 activities

Key Stage 1 includes more hands-on activities alongside questions.

An activity to be led by the teacher

Use a Rekenrek in the ready position.



Ask children to show a number on their Rekenrek.

An outside activity or one that uses resources from nature

Find some seeds and leaves to represent Autumn.

Ask children to sort the objects in three different ways and then compare their answers with a partner.

An activity introduced by a reading from an appropriate fiction or non-fiction book

Read *The Button Box* by M Reid.

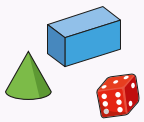
Give children a selection of buttons and ask them to sort the buttons in as many different ways as they can.

Encourage them to think about size, shape, colour and number of holes.

An investigation

Give children a selection of 3D shapes.

Ask children to sort the objects into two groups and then challenge a partner to say how the objects have been sorted.



## Key Stage 1 and 2 symbols

The following symbols are used to indicate:

concrete resources might be useful to help answer the question

a bar model might be useful to help answer the question

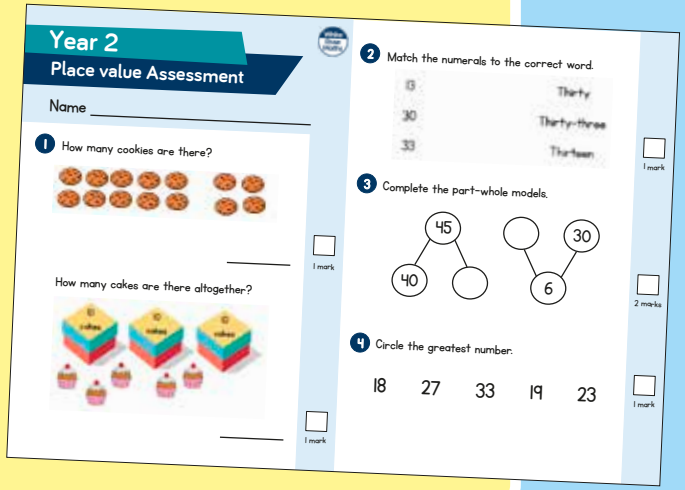
drawing a picture might help children to answer the question

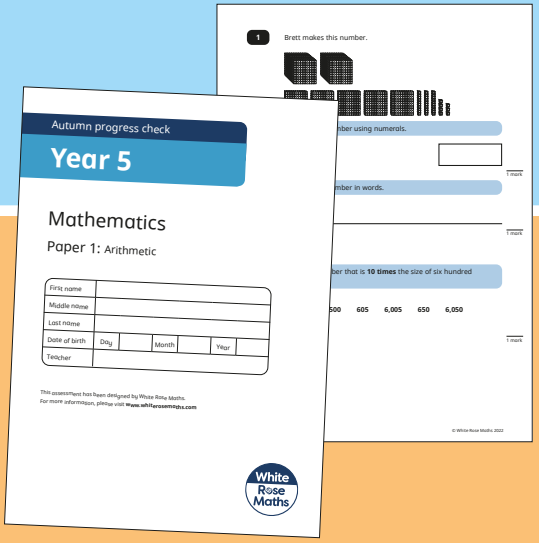
children talk about and compare their answers and reasoning

a question that should really make children think. The question may be structured differently or require a different approach from others and/or tease out common misconceptions.

# Free supporting materials

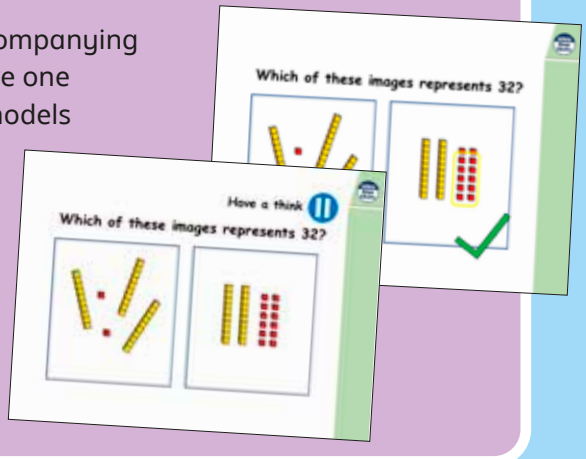
**End-of-block assessments** to check progress and identify gaps in knowledge and understanding.



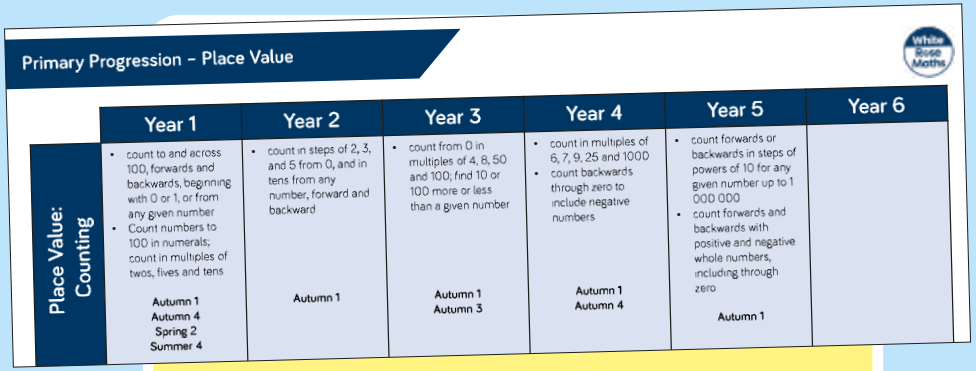




**End-of-term assessments** for a more summative view of where children are succeeding and where they may need more support.

Each small step has an accompanying **home learning video** where one of our team of specialists models the learning in the step. These can also be used to support students who are absent or who need to catch up content from earlier blocks or years.



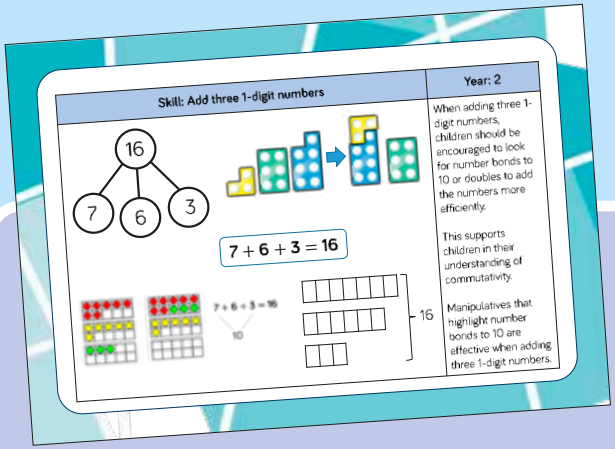
# Free supporting materials



Primary Progression – Place Value

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|---|---|---|---|---|---|---|
| Place Value: Counting | • count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number<br>• Count numbers to 100 in numerals; count in multiples of twos, fives and tens<br>Autumn 1<br>Autumn 4<br>Spring 2<br>Summer 4 | • count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward<br>Autumn 1 | • count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number<br>Autumn 1<br>Autumn 3 | • count in multiples of 6, 7, 9, 25 and 1000<br>• count backwards through zero to include negative numbers<br>Autumn 1<br>Autumn 4 | • count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000<br>• count forwards and backwards with positive and negative whole numbers, including through zero<br>Autumn 1 | |

**National Curriculum progression** to indicate how the schemes of learning fit into the wider picture and how learning progresses within and between year groups.



Skill: Add three 1-digit numbers

Year: 2

16, 7, 6, 3

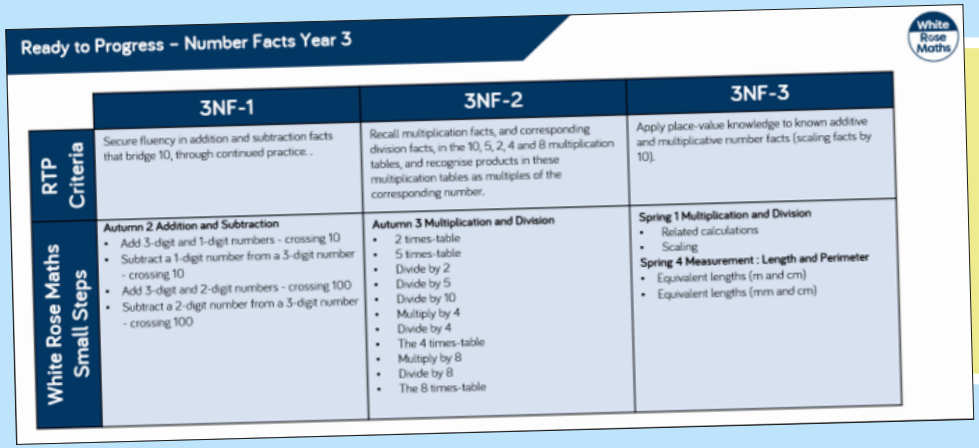
$7 + 6 + 3 = 16$

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

This supports children in their understanding of commutativity.

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

**Calculation policies** that show how key approaches develop from Year 1 to Year 6.



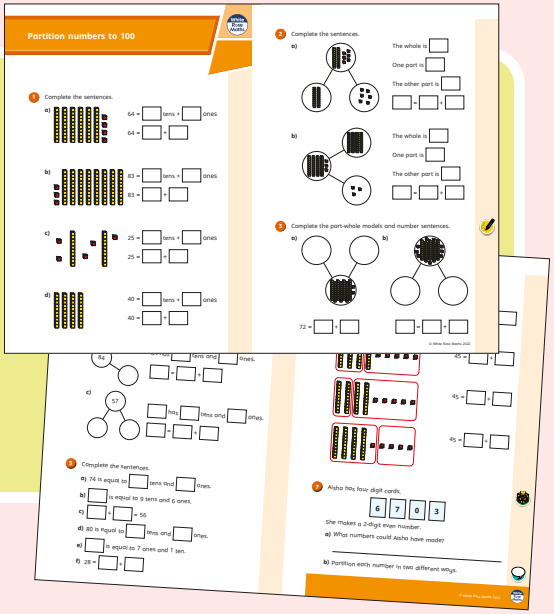
Ready to Progress – Number Facts Year 3

| | 3NF-1 | 3NF-2 | 3NF-3 |
|---|---|---|---|
| RTP Criteria | Secure fluency in addition and subtraction facts that bridge 10, through continued practice. . | Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number. | Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10). |
| White Rose Maths Small Steps | **Autumn 2 Addition and Subtraction**<br>• Add 3-digit and 1-digit numbers - crossing 10<br>• Subtract a 1-digit number from a 3-digit number - crossing 10<br>• Add 3-digit and 2-digit numbers - crossing 100<br>• Subtract a 2-digit number from a 3-digit number - crossing 100 | **Autumn 3 Multiplication and Division**<br>• 2 times-table<br>• 5 times-table<br>• Divide by 2<br>• Divide by 5<br>• Divide by 10<br>• Multiply by 4<br>• Divide by 4<br>• The 4 times-table<br>• Multiply by 8<br>• Divide by 8<br>• The 8 times-table | **Spring 1 Multiplication and Division**<br>• Related calculations<br>• Scaling<br>**Spring 4 Measurement : Length and Perimeter**<br>• Equivalent lengths (m and cm)<br>• Equivalent lengths (mm and cm) |

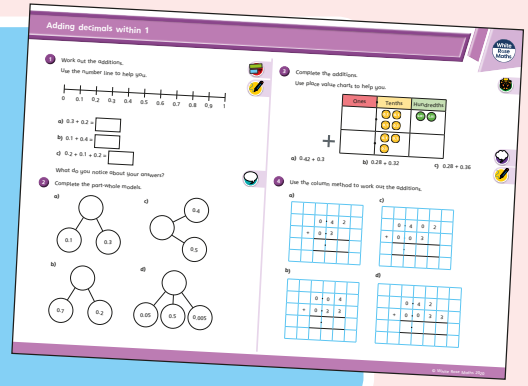
**Ready to progress** mapping that shows how the schemes of learning link to curriculum prioritisation.

# Premium supporting materials

**Worksheets** to accompany every small step, providing relevant practice questions for each topic that will reinforce learning at every stage.

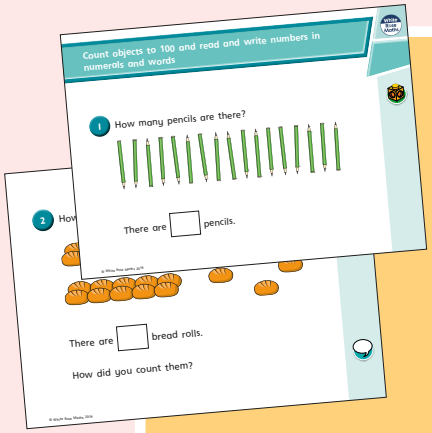



**Display** versions of the worksheet questions for front of class/whole class teaching.



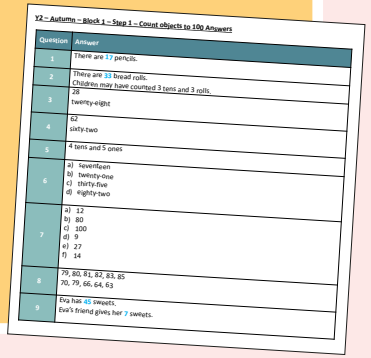


Also available as printed **workbooks**, per block.



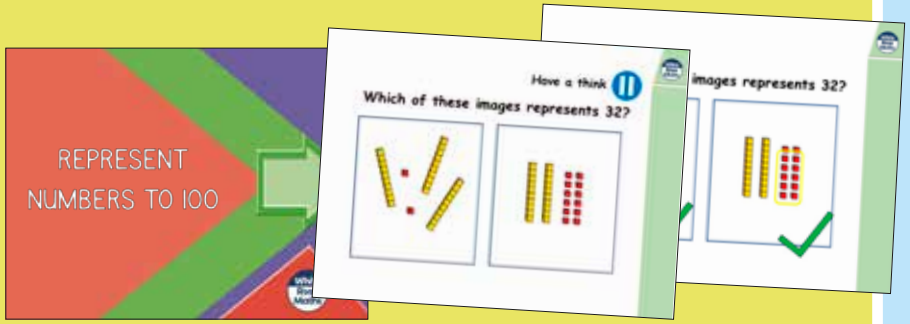

**PowerPoint**™ versions of the worksheet questions to incorporate them into lesson planning.

**Answers** to all the worksheet questions.

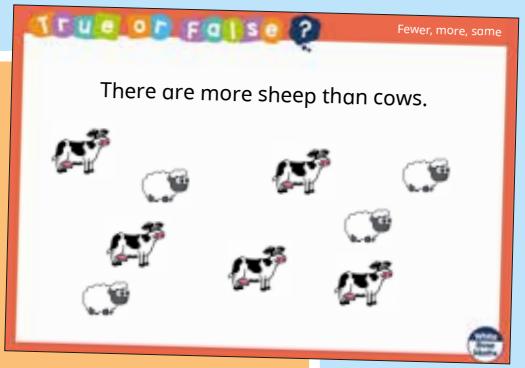


# Premium supporting materials

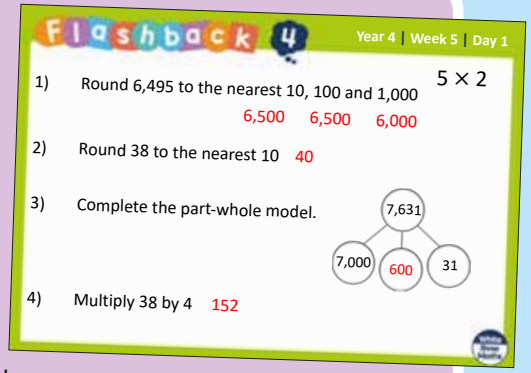
**Teaching slides** that mirror the content of our home learning videos for each step. These are fully animated and editable, so can be adapted to the needs of any class.

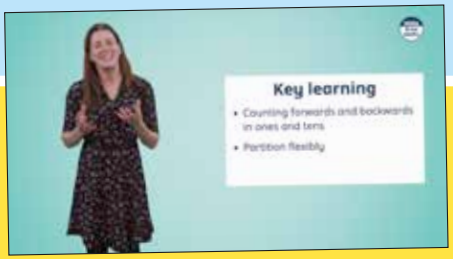



A **true or false** question for every small step in the scheme of learning. These can be used to support new learning or as another tool for revisiting knowledge at a later date.




**Flashback 4** starter activities to improve retention.
Q1 is from the last lesson;
Q2 is from last week;
Q3 is from 2 to 3 weeks ago;
Q4 is from last term/year.
There is also a bonus question on each one to recap topics such as telling the time, times-tables and Roman numerals.




**Topic-based CPD videos**
As part of our on-demand CPD package, our maths specialists provide helpful hints and guidance on teaching topics for every block in our schemes of learning.

## Meet the characters

Our class of characters bring the schemes to life, and will be sure to engage learners of all ages and abilities. Follow the children and their class pet, Tiny the tortoise, as they explore new mathematical concepts and ideas.

# Yearly overview

The yearly overview provides suggested timings for each block of learning, which can be adapted to suit different term dates or other requirements.

| | 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** | | | | | Geometry **Shape** | | |
| Spring | Measurement **Money** | | | Number **Multiplication and division** | | | | | Measurement **Length and height** | Measurement **Mass, capacity and temperature** | | |
| Summer | **Statistics** | | | Number **Fractions** | | Geometry **Position and direction** | | | **Problem solving** | Measurement **Time** | | |

Autumn Block 1

# Place value

# Small steps

| | |
|---|---|
| Step 1 | Numbers to 20 |
| Step 2 | Count objects to 100 by making 10s |
| Step 3 | Recognise tens and ones |
| Step 4 | Use a place value chart |
| Step 5 | Partition numbers to 100 |
| Step 6 | Write numbers to 100 in words |
| Step 7 | Flexibly partition numbers to 100 |
| Step 8 | Write numbers to 100 in expanded form |

# Small steps

| | |
|---|---|
| Step 9 | 10s on the number line to 100 |
| Step 10 | 10s and 1s on the number line to 100 |
| Step 11 | Estimate numbers on a number line |
| Step 12 | Compare objects |
| Step 13 | Compare numbers |
| Step 14 | Order objects and numbers |
| Step 15 | Count in 2s, 5s and 10s |
| Step 16 | Count in 3s |

# Numbers to 20

## Notes and guidance

In this small step, children revisit learning from Year 1 on numbers to 20. While children have already gone beyond this, the numbers from 11 to 15 often prove more difficult to understand, so this step provides an opportunity to revisit these numbers explicitly before moving on to look at numbers to 100 later in the block. If further consolidation is needed of numbers to 20, content from the previous year could be used.

In Year 1, children mainly focused on being able to recognise numerals written as words. In this small step, they shift their focus to independently writing numerals as words and vice versa, which will be built upon later in the block.

## Things to look out for

- Numbers such as 11, 12, 13 and 15 can often be sticking points for children as the word does not make specific reference to the number of ones as it does later in the number system.
- Children may write, for example, 12 as "ten-two" in words rather than "twelve".
- Children may mix up the tens and ones digits when writing 2-digit numbers.

## Key questions

- How many _____ are there?
- How did you count them?
- What number comes before/after _____?
- How do you write _____ in words?
- How do you write _____ in numerals?
- What number is made up of 1 ten and _____ ones?

## Possible sentence stems

- There is 1 ten and _____ ones. The number is _____
- The number after _____ is _____
- The number before _____ is _____
- _____ in words is _____
- _____ in numerals is _____

## National Curriculum links

- Read and write numbers from 1 to 20 in numerals and words (Y1)
- Read and write numbers to at least 100 in numerals and in words

# Numbers to 20

## Key learning

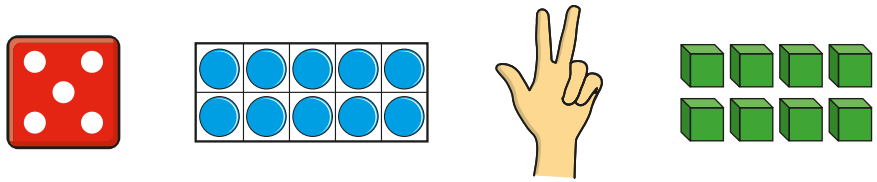
- Complete the number tracks.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1 | 2 | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 11 | 12 | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 7 | 8 | | | | | 13 | |

- What numbers are shown?



Give your answers in numerals and words.

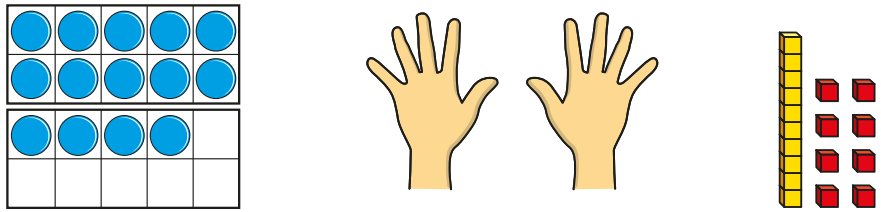
- Use words to complete the sentences.

The number after four is _____

The number before eight is _____

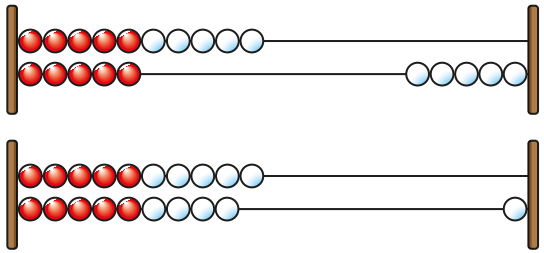
The number after nine is _____

- What numbers are shown?



Give your answers in numerals and words.

- What number is shown on each Rekenrek?



Give your answers in numerals and words.

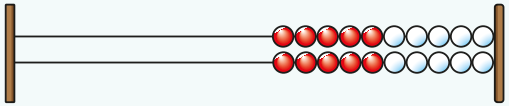
Make each number in three different ways.

| | | | |
|---|---|---|---|
| 19 | fifteen | 16 | eleven |

# Numbers to 20

## Reasoning and problem solving

Use a Rekenrek in the ready position.



Ask children to show a number on their Rekenrek.

Can they write the number in numerals?

Can they write the number in words?

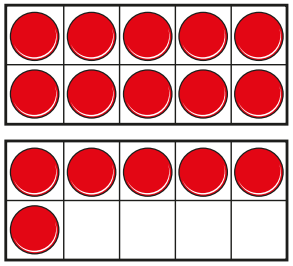
Can they say the number out loud?

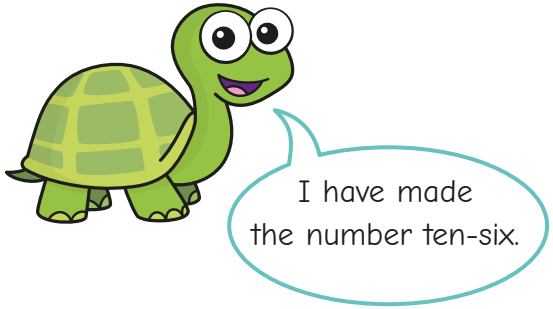
Get children to work with a partner to make numbers and write them in both numerals and words.

Encourage them to talk about how they have made the number, for example to make 13, they need to push 1 whole ten and then 3 more.

Answers will vary, depending on the number chosen.

Tiny uses counters and ten frames to make a number.






Do you agree with Tiny?

Talk about it with a partner.

No

Tiny has made sixteen.

# Count objects to 100 by making 10s

## Notes and guidance

Building on the previous small step, children revisit their earlier learning on numbers to 100

Children count objects to 100 by making tens. They see examples of objects that are grouped into tens and some that are not grouped, so they recognise the benefits of making groups of 10 to count. The use of straws can support this learning as children can physically bundle them into tens to support their counting. This then helps children to understand the structure of a number, for example 27 can be made up of 2 bundles of 10 straws and 7 more straws. In all the representations in this small step, the structure of the 10 is clearly visible. At this point, children do not need to be able to write these numbers in words, as this will be covered later in the block.

## Things to look out for

- Children may try to count only in ones rather than making bundles of 10, which is less efficient and is more likely to result in basic counting errors.
- Children may find it harder to make numbers that have been said out loud, for example being told "thirty-five" rather than seeing "35" written.

## Key questions

- How many _____ are there?
- How did you count them?
- How many _____ are in each group/bundle?
- How many extra are there?
- How many _____ are there in total?
- How do you write _____ in numerals?
- What number is made up of _____ tens and _____ ones?

## Possible sentence stems

- There are _____ groups of 10 and _____ more.

  The number is _____

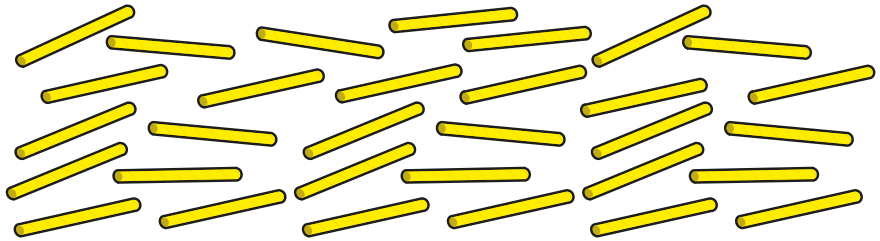
## National Curriculum links

- Read and write numbers to at least 100 in numerals and in words
- Identify, represent and estimate numbers using different representations, including the number line
- Count in steps of 2, 3 and 5 from 0, and in 10s from any number, forward and backward

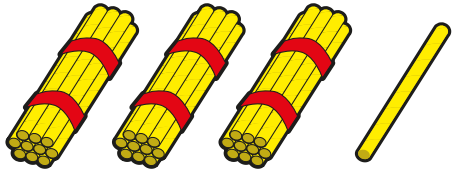
# Count objects to 100 by making 10s

## Key learning

- How many straws are there?

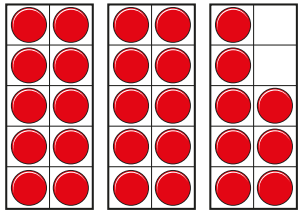


How many straws are there?



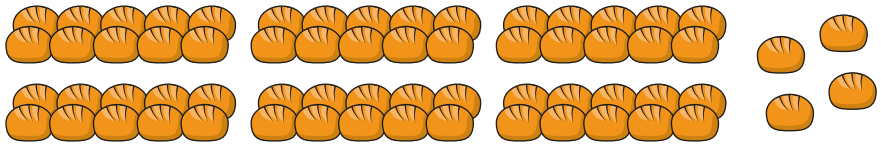
Which were easier to count?

- How many counters are there?



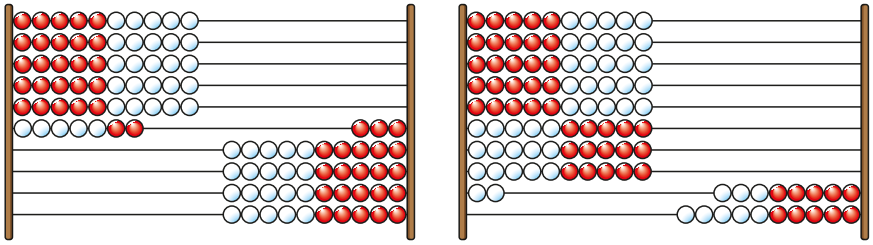
How do you know?

- How many bread rolls are there?



How do you know?

- What number is shown on each Rekenrek?



How do you know?

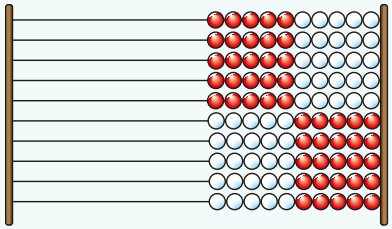
Make each number in three different ways.

| 35 | 41 | 22 | 50 |
|---|---|---|---|

# Count objects to 100 by making 10s

## Reasoning and problem solving

Use a Rekenrek in the ready position.



Ask children to show a number on their Rekenrek.

Can they write the number in numerals?

Can they say the number out loud?

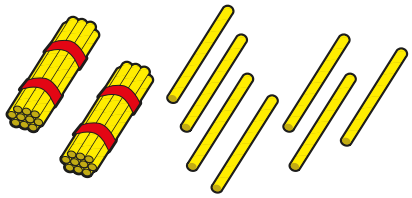
How did they make the number?

Get children to work with a partner to make numbers.

Encourage them to talk about how they have made the number, for example to make 43, they need to push 4 whole tens and then 3 more.

Answers will vary, depending on the number chosen.

Here are 27 straws.

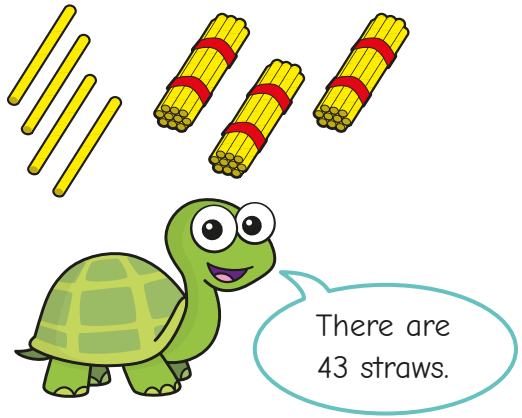


What does the 2 in 27 show?

What does the 7 in 27 show?

the number of tens

the number of ones




What mistake has Tiny made?

Tiny has mixed up the tens and the ones.

# Recognise tens and ones

## Notes and guidance

In this small step, children start to unitise the idea of a ten. In all the examples seen previously in the block, the structure of the ten within a number has been clearly visible. In this step, children transition to recognising when something is labelled as "ten" and understand its value relative to the corresponding one. This transition is gradual, as children first compare familiar representations such as ten frames and base 10 to see how the counters in ten frames can be separated but a base 10 rod cannot. They then move on to look at boxes of ten things, starting with examples labelled as "10", with the individual objects visible, before moving to more abstract examples. Examples are carefully chosen so that physical size can support number sense and it is not necessary to introduce place value counters.

## Things to look out for

- Children may just count the total number of objects rather than consider the value of things.
- Some children may revert to counting in ones rather than using their earlier learning of making tens.
- Children may write the digits of a number in the incorrect order, particularly if the representations are not shown in value order.

## Key questions

- How many _____ are there?
- How did you count them?
- What does each piece represent?
- Where can you see the ten?
- Do you need to count each one individually?
- How many _____ are there in each box/pack?

## Possible sentence stems

- There are _____ groups of 10 and _____ more.

  There are _____ in total.
- There are _____ tens and _____ ones.

  The number is _____

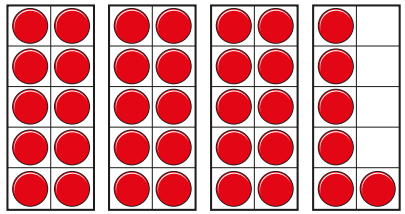
## National Curriculum links

- Read and write numbers to at least 100 in numerals and in words
- Identify, represent and estimate numbers using different representations, including the number line

# Recognise tens and ones

## Key learning

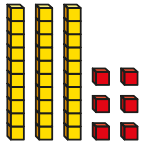
- What number is shown?



There are _____ tens and _____ ones.

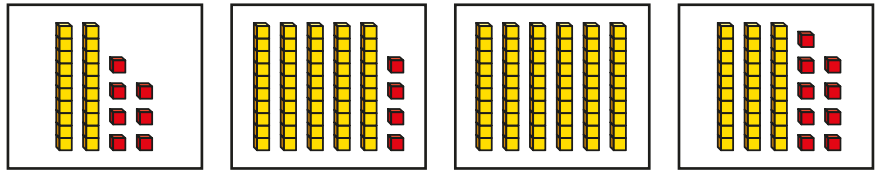
The number is _____

What number is shown?

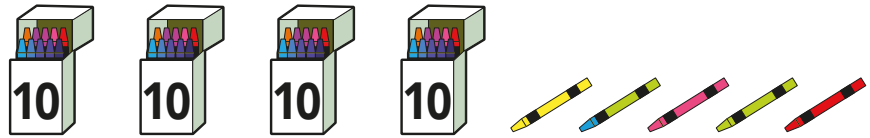


What is the same? What is different?

- What numbers are shown?



- How many crayons are there?




How did you count them?

- How many sweets are there?

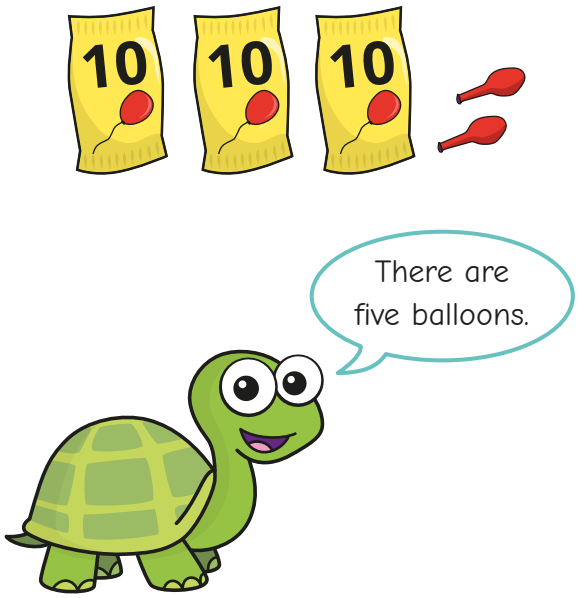

How did you count them?

- How many marbles are there?


How did you count them?

# Recognise tens and ones

## Reasoning and problem solving



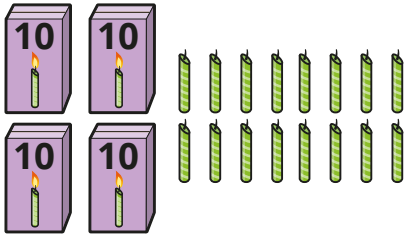

Do you agree with Tiny?

Talk about it with a partner.

No

Tiny has counted each bag as one balloon.

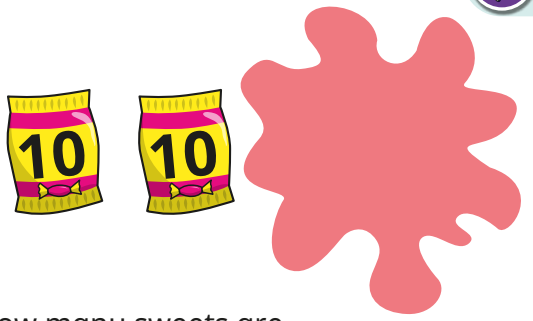
How many candles are there?




How did you count them?

56

There are 32 sweets in total.




How many sweets are covered up?

Will all the sweets be in a bag?

12 sweets

No. There will either be 1 bag of 10 sweets and 2 individual sweets or 12 individual sweets.

# Use a place value chart

## Notes and guidance

So far, children have looked in detail at numbers to 100, with an explicit focus on making tens. They now build on this to organise their representations in a place value chart, placing pieces of equipment under the correct place value headings.

Once children are comfortable with organising equipment into place value charts and understand the column headings, they begin to write numbers into place value charts with digits in the correct place and they will build on this throughout the block. Children will learn to recognise that they can only write the digits 0–9 in any single place value column, because if there were any more than this they would be able to make a ten.

There is no need at this stage to introduce children to place value counters.

## Things to look out for

- Children may not understand when the place value headings are presented differently, for example using "T" and "O" rather than "Tens" and "Ones".
- Children may write the whole number in a single column, rather than considering the structure of the number.
- Children may write 20 in the tens column for two tens rather than just a 2

## Key questions

- What number is represented?
- How many tens/ones are there?
- How does the place value chart show the number?
- What do you do if there are no ones?
- What does the digit _____ represent?
- Which column do you write _____ in?
- Why can you not write a digit greater than 9 in a place value column?

## Possible sentence stems

- There are _____ tens and _____ ones.
  The number is _____
- _____ is made up of _____ tens and _____ ones.

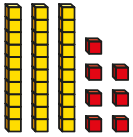
## National Curriculum links

- Identify, represent and estimate numbers using different representations, including the number line
- Recognise the place value of each digit in a 2-digit number (tens, ones)

# Use a place value chart

## Key learning

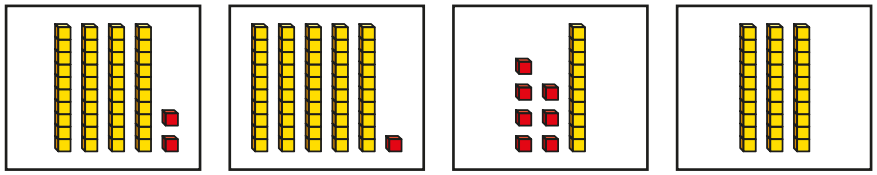
- What number is shown?



Draw the base 10 in the place value chart.

| Tens | Ones |
|---|---|
| | |

- Sam has made some numbers using base 10

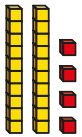


Draw the base 10 in a place value chart to show each number.

| Tens | Ones |
|---|---|
| | |

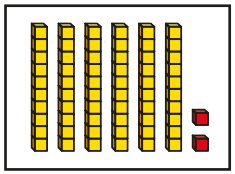
How did you know where to draw each piece?

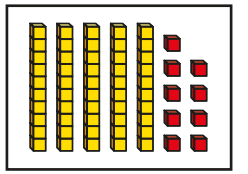
- How does the place value chart match the base 10?



| Tens | Ones |
|---|---|
| 2 | 4 |

- Write digits in a place value chart to show each number.





| Tens | Ones |
|---|---|
| | |

- Complete the sentences to describe the number.

| T | O |
|---|---|
| 7 | 2 |

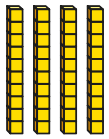
There are _____ tens and _____ ones.

The number is _____

# Use a place value chart

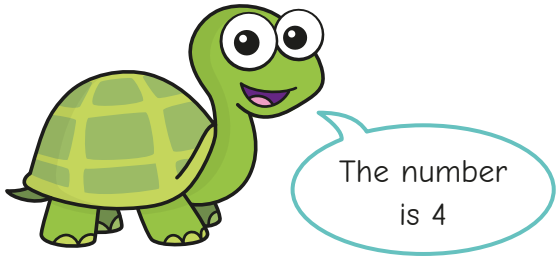
## Reasoning and problem solving

Tiny uses base 10 to make a number.



Tiny writes the number in a place value chart.

| Tens | Ones |
|---|---|
| | 4 |




Explain the mistake that Tiny has made.

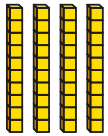
Tiny has written the 4 in the wrong column. There are 4 tens, not 4 ones.

There needs to be a zero as a placeholder in the ones column.

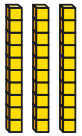
The number is 40

Ron and Max have each made a number in a place value chart.

**Ron**

| Tens | Ones |
|---|---|
|  |  |

**Max**

| Tens | Ones |
|---|---|
|  |  |

Is the statement true or false?

> Ron and Max have made the same number.

Talk about it with a partner.

True

They have both made 45

# Partition numbers to 100

## Notes and guidance

In this small step, children use their understanding from earlier in the block and begin to partition numbers to 100. The focus here is on standard partitioning; flexible partitioning will be looked at later in the block.

Counting objects to 100 with a focus on bundling tens, organising representations into place value charts and writing digits in place value charts are all essential prerequisite knowledge for this small step. Children understand that if, for example, 32 is made up of "3 whole tens" and "2 ones", then the 3 represents 30 and the 2 represents 2. Therefore, 32 can be partitioned into 3 tens and 2 ones or 30 and 2

Partitioning with representations should be looked at first, followed by abstract numbers. At this point, all partitioning will be recorded in part-whole models rather than as an addition statement.

## Things to look out for

- Children may partition a number into its digits rather than considering the value of each digit, for example stating that 32 is made up of 3 and 2
- When the parts of a part-whole model are "the wrong way round", children may interpret the whole incorrectly.

## Key questions

- How many tens are there?
- How many ones are there?
- What is the number?
- What is the whole?
- What are the parts?
- Does it matter which way round you draw the parts?

## Possible sentence stems

- There are _____ tens and _____ ones.
- The number is _____
- _____ is a part and _____ is a part.
  The whole is _____

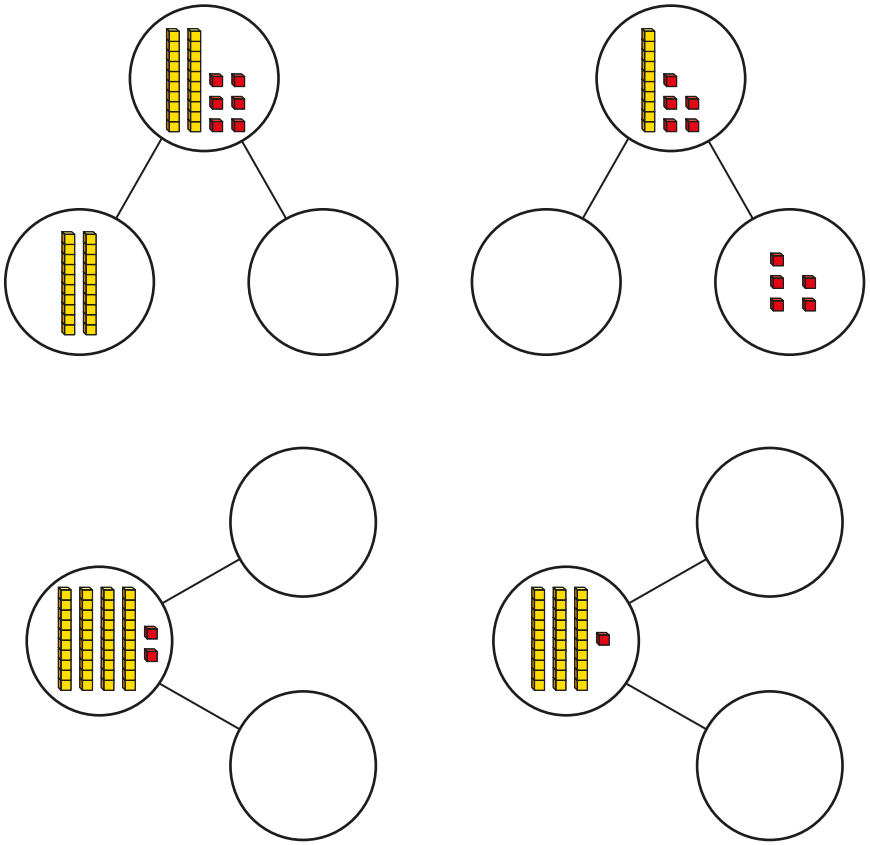
## National Curriculum links

- Identify, represent and estimate numbers using different representations, including the number line
- Recognise the place value of each digit in a 2-digit number (tens, ones)

# Partition numbers to 100

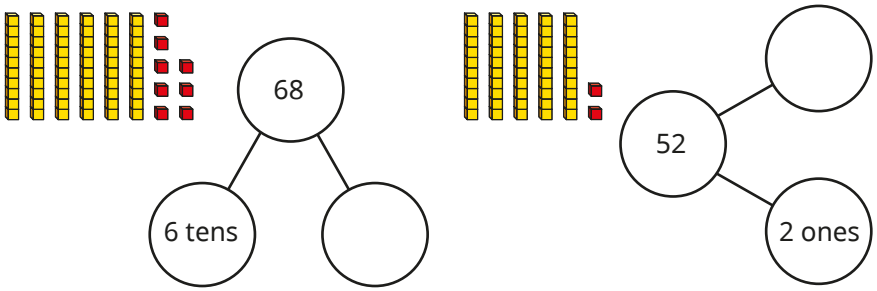
## Key learning

- Draw base 10 to complete the part-whole models.

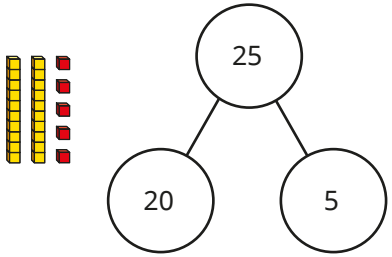


How many tens and ones are there in each number?

- Complete the part-whole models to match the base 10




- How does the part-whole model match the base 10?



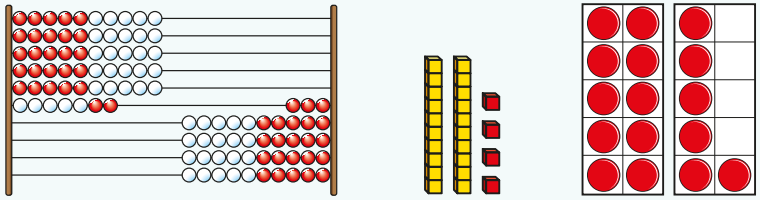

- Use a part-whole model to partition each number into tens and ones.

| | | | | |
|---|---|---|---|---|
| 42 | 63 | 78 | 95 | 18 |

# Partition numbers to 100

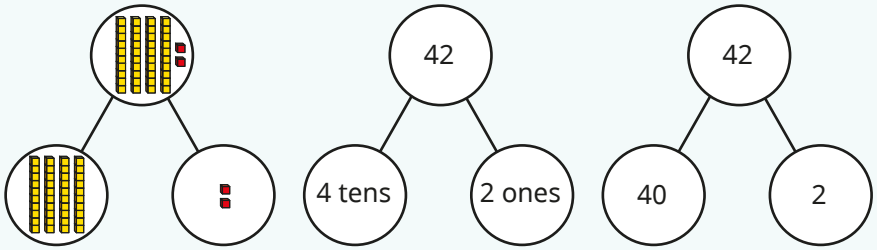
## Reasoning and problem solving

Ask children to use some equipment from this block to make numbers to 100

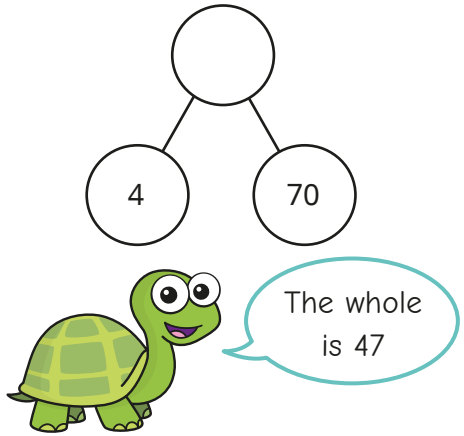


Ask children to partition their number into tens and ones using a part-whole model.

They should be able to complete the part-whole model in different ways. For example, here are some ways they could partition 42



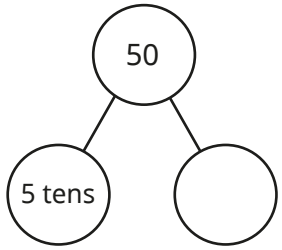

Answers will vary, depending on the numbers chosen.




What mistake has Tiny made?

Tiny has not noticed the order of the parts.

The whole is 74




What is the missing part?

How do you know?

0 ones

# Write numbers to 100 in words

## Notes and guidance

Earlier in the block, children wrote numbers to 20 in words. Since then, they have focused on numbers to 100, and while they may have seen numbers presented in words, they have not been expected to write them in words. In this small step, they do this for the first time.

The focus is first on the tens within 100 and understanding that, for example, 4 tens are forty. It is essential that children grasp this first, as this will form the basis for all other numbers. Once children have this understanding, they begin to write numbers with both tens and ones in words.

When working beyond 20, our number system follows a more logical pattern and children should be encouraged to spot this to support them in writing. If they know that 4 tens are forty, and that 3 ones are three, then using previous learning on partitioning they can write 43 as forty-three.

## Things to look out for

- Children may write each individual digit as a word rather than considering its place value. For example, they may write 27 as "two-seven" rather than "twenty-seven".
- If children are not secure with partitioning from the earlier step, they may struggle when writing numbers in words.

## Key questions

- How many tens are there?
- How do you write that in words?
- How many ones are there?
- How do you write that in words?
- How do you write _____ in words?
- How do you write _____ in numerals?

## Possible sentence stems

- _____ tens in words is _____ and _____ ones in words is _____
- There are _____ tens. In words, this is _____
  There are _____ ones. In words, this is _____
  _____ in words is _____

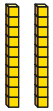
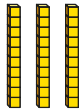
## National Curriculum links

- Read and write numbers to at least 100 in numerals and in words
- Recognise the place value of each digit in a 2-digit number (tens, ones)

# Write numbers to 100 in words

## Key learning

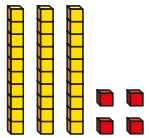
- Complete the table.

| Base 10 | Numerals | Words |
|---|---|---|
|  | | ten |
|  | 20 | |
|  | | |

What would come next?

Continue the pattern to 100

- Complete the sentences to describe the number.



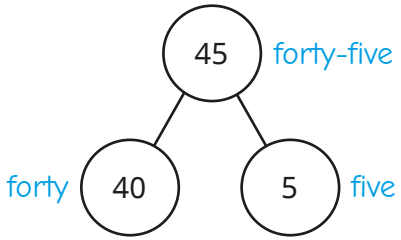
There are _____ tens. In words, this is _____

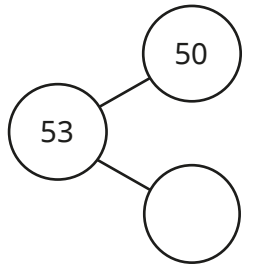
There are _____ ones. In words, this is _____

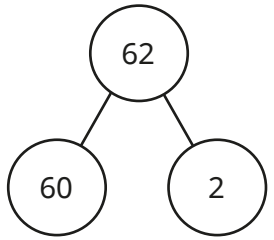
34 in words is _____

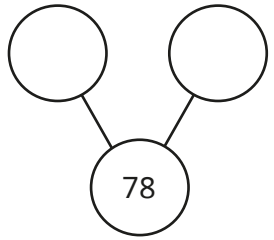
- Complete the part-whole models and write the numbers in words.

The first one has been done for you.




- Write each number in words.

| 52 | 38 | 26 | 81 | 77 |
|---|---|---|---|---|

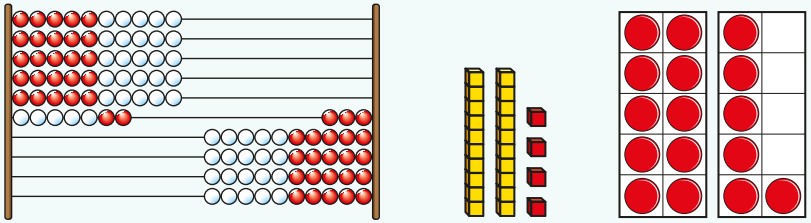
- Write each number in numerals.

| fifty-one | eighty-nine | seventy-three |
|---|---|---|
| sixty | ninety-four | |

# Write numbers to 100 in words

## Reasoning and problem solving

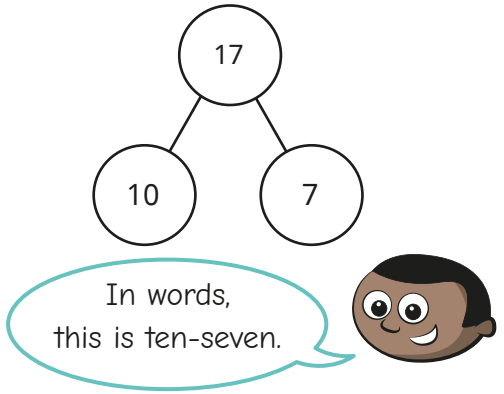
Consolidate learning from this block by making numbers in a variety of different ways.



Ask children to partition their numbers and then use the partitions to help them write the numbers in words.

Encourage children to work through a series of consecutive numbers, for example 72, 73, 74, and discuss with a partner any patterns that they notice.

Answers will vary, depending on the numbers chosen.



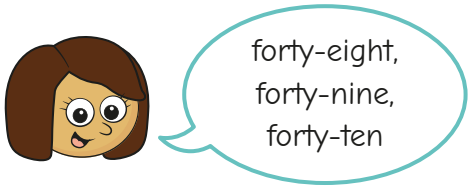

Do you agree with Mo?

Talk about it with a partner.

No

It is seventeen.

Kim is counting.




Explain the mistake that Kim has made.

Fifty comes after forty-nine, because she has reached the next ten.

# Flexibly partition numbers to 100

## Notes and guidance

So far, children have only partitioned numbers in a standard way. In this small step, they are introduced to the idea of flexible partitioning.

The use of straws or other familiar representations can support children with this. If children know that 27 is made up of 2 bundles of 10 straws and 7 more straws, then by physically unbundling 1 group of 10 straws they see that 27 could also be made up of 1 bundle of 10 straws and 17 more straws.

While there are numerous ways to partition numbers flexibly, the focus here is on "unbundling" 10s rather than more unusual partitions. This knowledge will prove essential later in the year when looking at calculations that cross a ten boundary and is also fundamental to later learning in higher key stages.

## Things to look out for

- Children may think you are not "allowed" to have more than 9 individual objects, such as 1 bundle of 10 straws and 17 more straws.
- If children partition a number flexibly into, for example, 2 tens and 15 ones for 35, they may also think that 35 can be written as 215

## Key questions

- How many tens are there?
- How many ones are there?
- How many straws are there in each bundle?
- If you unbundle one lot of 10, how many tens are there now? How many ones?
- How many ones are there in each ten?
- How else can you partition the number?

## Possible sentence stems

- There are _____ tens and _____ ones.
  The number is _____
- _____ can be partitioned into _____ and _____

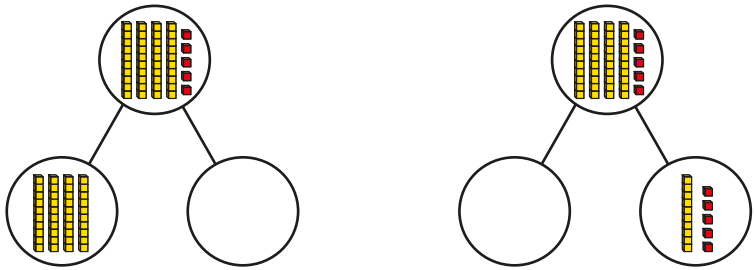
## National Curriculum links

- Identify, represent and estimate numbers using different representations, including the number line
- Recognise the place value of each digit in a 2-digit number (tens, ones)

# Flexibly partition numbers to 100

## Key learning

- Draw base 10 to complete the part-whole models.



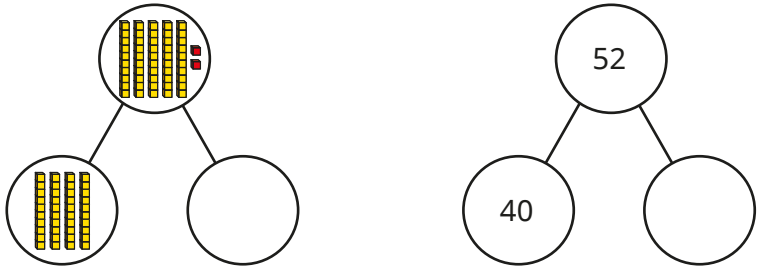
What is the same about the part-whole models?
What is different?

Complete the sentences to describe 45

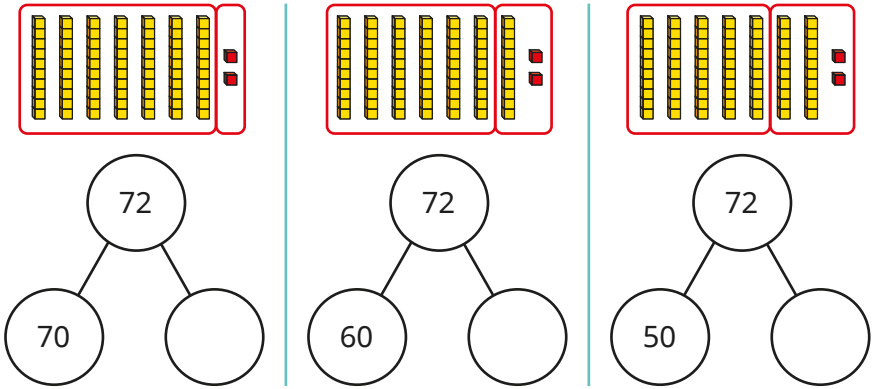
- 45 can be partitioned into 40 and _____
- 45 can also be partitioned into _____ and 15

Can you partition 45 in any other ways?

- Complete the part-whole models.




- Complete the part-whole models to match the base 10




- Use base 10 to help you complete the sentences.
  - 53 can be partitioned into 50 and _____
  - 53 can be partitioned into 40 and _____
  - 82 can be partitioned into 70 and _____
  - 38 can be partitioned into 18 and _____
  - 74 can be partitioned into _____ and 40

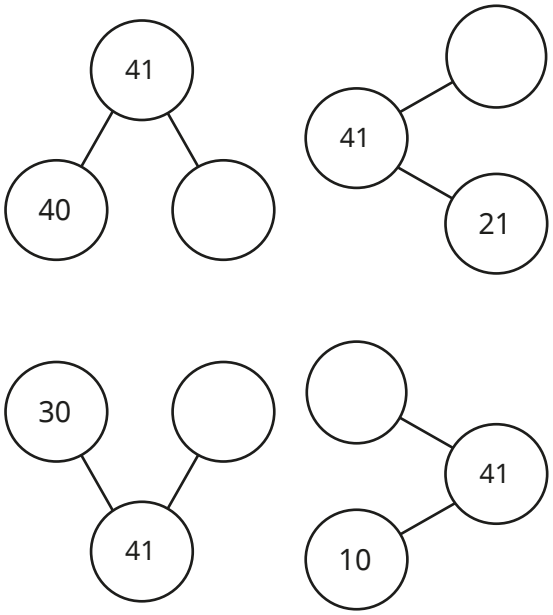
- Partition each number in three different ways.

| 35 | forty-nine | sixty-three | 82 |
|---|---|---|---|

# Flexibly partition numbers to 100

## Reasoning and problem solving

Complete the part-whole models to partition 41 in four different ways.

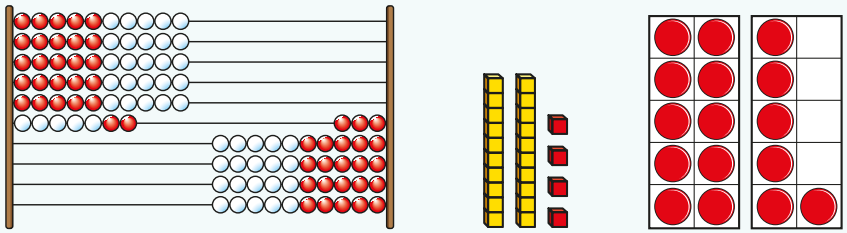



What patterns can you see?

1, 20

11, 31

Ask children to use different representations from this block to make a number.



Ask them to partition their number in a part-whole model.

Can they partition it in another way?

Get children to work in pairs to partition numbers in different ways and describe any patterns that they notice.

Children could explore what happens when they move ones rather than just moving tens, although this is not essential.

Answers will vary, depending on the numbers chosen.

# Write numbers to 100 in expanded form

## Notes and guidance

By this stage, children should be confident in partitioning numbers to 100 in a standard way, and also understand that numbers can be partitioned more flexibly. The purpose of this small step is to formalise this partitioning to further support children's understanding of the structure of numbers.

From earlier steps, children can explain that 32 is made up of 3 tens and 2 ones, or 30 and 2. The difference between that learning and the learning in this step is the way it is presented. By the end of this small step, children should be able to write this as 32 = 30 + 2 and say "32 is equal to 30 plus 2".

Children were introduced to the + and = symbols in Year 1, but may need reminding of them.

## Things to look out for

- Incorrect mathematical language can hinder understanding. For example, if children refer to the = symbol as "makes", then "32 makes 30 plus 2" makes less sense than "32 is equal to 30 plus 2".
- Children may only consider the digit in a place value column rather than its value, for example writing 45 = 4 + 5 rather than 40 + 5

## Key questions

- How many tens are there in _____?
- How many ones are there in _____?
- How do you write that as a number sentence?
- What number is equal to _____ + _____?
- How does the part-whole model link to the number sentence?
- How can you write the other partitions as a number sentence?

## Possible sentence stems

- There are _____ tens and _____ ones.
  The number is _____
- _____ is a part, _____ is a part and the whole is _____
- _____ is made up of _____ tens and _____ ones.
- _____ is equal to _____ plus _____

## National Curriculum links

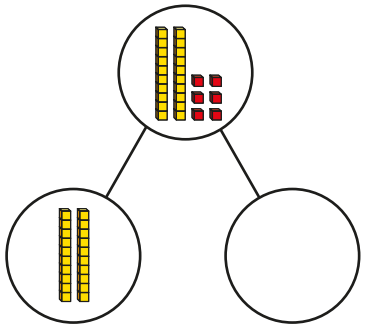
- Identify, represent and estimate numbers using different representations, including the number line
- Recognise the place value of each digit in a 2-digit number (tens, ones)

# Write numbers to 100 in expanded form

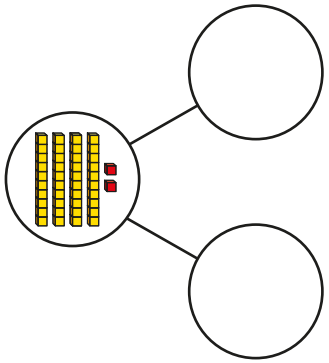
## Key learning

- Draw base 10 to complete the part-whole models.

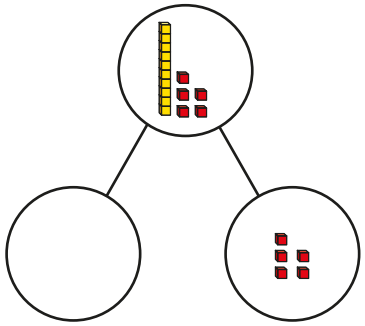
  Complete the number sentence to match each part-whole model.



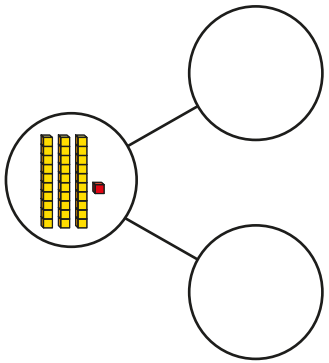
26 = 20 + _____



42 = _____ + _____



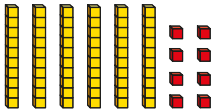
15 = _____ + 5



_____ + _____ = 31

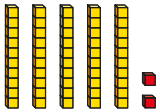
- Complete the number sentences to partition each number.

  You can use a part-whole model to help you.



68 = 6 tens + _____ ones

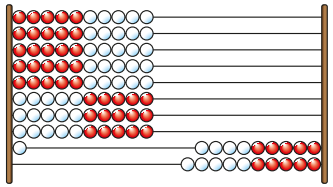
68 = 60 + _____

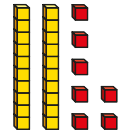


52 = _____ tens + _____ ones

52 = _____ + _____

- Complete the number sentences to describe each number.





_____ = _____ tens + _____ ones

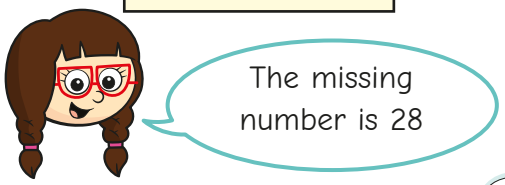
_____ = _____ + _____

- Complete the number sentences.

  - 42 = 40 + _____
  - _____ + 9 = 79
  - 30 + 6 = _____
  - 55 = _____ + 50

# Write numbers to 100 in expanded form

## Reasoning and problem solving

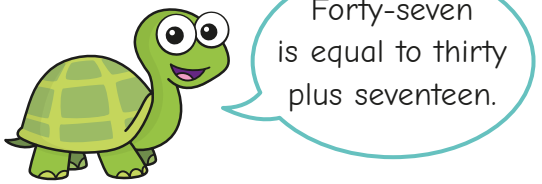



Explain the mistake that Jo has made.

What is the missing number?

Jo has mixed up the tens and ones.

82




Do you agree with Tiny?

Talk about it with a partner.

Yes

Complete the number sentences.

54 = 50 + _____

54 = 40 + _____

54 = _____ + 24

Continue the pattern.

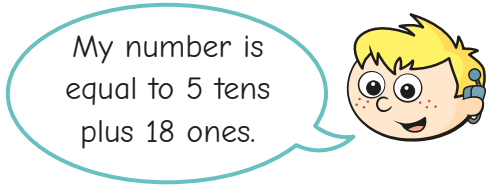
What do you notice?

4 14 30

54 = 20 + 34

54 = 10 + 44

Max is thinking of a number.




What is Max's number?

68

# 10s on the number line to 100

## Notes and guidance

Children were introduced to the number line to 100 in Year 1, and in this small step and the next they look at it in more detail.

The focus of this small step is the position of 10s on the number line. Children should be exposed to examples with different start and end point values, as well as the standard 0 to 100 number line.

Children use their knowledge of counting in multiples of 10 to label number lines. Building on this, they identify and find the position of given numbers on the number line.

While it is not always necessary to label every division when identifying or finding the position of a number, it can promote good habits, so encourage children to do this step as a method of checking their answers.

## Things to look out for

- Children may assume that all number lines start at 0 and end at 100, and therefore label the divisions on a short number line incorrectly.
- Children may think that the interval in the number line represents the number rather than the division at the end of the interval.

## Key questions

- What is the value at the start point of the number line?
- What is the value at the end point of the number line?
- How many intervals are there?
- What is the number line counting up in? How do you know?
- Where would _____ be on the number line? How do you know?
- What number is the arrow pointing to? How do you know?

## Possible sentence stems

- The start point is _____ and the end point is _____

  There are _____ intervals on the number line.

  Each interval is worth _____

  The number line is counting up in _____s.

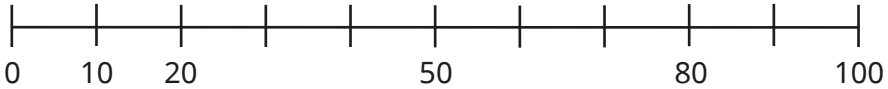
## National Curriculum links

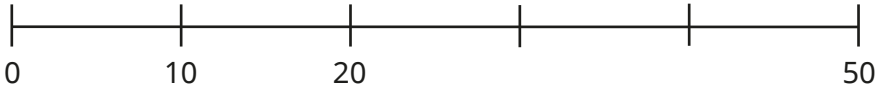
- Count in steps of 2, 3 and 5 from 0 and in 10s from any number, forward and backward
- Identify, represent and estimate numbers using different representations, including the number line

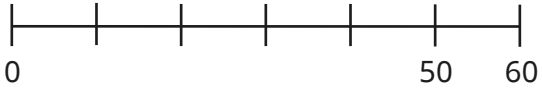
# 10s on the number line to 100

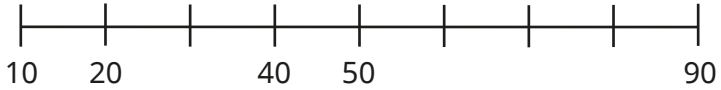
## Key learning

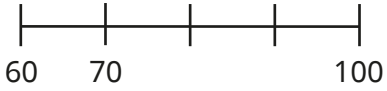
- Complete the number lines.



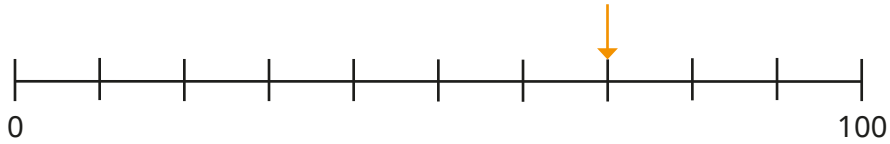



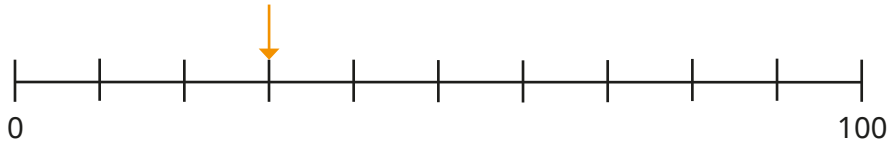



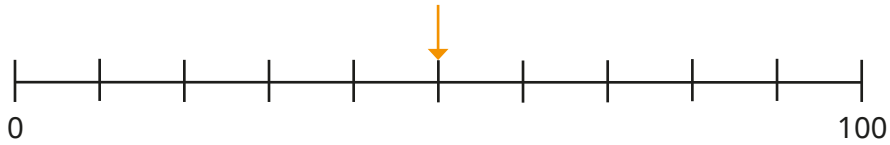




What is the same about the number lines? What is different?

- What numbers are the arrows pointing to?

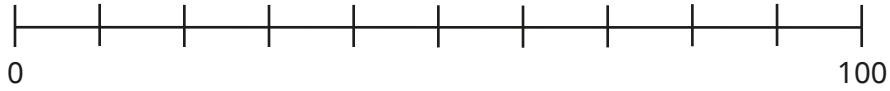



- Draw arrows to show where the numbers belong on the number line.

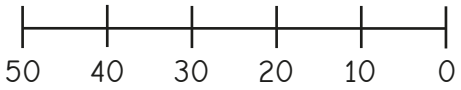
10 90 40 20

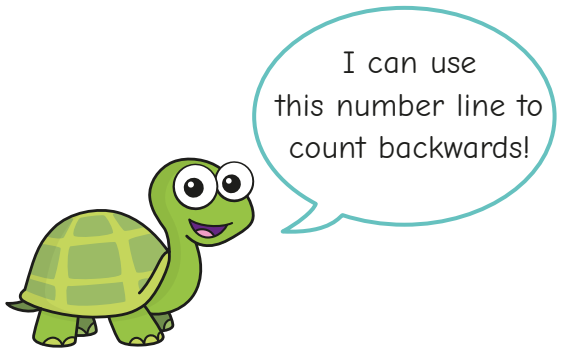


# 10s on the number line to 100

## Reasoning and problem solving

Tiny has drawn a number line from 0 to 50



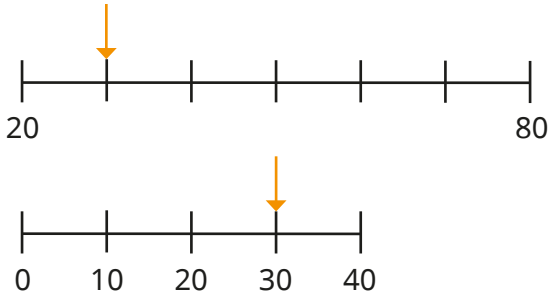

Explain the mistake that Tiny has made.

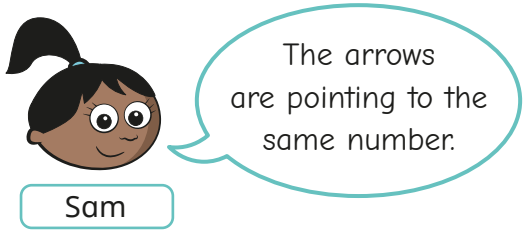
Draw a number line from 0 to 50

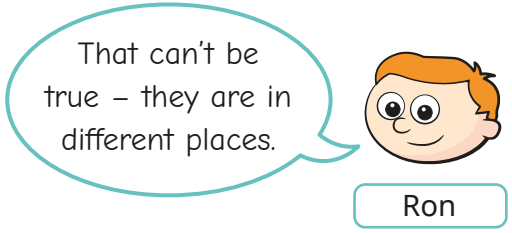
How can you use the number line to count backwards?

Number lines count up from left to right.

To count backwards, read from right to left.




Who is correct?

Talk about it with a partner.

Sam is correct.

Both arrows are pointing to 30

# 10s and 1s on the number line to 100

## Notes and guidance

In the previous step, children looked only at intervals on a number line that were multiples of 10. In this small step, they consider the numbers that lie between multiples of 10 as they look at 10s and 1s on a number line.

Children start by considering number lines with start and end points that are a multiple of 10, before exploring other number lines with more varied start and end points and a different number of intervals. All the number lines count up in 1s.

As in the previous small step, it is important that children can label a number line. Using this knowledge, they can identify and find the position of given numbers on the number line.

Encourage children to complete the labels on a number line as a method of checking answers, in order to promote good habits.

## Things to look out for

- Children may have finished the previous small step thinking that number lines only count up in 10s and hence label them incorrectly in this step.
- Children may think that the interval in the number line represents the number rather than the division at the end of the interval.

## Key questions

- What is the value at the start point of the number line?
- What is the value at the end point of the number line?
- How many intervals are there?
- What is the number line counting up in? How do you know?
- Where would _____ be on the number line? How do you know?
- What number is the arrow pointing to? How do you know?

## Possible sentence stems

- The start point is _____ and the end point is _____

  There are _____ intervals on the number line.

  Each interval is worth _____

  The number line is counting up in _____

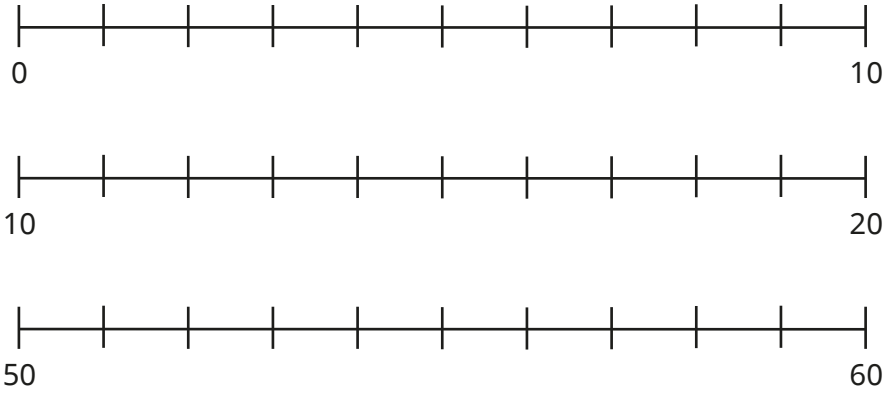
## National Curriculum links

- Count in steps of 2, 3 and 5 from 0 and in 10s from any number, forward and backward
- Identify, represent and estimate numbers using different representations, including the number line

# 10s and 1s on the number line to 100

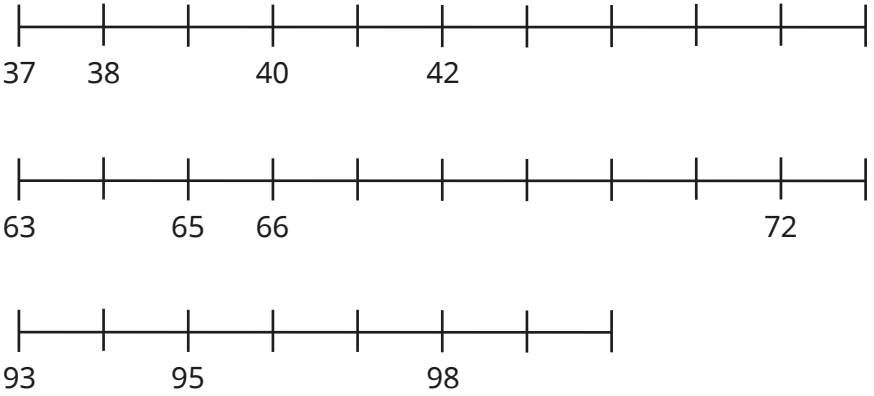
## Key learning

- Label the number lines.

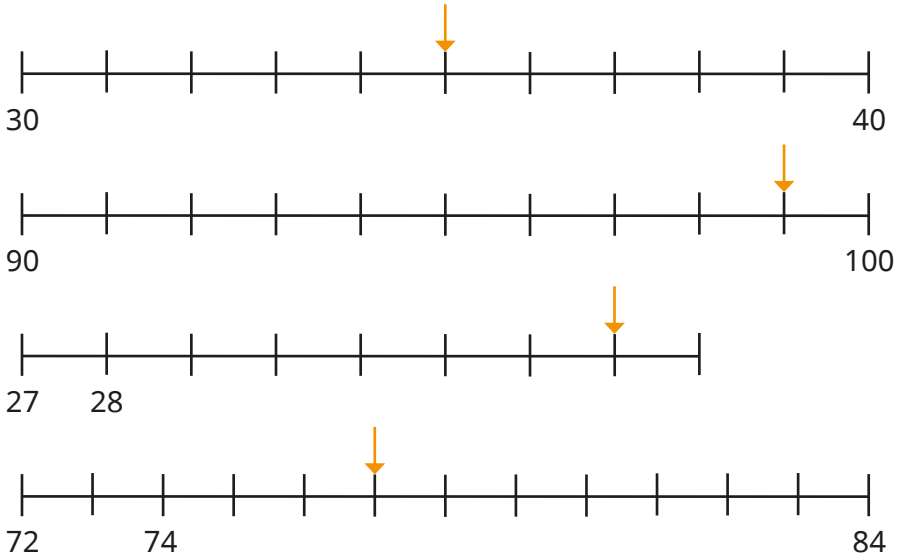



What is the same about the number lines? What is different?

- Complete the number lines.



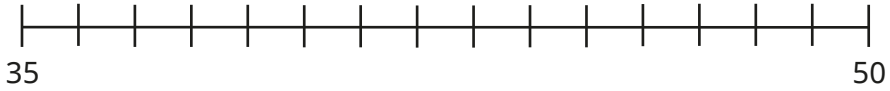

- What number is each arrow pointing to?




Give your answers in numerals and words.

- Draw arrows to show where the numbers belong on the number line.

| 36 | 41 | forty-eight | 40 |
|---|---|---|---|



# 10s and 1s on the number line to 100

## Reasoning and problem solving

Get children to stand in a line to represent a number line.

Give the first and last child a number.

What number is everyone else?

Give the first or last child a number.

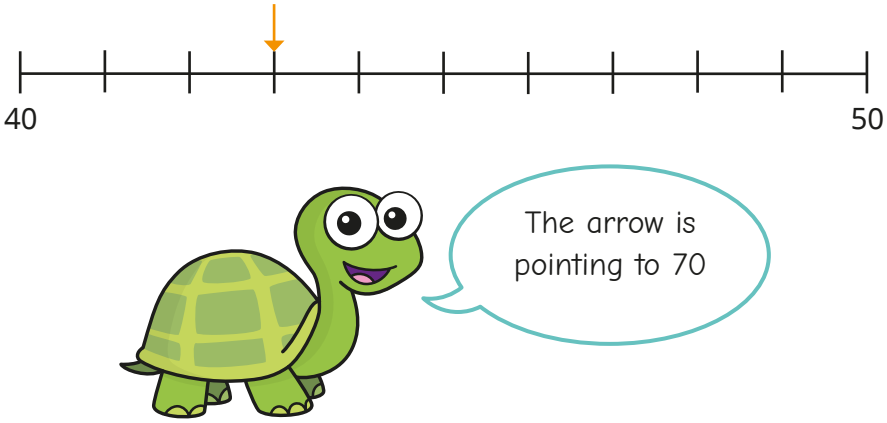
What number is everyone else?

If this person is this number, where is this number?

If this person is this number, can number _____ put their hand up?

Consolidate this and the previous step by including number lines in 10s as well as in 1s.

Answers will vary, depending on the number chosen.




What mistake has Tiny made?

Talk about it with a partner.

Tiny has not recognised that the number line is going up in 1s. Instead, Tiny has counted up in 10s.

The arrow is pointing to 43

# Estimate numbers on a number line

## Notes and guidance

In the previous two steps, children considered exact positions of numbers on the number line to 100, focusing first on multiples of 10 and then on the values in between. In this small step, children estimate the position of numbers on number lines.

Using the number lines counting in 10s that they worked with in Step 9, they position numbers made up of tens and ones. Encourage children to use their number sense to first decide which two intervals a number lies between, before going further with their thought process to consider its position relative to halfway by deciding which multiple of 10 a number is closer to.

Examples include both estimating the position and estimating the value of a given position.

## Things to look out for

- Children may think they have the wrong answer if it is slightly different from their partner's answer, but they need to recognise that since they can only estimate they could both be correct.
- Children may think that numbers can only lie on the divisions and not between them and hence label the positions of numbers incorrectly.

## Key questions

- What is the value at the start point? What is the value at the end point?
- Which two intervals is _____ between?
- What number is halfway between _____ and _____?
- Which multiple of 10 is _____ closer to?
- Why can you only estimate the position of _____ on the number line?

## Possible sentence stems

- The start point is _____ and the end point is _____

  There are _____ intervals on the number line.

  Each interval is worth _____

  The number line is counting up in _____
- _____ is closer to _____ than to _____

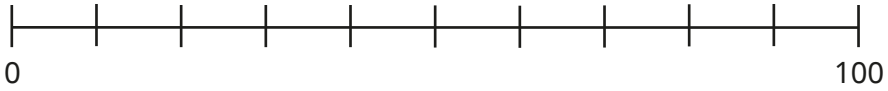
## National Curriculum links

- Count in steps of 2, 3 and 5 from 0 and in 10s from any number, forward and backward
- Identify, represent and estimate numbers using different representations, including the number line

# Estimate numbers on a number line

## Key learning

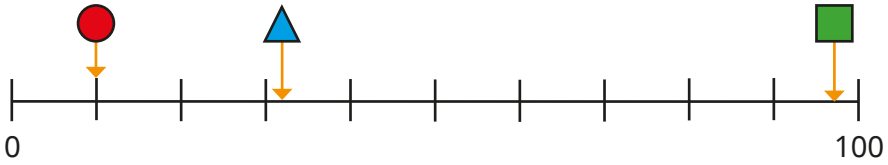
- Label the number line.




Estimate where each number belongs on the number line.

| 45 | 75 | 35 |
|---|---|---|

- The shapes show the positions of three numbers on the number line.

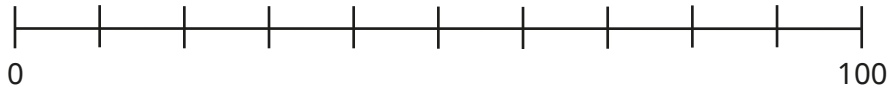



Match the shapes to the numbers.

| | | |
|---|---|---|
| ● | ▲ | ■ |
| 32 | 97 | 10 |

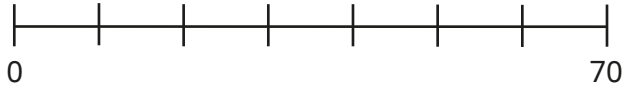
- Draw arrows to estimate where the numbers belong on the number line.

| 15 | 95 | 28 | 41 |
|---|---|---|---|

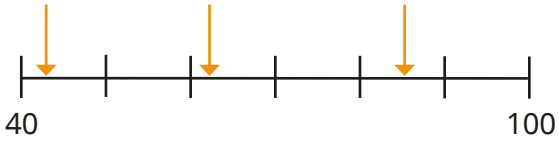



- Draw arrows to estimate where the numbers belong on the number line.

| 21 | thirty-three | seventeen | 68 |
|---|---|---|---|




- Estimate the numbers the arrows are pointing to.

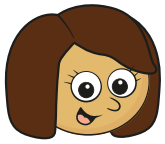


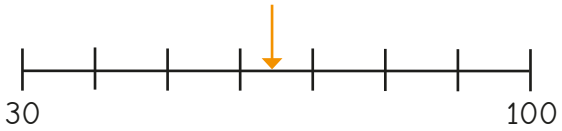

Compare answers with a partner.

# Estimate numbers on a number line

## Reasoning and problem solving

Kim draws an arrow on a number line to show a number.






What could Kim's number be?

What can Kim's number **not** be?

What numbers must Kim's number be between?

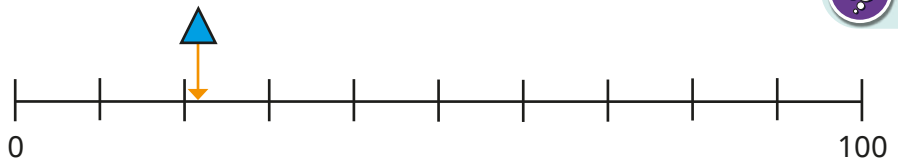
Compare answers with a partner.

Do you have exactly the same answers?

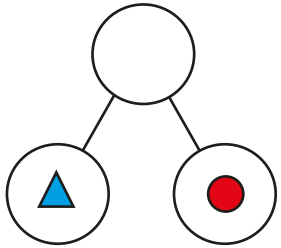
e.g. 64

less than 60 or greater than 70

between 60 and 70







Complete the part-whole model.

Give your answer in numerals and words.

Compare methods with a partner.

Answers will vary depending on the estimated value of the triangle.

e.g. 72, seventy-two

# Compare objects

## Notes and guidance

In this small step, children combine all their learning so far from this block as they begin to compare objects to 100

Children identify which quantity is greater, explaining their reasoning. The language of "more than" and "fewer than" will be used in the context of quantity.

When using objects as a representation of number, children should use the language of "greater than", "less than" and "equal to" alongside the inequality symbols to compare. This will be explored further when comparing numbers in the next small step.

## Things to look out for

- Children may only count the total number of objects rather than considering the value of each individual object.
- The use of the inequality symbols can often be a sticking point and some children will require a recap of these.
- If objects are spread out, children may think there are more than if the objects are grouped closely together. Ensure children are exposed to different examples.

## Key questions

- How can you arrange the objects to make them easy to compare?
- How did you count the objects?
- Do groups of 10 help you to count? Why?
- Do groups of 10 help you to compare? Why?
- Which shows more? How do you know?

## Possible sentence stems

- There are _____ objects in set A than in set B.
- Tom has _____ objects.

  Kim has _____ objects.

  Tom has _____ objects than Kim.

  Kim has _____ objects than Tom.

## National Curriculum links

- Recognise the place value of each digit in a 2-digit number (tens, ones)
- Compare and order numbers from 0 up to 100; use <, > and = signs

# Compare objects

## Key learning

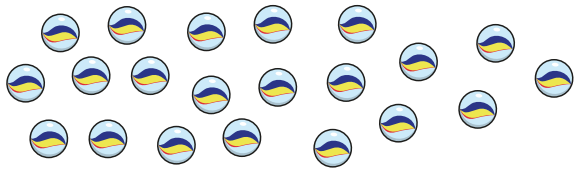
- A packet of sweets contains 10 sweets.

**Sam's sweets** **Ben's sweets**

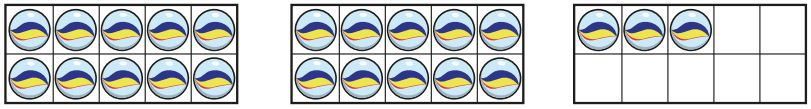

Who has more sweets?

- Ann and Mo are both counting marbles.

Ann arranges her marbles like this.



Mo arranges his marbles like this.



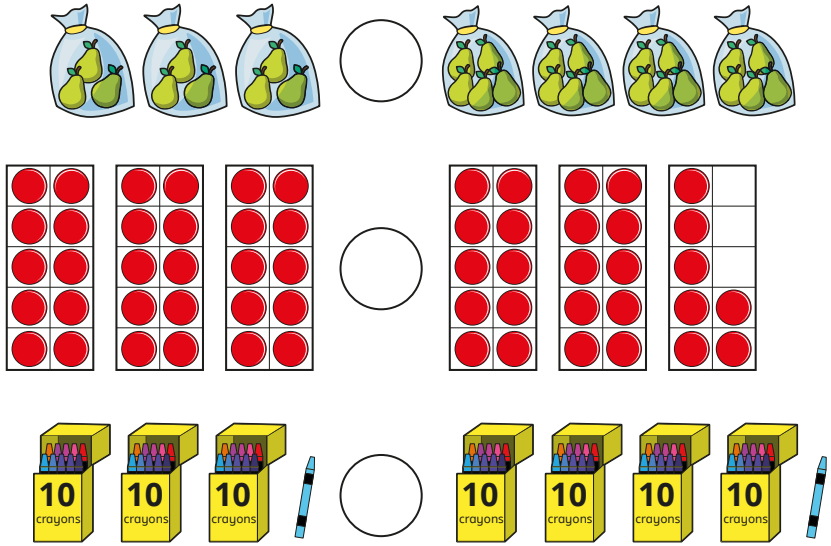
Who has fewer marbles?

Whose marbles are easier to count?

- Use cubes to show that the statements are true.

| | |
|---|---|
| Eleven is less than fifteen. | 2 tens is equal to 20 |
| 19 is greater than 9 | 8 < 10 |

- Write <, > or = to compare the numbers of objects.

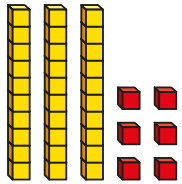


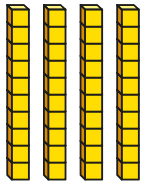
# Compare objects

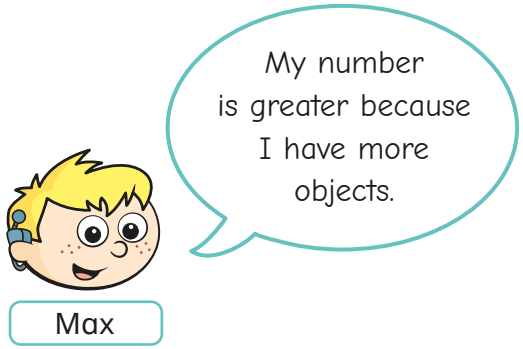
## Reasoning and problem solving

Max and Jo are comparing numbers.

**Max's number** **Jo's number**







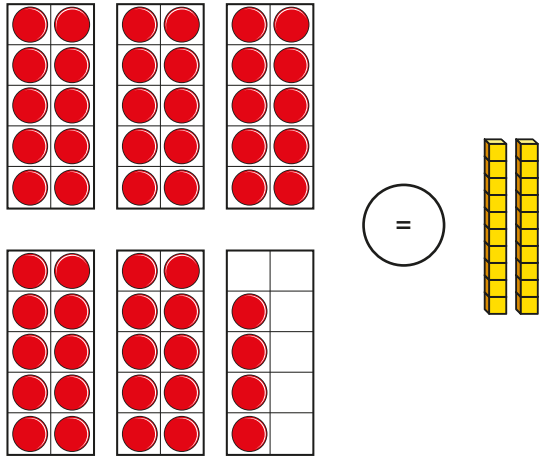

Is Max correct?

Explain your answer.

No

Sam is comparing two numbers.

Draw base 10 to make the statement correct.




How much did you add to make the numbers equal?

add 3 tens and 4 ones

34

# Compare numbers

## Notes and guidance

In the previous small step, children looked at comparing quantities using objects and compared objects where the objects were used as a representation of number.

In this small step, children compare numbers in a more abstract way. The language of "greater than", "less than" and "equal to" should be used alongside the inequality symbols throughout.

The use of a number line supports children's understanding. They understand that the further to the right on a number line a number is, the greater it is in value.

Concrete resources can continue to be used in this small step. For children who require more support, this can help them with comparing numbers: for children who are more confident, concrete resources can be used as a method of justifying their answers.

## Things to look out for

- Children may only compare the digit with the greatest value in each number.
- Children may only compare the tens or only compare the ones in a number.
- The use of the inequality symbols can often be a sticking point and some children will require a recap of these.

## Key questions

- Can you show your answers using base 10/counters/cubes?
- Can you show your answers by drawing a picture?
- Is there more than one answer?
- How does a number line help you to compare numbers?
- Do you need to work out the number sentences to decide which is greater/smaller?

## Possible sentence stems

- _____ is equal to _____ tens and _____ ones.
- _____ tens is _____ than _____ tens.
- _____ is greater than _____ because ...
- _____ is less than _____ because ...

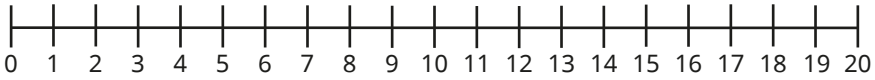
## National Curriculum links

- Recognise the place value of each digit in a 2-digit number (tens, ones)
- Compare and order numbers from 0 up to 100; use <, > and = signs

# Compare numbers

## Key learning

- Circle 11 and 17 on the number line.

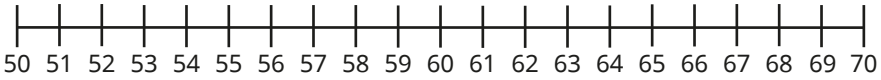



Choose a phrase to complete the sentence.

less than | greater than | equal to

11 is _____ 17

Circle 61 and 67 on the number line.




Choose a phrase to complete the sentence.

less than | greater than | equal to

61 is _____ 67

What is the same and what is different about comparing 11 and 17, and 61 and 67?

- Choose a phrase to complete each sentence.

less than | greater than | 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

- Write <, > or = to make the statements correct.

28 ◯ 30 30 + 23 ◯ 40 + 13

90 ◯ 70 + 28 20 + 14 ◯ 24

# Compare numbers

## Reasoning and problem solving

What is the missing number?

$13 < \square < 20$

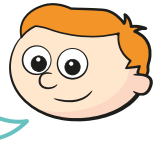
Is there more than one answer?

six possible numbers:

14, 15, 16, 17, 18, 19

---

When comparing numbers, the number with more ones is always the greater number.



Do you agree with Ron?

Give some examples to support your answer.

No

For example, 19 is less than 21

---

Is the statement true or false?

1 ten and 12 ones is greater than 2 tens.

How do you know?

True

---

Here are some digit cards.

| 4 | 7 | 8 | 9 |
|---|---|---|---|

Use the digit cards to make the statement correct.

__ 7 > 8 __ > __ __

How many answers can you find?

multiple answers
e.g. 97 > 87 > 84

# Order objects and numbers

## Notes and guidance

In this small step, children use their knowledge of comparing both objects and numbers from the previous two steps to order objects and numbers. The language of "most", "fewest", "least" and "greatest" will be used throughout, as sets of objects and numbers are ordered. Notice the difference in language: when comparing two numbers or objects, we refer to one being "more" or "greater", whereas when working in a set, the one with the highest value is the "most" or the "greatest".

Children should be encouraged to use concrete resources and other representations to support their thinking. Incorporating the earlier learning of number lines can also help children with ordering lists of numbers, as when positioned on a number line the values will naturally be in ascending order. The use of the inequality symbols continues throughout this small step.

## Things to look out for

- Children may use inequality symbols incorrectly, thinking that they can write, for example, $3 < 5 > 1$. Make children aware that inequality symbols cannot be used in this way and that the correct way to record this would be either $1 < 3 < 5$ or $5 > 3 > 1$. When using more than one symbol in a chain, it should be the same symbol.

## Key questions

- How does the number line help you order the numbers?
- How does base 10 show that your order is correct?
- How do you know which picture shows the smallest/greatest number?
- Did you look at the tens or ones to help you order?

## Possible sentence stems

- _____ has the most balloons because ...
- _____ is greater than _____ because ...
- _____ is less than _____ because ...
- The greatest number is _____ because ...
- The smallest number is _____ because ...

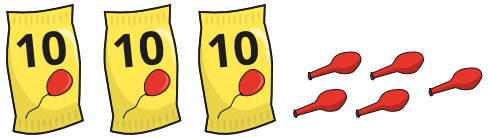
## National Curriculum links

- Recognise the place value of each digit in a 2-digit number (tens, ones)
- Compare and order numbers from 0 up to 100; use <, > and = signs

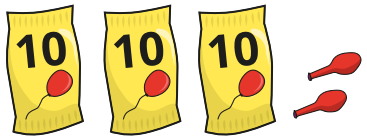
# Order objects and numbers

## Key learning

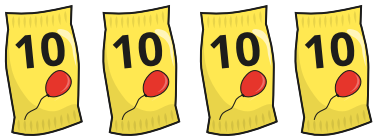
- Kim has 35 balloons.




Mo has 32 balloons.




Jo has 40 balloons.




Who has the most balloons?

Who has the fewest balloons?

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


Put the numbers 48, 43 and 50 in order.

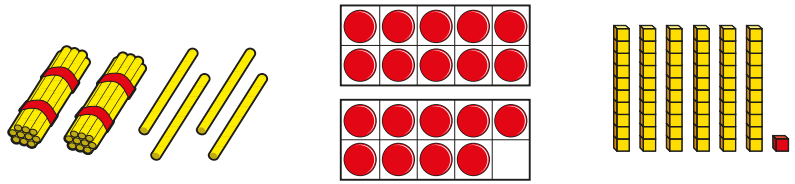
Start with the smallest.

- Use base 10 to make the numbers.

| | |
|---|---|
| 17, 12, 21 | 71, 29, 40 |
| 52, 32, 42 | sixty, sixteen, twenty-six |

Write each set of numbers in order. Start with the greatest number.

- The pictures show different numbers.



Which is the smallest number?

Which is the greatest number?

Complete the number sentence.

_____ < _____ < _____

- Which sets of numbers are ordered from smallest to greatest?

| | |
|---|---|
| 62, 55, 47 | 42, 49, 100 |
| 9, 38, 50 | thirty-six, seventeen, zero |

# Order objects and numbers

## Reasoning and problem solving

Ask each child to write a 2-digit number on a whiteboard.

Ask the children as a class to order their numbers from:

- smallest to greatest
- greatest to smallest.

Prompt children to talk about what happens if they have written the same number.

Answers will vary, depending on the numbers chosen.

42, 40, 56, 71, 99

Write the numbers in order, from smallest to greatest.

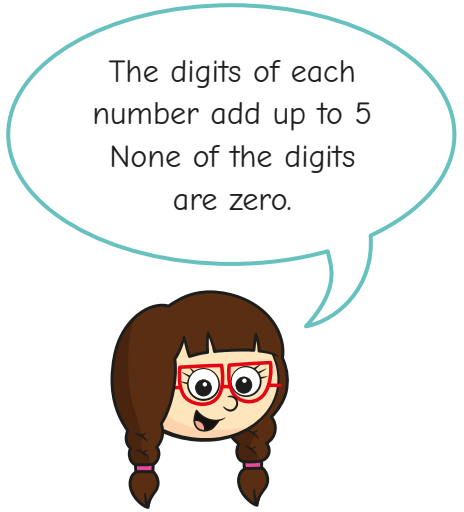
Write the numbers in order, from greatest to smallest.

What do you notice?

40, 42, 56, 71, 99

99, 71, 56, 42, 40

Jo writes a list of four 2-digit numbers.




What are Jo's numbers?

Write the numbers in order, from smallest to greatest.

How did you do it?

14, 23, 32, 41

# Count in 2s, 5s and 10s

## Notes and guidance

In Year 1, children covered counting in 2s, 5s and 10s. This small step provides an opportunity to revisit those skills in preparation for later in the year when working on topics such as money.

It is essential that children can count both forwards and backwards in 2s, 5s and 10s. When counting in 2s and 5s, the starting number should be a multiple of 2 or 5 respectively. Children should, however, be able to count both forwards and backwards in 10s from any number.

The use of concrete resources such as counters and Rekenreks can support children's understanding of counting in multiples of 2, 5 and 10. Encourage them to spot patterns within numbers when counting, for example recognising that when counting in 10s, the ones digit does not change.

## Things to look out for

- When counting in 10s starting from a number such as 13, children may jump to the next multiple of 10 and then keep counting in 10s.
- Children may confuse the multiples they are counting in, for example starting to count in 5s, then changing to count in 10s once they reach a multiple of 10

## Key questions

- How many do you need to count on each time? How do you know?
- When counting forwards, do the numbers get greater or smaller?
- When counting backwards, do the numbers get greater or smaller?
- Do you notice any patterns?
- What happens to the ones digit when counting in 10s?
- What do you notice about the numbers when you are counting in 5s?
- What do you notice about the numbers when you are counting in 2s?

## Possible sentence stems

- When counting forwards/backwards in 2s/5s/10s, the number after _____ is _____

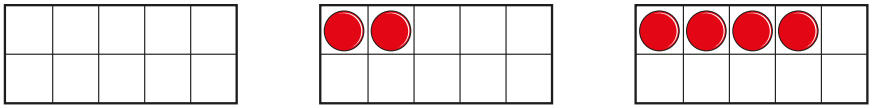
## National Curriculum links

- Count in steps of 2, 3 and 5 from 0, and in 10s from any number, forward and backward

# Count in 2s, 5s and 10s

## Key learning

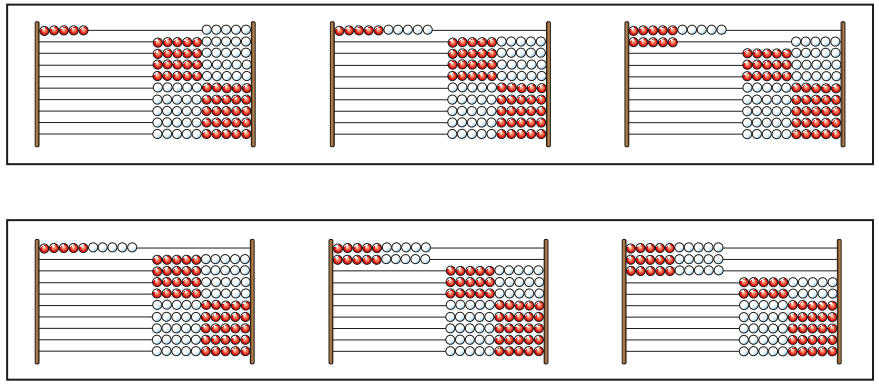
- What numbers are shown?



Make the next two numbers in the pattern.

What numbers have you made?

- What numbers are shown?



Make the next two numbers in each pattern.

What numbers have you made?

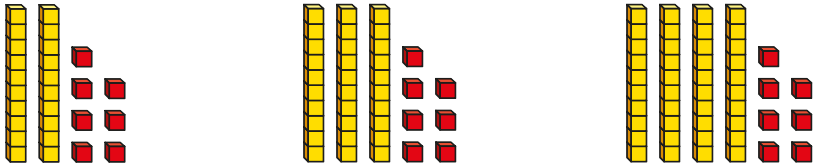
- Count backwards in 5s from 40 to zero.

- Complete the number tracks.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 10 | 15 | 20 | | | | | | | |
| 90 | 80 | 70 | | | | | | | |
| 12 | | 16 | 18 | | | | | | |

- Circle the number that does not fit the pattern.
  - 2, 4, 6, 8, 9, 10, 12 ...
  - 35, 30, 25, 20, 12, 10 ...
  - 0, 5, 10, 20, 30, 40 ...
  - 28, 26, 24, 22, 20, 10 ...

- What numbers are shown?



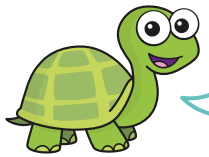
Make the next two numbers in the pattern.

What numbers have you made?

# Count in 2s, 5s and 10s

## Reasoning and problem solving

Tiny is counting in 5s.



When counting forwards in 5s from zero, all the numbers end in either zero or 5

Is Tiny correct?

Explain your answer.

Yes

Are the statements always true, sometimes true or never true?

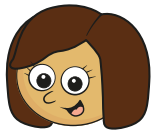
| | |
|---|---|
| When counting in 2s from zero, the numbers you say are even. | always |
| When counting in 5s from zero, the numbers you say are even. | sometimes |
| When counting in 10s from zero, the numbers you say are even. | always |

Mo and Kim are counting backwards from 100

I am going to count in 2s.

Mo

I am going to count in 5s.



Kim

What numbers will they both say?

What do you notice?

100, 90, 80, 70, 60, 50, 40, 30, 20, 10, 0

All the numbers are multiples of 10

# Count in 3s

## Notes and guidance

In this small step, children count in 3s for the first time. They use concrete resources to physically make each number and begin to spot patterns when counting in 3s.

Children explore problems in the abstract by drawing jumps on number lines, completing number tracks or using a hundred square to support them in counting and spotting patterns.

Some children may need support when crossing a 10 boundary while counting in 3s and the use of the techniques outlined above can support with this. By the end of the small step, children should be able to count both forwards and backwards from any given multiple of 3 and recognise mistakes in any given number sequence.

## Things to look out for

- When counting on their fingers, children may count the number they are starting on, meaning that they are only counting up in 2s.
- When counting backwards, children may stop at 3 and not go as far as zero.
- Children may not cross the 10 boundary and instead use 3 ones as the starting point each time.

## Key questions

- How many do you need to count on each time? How do you know?
- When counting forwards, do the numbers get greater or smaller?
- When counting backwards, do the numbers get greater or smaller?
- Do you notice any patterns?
- What do you notice about the numbers when you are counting in 3s?
- What is different about counting in 2s and counting in 3s?
- How many jumps do you need to draw on the number line each time? How do you know?

## Possible sentence stems

- When counting forwards in 3s, the number after _____ is _____
- When counting backwards in 3s, the number after _____ is _____

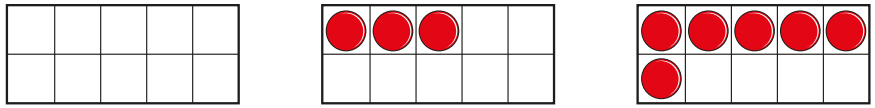
## National Curriculum links

- Count in steps of 2, 3 and 5 from 0, and in 10s from any number, forward and backward

# Count in 3s

## Key learning

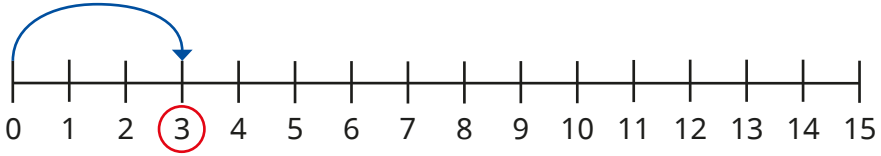
- What numbers are shown?



Make the next two numbers in the pattern.

What numbers have you made?

- Continue the jumps on the number line to count forwards in 3s.

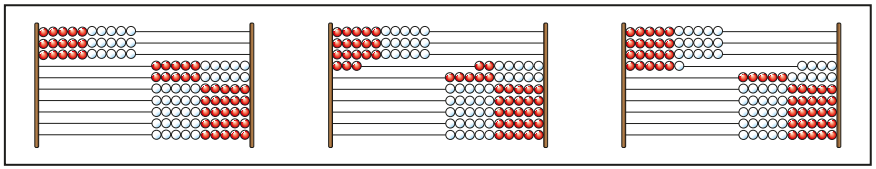


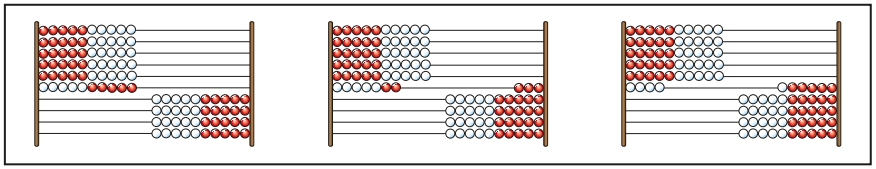

What number will you say after 15?

- Continue the jumps on the number line to count backwards in 3s.


What number will you say after 15?

- What numbers are shown?





Make the next two numbers in each pattern.

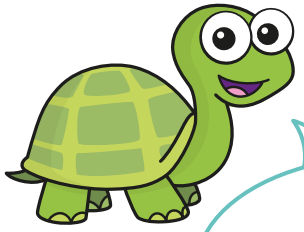
What numbers have you made?

- Complete the number tracks.

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 3 | 6 | | | | | | | |
| 30 | 27 | 24 | | | | | | | |
| 15 | | 21 | 24 | | | | | | |

# Count in 3s

## Reasoning and problem solving



If I start at zero and count in 3s, I will say the number 14

Is Tiny correct?

Explain your answer.

No

Ben has 15 stickers.

He collects 3 more stickers each day.

How many stickers will he have after 6 days?

33

Mo is counting in 2s and Kim is counting in 3s.

| | | | | |
|---|---|---|---|---|
| Mo | 2 | 4 | 6 | 8 |
| Kim | 3 | 6 | 9 | 12 |
| Total | | | | |

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

What pattern do they make?

Sam and Ron count in 5s and add their numbers together as they count.

What new pattern do they make?

They count in 5s.

They count in 10s.